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CALIFORNIA CULTIVATOR

Rural Californian combined with California Cultivator

An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES | January 7, 1915 | SAN FRANCISCO

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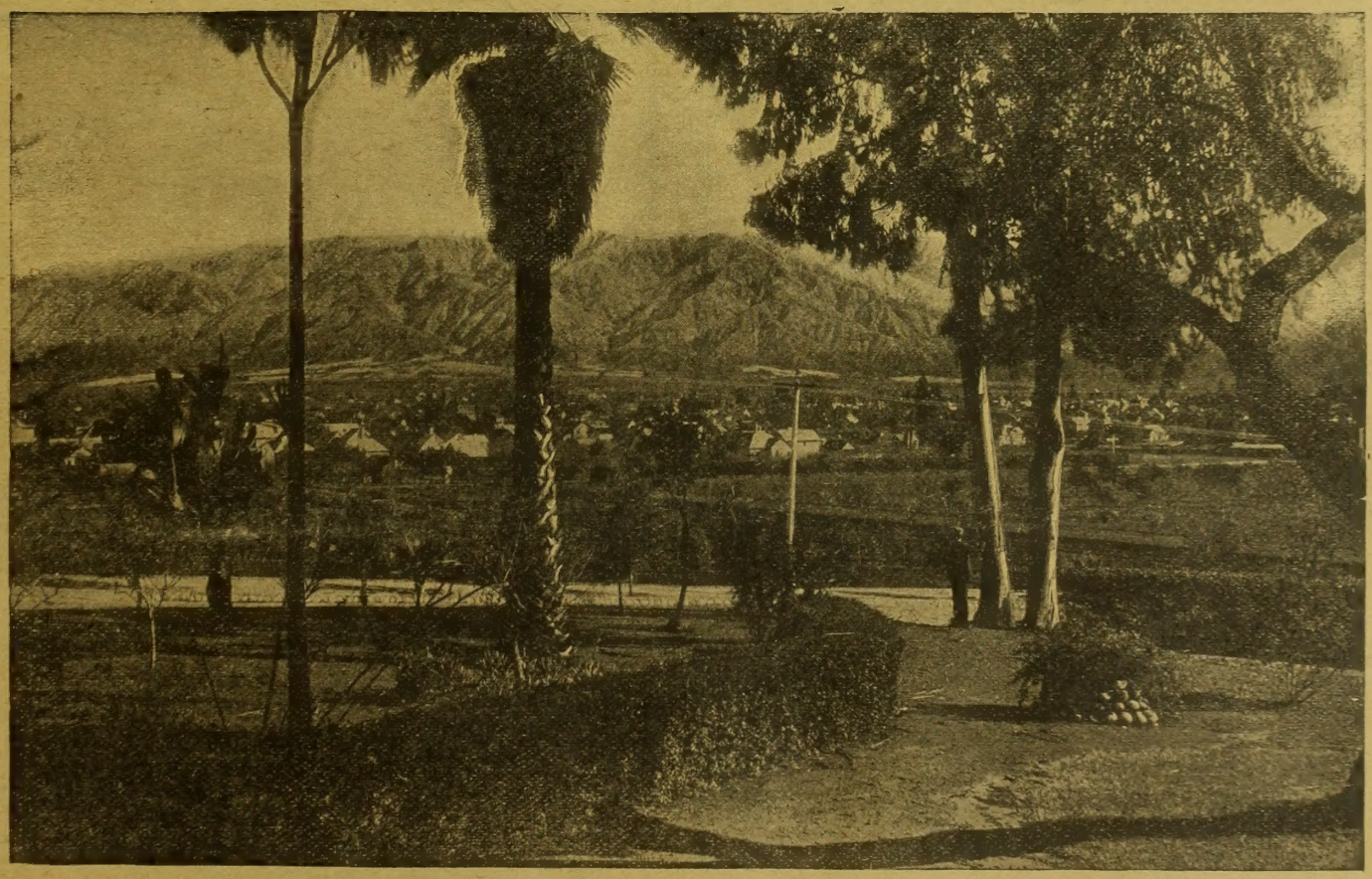

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Scenic Point, SIERRA MADRE, CAL.

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Get two of your neighbors who are not now receiving the California Cultivator to subscribe for it through you. Send us the $2.00 and we will mail you the Cultivator Poultry Book—Free.

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California Publishing Company, Inc.

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J. H. Hale

J. H. HALE — The Coming Peach for California Canning

Large Size — Round Shape — Rich, Yellow Flesh — Holds Shape and Doesn't "Rag Out"

To growers who realize that the largest profits lie in the highest quality fruit, the J. H. Hale offers a golden opportunity. It is a peach exceptional in size, and this means a peach that can be most economically handled both by the picker and the canner. It cans without stringiness, doesn't "rag out" and gives a clear, brilliant syrup. Its firm, solid flesh holds shape in the can. The color is a deep golden yellow, most attractive to the eye and the flavor is unsurpassed. Mr. Hale's nation-wide reputation gives you an added advantage. Think what a peach canned under his label means.

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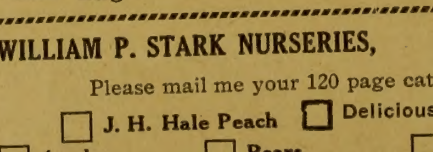

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California Cultivator

Rural Californian combined with California Cultivator

Vol. XLIV No. I | LOS ANGELES: THURSDAY, JANUARY 7, 1915 | One Dollar Yearly

Thermometer Shelter for Orchard

Mr. J. W. Garthwaite Advances Ideas Which May Not be Accepted by All Citrus Growers. He Quotes Good Authority in Support of His Position. If Mr. Garthwaite's Contention is Correct Much Fuel May be Saved to Orchardists Now Trusting to Exposed Thermometers

BEFORE discussing the subject of the construction of a thermometer shelter for orchard use it may be well to consider the advisability or otherwise of using a shelter at all in frost protection work.

In general this matter of frost protection in the citrus districts is so new that many points in connection with it have not as yet received the thought that they will receive in years to come. One great difficulty in the way of work along this line is the time required to carry out any satisfactory experiments.

The usual practice in thermometer exposure has been, and still is, to hang the instruments in the open without shelter or protection of any sort, and at first glance this seems the only rational method.

Last winter the writer had a number of instruments exposed in this way, one of them being beside the "standard shelter" of the local station of the weather bureau. This thermometer always showed a night temperature of from one to several degrees lower than that in the shelter except when there was a heavy wind, when the readings were usually identical.

Little thought was given to this variation, it being considered merely natural that a sheltered thermometer would read high, until one night the unsheltered instrument dropped to 26 degrees, while the temperature in the shelter was little under 32 degrees. To be sure, there was some frost, but tomato plants within ten feet of the instruments were untouched by the cold.

We had been lighting our oil pots at 28 degrees to 30 degrees at some expense for fuel and labor, yet here was proof that a temperature of 26 degrees had not injured a much more sensitive plant than the orange or lemon tree.

The weather bureau's circular of instructions to cooperative observers was consulted and the statement found that "It will not do . . . to place the thermometer simply in the open air . . . it could not be depended upon to indicate the true air temperature either day or night."

Reference was then made to a text book on meteorology. Stripped of technical terms the views there expressed on the subject are that at night the reading of an unsheltered thermometer is lower than the true air temperature by from one degree to seven degrees. (See note.) The experience of the writer has been that the greatest difference occurs on still, cold nights; that is on nights when orchard heating would be most likely to be indulged in and might, therefore, lead to a considerable waste of fuel. On such a night, were it extremely cold, the instrument in the shelter would read somewhat high, but on any night that the citrus grower is called upon to consider this difference it is not of practical importance. The reason for the greater difference on still nights is that then the unsheltered glass bulb is cooled very much more rapidly by radiation than on a windy night, while such undue radiation does not take place in the shelter. However the suggestion was made that

THERMOMETER SHELTER

Showing Method of Making Shelter. The Shelf with Projection Is for Locating Pan with Water to Determine Freezing Point of Air.

perhaps we were approaching the question from the wrong side and that the reason for the similarity of readings on windy nights was that then cold air was driven into the shelter. To test this point a "sling thermometer" was brought into play. This, for the present purpose, is a thermometer mounted in such a way that it can be swung or whirled freely in the air. Thus a large quantity of air is brought into contact with the bulb and the amounts of heat lost and received by the thermometer are nearly equalized and the exchange of heat with the air is freely accomplished. (See note.) It was found that this instrument when whirled in the open gave, in any condition of weather, a reading corresponding to that of the instruments in the "standard shelter."

Another point to be considered, although unimportant if sheltering were otherwise considered inadvisable, is the protection offered the instruments from the elements. If spirit thermometers are used, and the only reliable "minimum registering" instruments are of this type, it will be found that the sun shining on the tube and rain or dew collecting on the bulb will cause the spirit to separate, making all readings faulty until shaken down. Another fault to which nearly all thermometers are subject is the erasure of the markings when they are wet. Both of these troubles are to a large extent obviated by the use of a shelter.

After consideration of these points and thorough discussion with growers and meteorologists the writer and several neighbors decided to shelter all their thermometers.

Then arose the question as to how this could best be done. The weather bureau shelter (see note) is a ponderous affair with double roof and closely lowered sides set five feet in the air on heavy uprights, and the construction of a number of these would have entailed too heavy an expense. The only need in this case was for a shelter that would prevent undue cooling of the bulb at night, would protect the instruments from the sun and rain and would permit perfect circulation of air. These qualities, combined with simplicity and cheapness of construction and portability, were secured in the stands shown in the cut. The boards of which the roof is made are ⅝ inches thick by 3¾ inches wide. They overlap each other enough and are placed at such an angle as to exclude direct sunlight and rain while they are separated by an inch in the clear to allow perfect ventilation. The floor is of the same material and as its purpose is to intercept radiation from the earth it should be wide enough to reach from edge to edge of the roof. The shelter is exposed with the long side of the roof to the southward while to facilitate reading the lower section of the other side which, since it faces away from the sun, is made shorter, is hinged. The extension of the floor was left to receive a pan of water if it was thought desirable to note the freezing point. The stand is of a height to carry the instruments about three feet above ground.

It has not been thought necessary to give exact measurements as thermometers are of different sizes and are mounted in various ways. If the main objects to be attained are kept in mind; namely, shelter from sun, rain and radiation; simplicity and cheapness of construction; and portability; a similar and equally effective shelter should be easy to build from this description and the appended photograph.

Note

The following are verbatim excerpts from paragraphs 64, 65 and 66 of "Meteorology," a text-book on the weather, the causes of its changes, and weather forecasting for the student and general reader. By Willis Isbister Milham, Ph. D., Field memorial professor of astronomy in Williams College:

"64. The Real Air Temperature—It is not easy to determine the temperature of a gas, because the thermometer does not indicate the temperature of the surrounding medium, but the temperature of its own bulb. If a thermometer is surrounded by an opaque fluid or solid, it takes up, by conduction, the temperature of the surrounding medium, and thus indicates the temperature of that medium. If the the bulb of a thermometer is exposed in a gas, however, its temperature is determined both by the conduction of heat to or from the surrounding medium and the difference between the radiant energy absorbed and emitted by the thermometer. A thermometer exposed in the open air gives neither during the day nor at night the real air temperature, even if it as an accurate, standard instrument. During the day it will indicate a temperature anywhere from 20 to 60 degrees above the real air temperature, because the excess of the insolation received over the radiant energy emitted is large. During the night the thermometer may indicate a temperature from one to seven degrees below the real air temperature, because it is radiating more heat to the sky and earth than it is receiving. A close approximation to the real air temperature can be determined in summer by exposing the thermometer in the shade of a small tree, and in winter by placing it on the inside of a north piazza post. The indications of the instrument in these positions will give approximately the real air temperature, although they may differ in certain cases by as much as three or four degrees."

In meteorological work the real air temperature is determined in one of three ways; namely, by means of a thermometer shelter, sling thermometer, or ventilated thermometer.

"65. Thermometer Shelter — The thermometer shelter as used by the United States weather bureau consists of a cubical box about three feet on a side, with a double sloping roof, closed bottom, and latticed sides. The purpose of a double roof is to shield the thermometers from the insolation of the sun. The outer portion of the roof absorbs the insolation, and the circulation of air between the two portions of the roof prevents the lower layer from becoming heated. The tight bottom ex-

(Continued on Page 23.)

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More than 30 years of experience are back of every tree we sell. This means a great deal to every planter, for the success of your orchard depends upon the quality of trees you set out. Our experience and large facilities enable us to grow the best trees and to keep abreast of the times.

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Free Advisory Service

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Citrus and Tropical Fruits

BUD SPORTS IN AGRICULTURE

By C. S. Pomeroy Before Forty-Fifth State Fruit Grower's Convention at Los Angeles

BUD sports, bud mutations or bud varieties are terms which are applied to the variations found in plants that are propagated vegetatively. These variations may consist of differences in color or character of the bloom, of changes in shape, size, color, ripening period, quantity or quality of fruits, or variegated, curly or cut-leaf forms, of weeping or upright habit of growth, color of branches, the elimination or addition of thorns, increased or decreased vigor of growth, or of modification of any of the other numerous characters of plant growth. The sport may appear as a variation affecting the entire plant, or a large or small part of it.

One of the best known examples of a bud sport is the nectarine, which is a smooth or fuzzless skinned peach. This originated as a single branch in a peach tree, and duplicates of this sport are continually being found in various parts of the country. Similarly, peach sports are frequently seen in nectarine trees.

All plant growers recognize seed variations and realize that no two seedlings are exactly alike. Just as truly as every seedling may be regarded as a seed variety, so is every branch a bud variety. Let me repeat what has been said regarding this subject by Dr. L. H. Bailey, one of the foremost horticultural authorities of the present day.

"I am now ready to say that I believe bud variation to be one of the most significant and important phenomena of vegetable life, and that it is due to the same causes, operating in essentially the same way, which underlie all variation in the plant world. The chief trouble in the consideration of this subject has been that most persons have observed and recorded only the most marked or striking variations, or those which appear somewhat suddenly (although suddenness of appearance usually means that the observer had not noticed it before) and that they had, therefore, thought bud variation to be rare and exceptional. The truth is that every branch or phyton is a bud variety, differing in greater or lesser degree from all other phytons on the same plant."

Any one who will give a few moments' careful thought to this problem will readily realize that there can be no doubt but that bud sports are of much more frequent occurrence than is commonly supposed. After a new form is once established the only means of determining whether it was of seed origin or a bud mutation is by reference to the records of its history, and in most cases there is no authentic data of this sort available. From the earliest period at which any interest has been shown in plant varieties, it has been customary for agriculturists or horticulturists to explain every new variety which has appeared as being of seedling origin. The well-known variations in any group of seedlings of the cultivated fruits, and of many other perennial plants, have been kept in mind and have been thought to form a sufficient basis to acount for all new forms which have occurred in the plant kingdom. Even today, when a new apple is discovered, or a new peach found, it is instinctively described by the grower as a seedling; indeed there has usually been no thought of any other possible explanation, and so no effort has been made to demonstrate the correctness of this explanation of its origin, but it has been considered to be a self-evident fact.

There are many well authenticated and unquestioned instances of the occurrences of bud sports which are admitted as genuine, even by the opponents of the mutation theory, but if there was only one such established case, that would be sufficient to discredit the practice of blindly adopting the seedling explanation to account for all new forms. Since bud sports have occurred, there is no reason why they shall not occur continually, just as frequently, perhaps, as seed variations do, and with this possibility established, it becomes just as necessary to have absolute proof of the seed origin of a plant before it can be classed as a seedling as it is to have undeniable evidence of its bud origin before it can be rightly listed as a bud sport or mutation. For this reason the present accepted explanations of the seedling origin of many of our fruits and other varieties are open to grave question and doubt in the minds of those who have studied this subject carefully.

The time at my disposal will not permit me to dwell longer upon the theoretical side of this question, and, indeed, we have so many examples of bud sports of unquestionable origin that further theoretical proof of their occurrence in unnecessary.

As early as 1865, Carriere gave a descriptive list of 154 named varieties of plants of commercial importance in France which had originated as bud sports. Many of the best-known roses, carnations, chrysanthemums, violets, and other garden plants originated in this manner, and critical gardeners are always on the watch for such variations. Dr. Bailey asserted in 1906 that there were probably no less than 300 named horticultural varieties of bud origin which were being grown in this country at that time.

A plant which might be considered to have an ever-sporting habit is the common Boston fern (Nephrolepis Bostoniensis), so widely grown as a house plant. So numerous and so marked are the variations on this species that on many plants it is almost impossible to find any two fronds exactly alike, or even two similar pinnae on a frond. Taking advantage of this sporting habit, the F. R. Pierson Company, of Tarrytown, New York, has selected and propagated some of the most marked and desirable variations, until they now have isolated and established by vegetative

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of experience in the growing and handling of citrus nursery trees gives the buyer the advantage of starting out RIGHT, thus avoiding disappointment at the end of four or five years' labor in bringing the young orchard into bearing.

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'phone or call on us before buying your trees. Tell us your wants and we shall be glad to give you the benefit of our wide experience as to planting, soil conditions, fertilizers, etc.

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(INCORPORATED)

Established in 1890 by R. M. Teague

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Teague trees are started right, grown right, and shipped right.

propagation at least ten forms distinct from the original Boston type.

Another plant on which the variations are very noticeable is the old-fashioned Marguerite, which is so popular in the flower gardens. Especially marked are the variations in the number of ray florets in the flower heads and in the incisions of the leaves. Wide variations and many intermediate forms will be found on many plants and even on single branches of an individual plant.

A striking example of a bud sport was noticed a few years ago at the plant introduction garden of the United States department of agriculture, at Chico. Cuttings of a spineless cactus were received there in 1905 and grown for two and a half years. They were then cut into individual joints and reestablished in nursery form. One joint was noticed to have three or four spines in one or two puvini on one side, but no attention was paid to it, and it was lost sight of in the planting. The following spring, 1909, all these plants were cut back to the original cuttings for stock, and it was noted that a part of one plant was very spiny and the rest of it was as spineless as the other plants. In the spring of 1910 the new growth on this plant was again in part spiny, and it was again cut back. In the spring of 1911 it was found that all new growth on one side of the plant was practically spineless, while the other side was exceedingly spiny. Several of both spiny and spineless joints were planted that season and all came true to the individual cuttings planted. This case is described and illustrated in Bulletin 31, new series, of the United States department of agriculture.

In an old apple tree of the Porter variety, at Scotland, Connecticut, a large limb was noticed last year bearing seedless fruits which were also quite different in size, shape, color and quality from the rest of the fruits on the tree. This limb bore similar seedless fruits again this season. Seedless grapes, which originated as bud sports, have also been reported.

The larger part of our investigations regarding bud sports has been conducted with citrus fruits, and a great number of very marked variations have been found. These consist of differences in size, shape, texture, color, quality, and seediness of the fruit, time of ripening and size of the crop, shape and size of the leaves, size of the trees and habits of their growth. In the Marsh seedless grapefruit, besides several other types, we have a very seedy form which is found as entire trees or as a few fruits in a standard type tree. Seedless fruits are also found in trees of the seedy type. In the Washington Navel orange variety we have 11 distinct types which are found as bud mutations and are of very frequent occurrence. They have been noted in all degrees of frequency on the trees. Only one fruit of a sporting type may be found on a tree, or several fruits of the type may occur on a single branch or scattered over the tree. One specimen of several forms may be borne on different parts of the tree, or different branches may be found, each bearing a different type of sport. The entire tree may be a single mutation form, or its two sides may be different types, and numerous other combinations of two or more of the 11 variations are found. In some

(Continued on Page 13)

The Panama Canal and The California Fruit Grower.

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Nevada, Mo., Nov. 25, 1914.

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(Signed) J. H. DUNKEL, General Manager.

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Armstrong Nurseries

ESTABLISHED 1889

FRUIT TREES FOR YOUR

Family Orchard

Send for a FREE copy of my 64-page Planters' Guide, Tree Book and Price List. It will assist you in making your selections of various fruit trees for your family orchard. You will find listed therein all the best and wanted varieties for family use. Also, I have all the proven commercial varieties in citrus, deciduous and semi-tropical fruit trees.

My Collection of

Shade and Ornamental Trees

SHRUBBERY, ROSES and FLOWERING PLANTS for beautifying your home-grounds, parkings and driveways is complete and contains a large and varied assortment, and will meet the requirements of the most exacting.

If desired, I will be pleased to advise with you relative to your plantings.

IF INTERESTED, SEND FOR MY CATALOG.

John S. Armstrong — Propr.

410 Euclid Avenue

ONTARIO, CALIFORNIA

Deciduous Fruits

TABLE GRAPES

Written for California Cultivator
By Leonard Coates

A TABLE GRAPE is not necessarily a shipping grape, nor is a shipping grape always a table grape. The former is of superior quality, while the latter, whatever its eating quality, must possess endurance, or carrying ability. Amongst what are generally classed as "table and shipping grapes" are Flame Tokay, Malaga, Emperor and Black Morocco, none of which are of fine quality, but all are of firm texture and large size, and therefore among the best to ship to distant markets.

A succession in ripening of good eating or table grapes, and which would, of course, do for local markets if properly handled, might be somewhat as follows: Chasselas de Fontainbleau or Sweetwater, Red Chasselas, Black Malvoise, Feher Zagos, Golden Queen, Muscat Frontignan, Black Hamburg, Thompson Seedless, Sultanina-rosea or Red Seedless, Rose of Peru, Lady Finger, White Cornichon, Pierce, Muscat, Mrs. Pierce, Black Cornichon, Mission.

Most table grapes do better on heavy land than in light soil, which means, usually, that grapes of this class are stronger growers and require longer pruning, and that size of berry is more to be desired than in varieties grown for wine making. For a profitable table market grape on very heavy or adobe soil, perhaps the Black Cornichon would be the most profitable. The Muscat of Alexandria will also flourish in very heavy soil. The only grape mentioned in this list of native American origin is the Pierce, formerly known as Isabella Regia, which thrives in very moist, heavy soils. This would apply to all the American grapes grown in California, such as Concord, Isabella, Delaware, Agawam, etc., which do not stand well in semi-arid conditions where many vinifera varieties would succeed.

The public in California know practically nothing of the finer eating grapes, especially of the many Muscat crosses and hybrids. To get such grapes to market—even nearby markets—it would be needful to use much more care in handling and packing, which means more expense to the grower, who must obtain a better return, or the public will have to continue to eat Tokays and Malagas—half ripe at that. In this connection it is well to lament the fact that we have not more intelligent and progressive local fruit dealers, who could assist very much in building up a demand for a better quality of better packed California fruits.

WINTER IRRIGATION

It is well for the orchardist to store up some of the waters which may be going to waste. We may add that many orchardists of the state for many years have saved this waste. Usually during the months of January and February, if streams are not banked full, a large amount of water runs off to the ocean. This, flooded over orchard lands and allowed to remain for hours or days, followed by thorough spring cultivation, will save summer irrigation at a time when labor is needed in other directions. It is very probable that some lands may be injured by too heavy flooding. We note in the Huntington Beach News an item regarding Mr. J. J. Booth's plan with apple trees:

"Mr. Booth thought he would give his trees the 'water cure,' and he turned on the flow from his artesian well for about two months during the winter season, giving the ground all the water it would absorb. His idea was to supply the ground with enough moisture to unite with the lower stratum of water which underlies the entire country in this vicinity—the theory being that when once this bond has been effected the water from the lower level will be attracted toward the surface by the rays of the sun. The experiment has worked wonders with the old neglected orchards, as from these same trees Mr. Booth has picked some of the finest fruit in the vicinity and has gathered a second crop from some trees of the Early June variety, and the crop on many of each of the varieties has been so abundant that it was necessary to use props to save the trees."

THE APPLE WOOLLY APHIS

The University of Arizona Agricultural Experiment Station, answering complaints concerning the woolly apple aphis and control of this pest through entomologist Dr. A. W. Morrill, gives the following advice:

The woolly aphis is attacked by several natural enemies known as "lady bugs," "aphis lions," etc. These natural enemies usually clean up the top of heavily infested trees during the summer months. Notwithstanding the assistance of these friendly insects, the woolly aphis is frequently sufficiently injurious to the branches of infested trees to justify spraying

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Send a list of your wants and I will give you my special prices.

JULIUS MAYR, Tree Grower

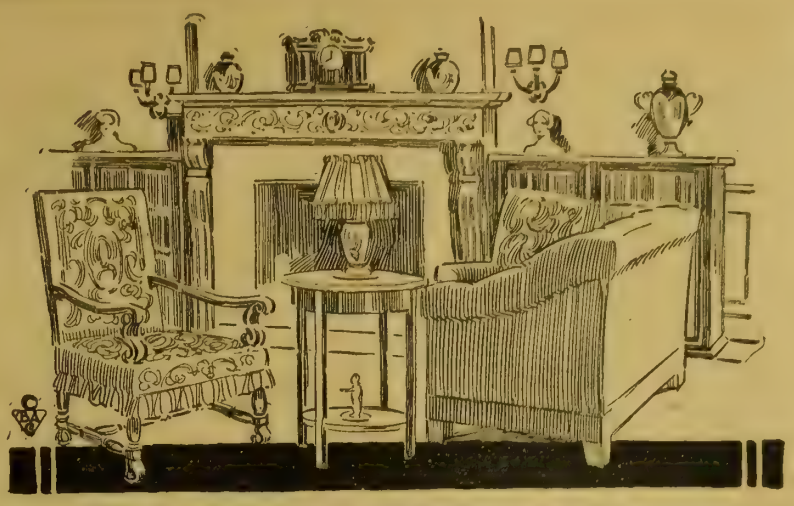
HEMET, CAL.

he trunks and branches of the trees ay be sprayed at any time of the ear when the woolly aphis is multiying injuriously. The best insecticide for this purpose consists of a ombination of soap with a nicotine xtract. Concerning this combination isecticide the following paragraph is noted from a recent publication of he Arizona Agricultural Experiment tation:

"Black Leaf 40," "Nikoteen," and To-bac-ine" are trade names for hree of the best known concentrated obacco extracts. The first named is sed in Arizona as a sheep dip and is onsequently more easily obtained han other brands. It is guaranteed to ontain 40 per cent nicotine and is reailed in gallon cans at $12.50 and in alf-pint tins at 85 cents. While Black Leaf 40" is especially mentioned herein, other brands of concenrated nicotine of equal strength may e substituted in the recommendations hich follow. A teaspoon of this conentrated nicotine compound is sufficient for one gallon of spray. Soap hould be used with the "Black Leaf 0" at the rate of one-half ounce in ne gallon of the spray. This is not rimarily for the insecticidal value of he soap, but for the purpose of giving he spray better penetrating and ticking properties. Whale oil soap, ard laundry soap or one of the soap owders may be used in the foregoing pray mixture. The first is the more ffective, but has the disadvantage of n unpleasant odor. The soap should e dissolved in a small quantity of hot water, after which sufficient water s added to make one gallon. Add to his the tablespoon of "Black Leaf 0." This insecticide is not always mmediate in its effects, but the thoroughness of the work can be judged 24 hours after the application is made.

The proper means of application of he spray is no less important than he composition of the spray itself. Generally speaking, satisfactory results in combating the woolly aphis on the trunk and branches of the trees can not be expected if cheap hand sprayers or old, worn-out barrel pumps are used, although it is possible to treat a few trees with a small garden sprayer by using care, time and material beyond the point of practicability for a large number of trees. If possible, the spray should be applied with a pressure of betweeen 125 and 200 pounds.

For the root infesting form of the woolly aphis, it is recommended that the earth be removed to a depth sufficient to lay bare the main lateral roots for a distance of three or four feet from the crown of the tree. This work can be accomplished with the aid of a shovel or hoe, until the upper roots are reached, when gloved hands and a stick to loosen the earth can better be used to enable its removal without injury to the roots. After the roots are laid bare in this manner, they should be thoroughly sprayed with the whale oil soap and "Black Leaf 40" combination advised above for the tops of trees, using from five to ten gallons, according to the size of the tree. A right-angle nozzle or an elbow joint should be used in order to allow the spray to be applied to all parts of the roots. The idea should be to thoroughly soak them, and it should be borne in mind that it is preferable to use an excess than too little of the spray. High pressure is preferable to low pressure, as in the case of applying spray to the tops of the trees. After the treatment of the roots, the soil should, of course, be replaced. It would be an advantage to hill up the earth to a depth of three or four inches all around the crown of the tree, and after each rain or irrigation to loosen up or mulch the earth around the crown by means of a rake or hoe. If the soil has a tendency to bake and crack its mechanical condition may be improved by mixing in more or less sand.



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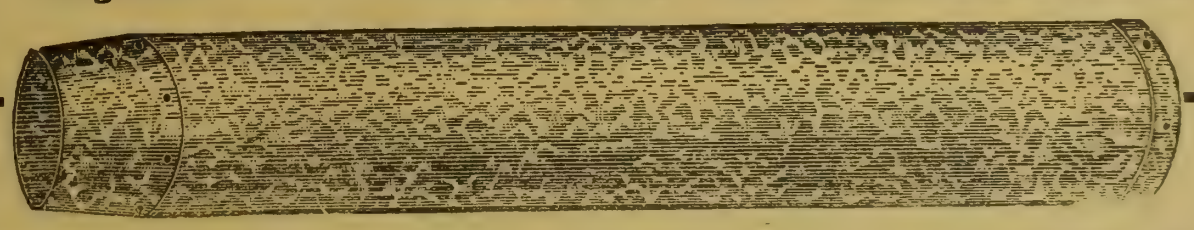

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Open the throttle—crank up, and under the hood of The Yuba Ball Tread Tractor the motor responds. The tractor becomes alive. Ready to do the driver's bidding is the power of 12 or of 18 horses—real live animals, with head down and shoulder straining against the collar.

THE YUBA
BALL TREAD TRACTOR

Every day in the year The Yuba Ball Tread Tractor is ready for work. Spring, summer, fall or winter it will haul, or supply power to pump water, cut wood, chop feed, mix concrete or thresh wheat.

The low pressure per square inch on the tread-bearing area makes it particularly valuable in winter. Water below the carburetor intake does no harm. Soft mud that horses mire in presents no difficulties. The Yuba Ball Tread Tractor stays on the surface and pulls with the power of all its horses.

There is a booklet telling more about it.

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General Agriculture

LENTIL PRODUCTION IN CALIFORNIA

Written for the California Cultivator By Svetozar Igali, Editor California Hungarian Farmer.

THE following article is written by Mr. Igali from practical knowledge of lentil culture, As he says, this vegetable is not grown in this state to any extent. We wished further information regarding the possibilities of its culture and are glad to offer this from the pen of a practical grower. Mr. Igali is editor of the "California Magyar Farmer," or "California Hungarian Farmer," the only Hungarian-American paper published in this country which treats of farmers and farming interests. Mr. Igali writes that the European war has had serious results for his people, not only in Europe but in California, and it is affecting their prosperity and his.—Ed.

* * *

It is difficult to understand, but it is a fact that the cultivation of the lentil (Lens esculenta) is carried on to a very limited extent in California. Study the year book of the department of agriculture and convince yourself that the culture of this nutritive and toothsome vegetable is neglected not only in California but all over the United States as well. Prof. Bailey in his "Cyclopedia of American Agriculture" acknowledges its nutritive value, but at the same time contents himself with but a scant description of it.

I tried the cultivation of lentils on my 40-acre mountain ranch near Santa Cruz this year, the soil being mostly a loose, decomposed granite, and obtained fair success. Beans grown in the vicinity sold for three and a half cents per pound, but I had no difficulty in disposing of my lentils at ten cents per pound, while the expense of raising the two crops is practically the same. Beans will produce 1200 to 1400 pounds per acre while lentils may run as high as 17 bushels or 1000 pounds per acre. Of course the price is higher and will be next year especially when the German and French imports will surely be stopped or greatly reduced. This being so, would it not be wise for farmers tc take up the cultivation of this crop on a larger scale?

The lentil is more digestible than the pea, containing 24 per cent albumen and 54 per cent starch and dextrin. An ancient Hungarian adage affirms that those who eat it will be wise and handsome. Today in Hungary the lentil is used not only as a food but its flour is used in many cases for poultices.

Considering the large amount of loose, chalky or dry sandy terrains in California I would suggest more extensive planting of lentils. Compact adobe land is not so well adapted to the culture of this crop. In France they grow the commune lentil, or L. de Lorraine; in Austria they have the big seeded or the Stockerau variety, and in Hungary the variety called Gomor. This latter is a smaller kind. In rotation they are planted after Egyptian corn or sugar beets, following with some grain—wheat or barley.

In California I planted lentils t first of March but think better sults would be obtained by planti as soon as the rainy season is ov especially in sections where there no danger of frost, as the young plan will not stand frost. In sections whe late spring frosts occur planti should be postponed until April.

The culture consists of deep plo ing in the fall in order that the s may retain winter moisture, follow by a shallow one in the spring, th harrowing. The seed is sown in dri two feet apart, or broadcasted, but should always be mixed with o fourth its bulk of barley seed, becau if sown alone the stems break do and lie on the ground, spoiling it the harvest. In drilling the seed used one and a half bushels to t acre—one and a half bushels of l tils, mixed with one-half bushel barley. More than this should used if broadcasted, using always same proportion. After sowing raked or harrowed so that the se was covered to the depth of an in As the row became visible I kept weeds down and the ground loose hoeing once or twice.

It is important to harvest at proper time. Do not wait until pods are all dry, because the seed liable to fall out. The best time harvest is when the stems begin show a yellowish tint even though pods are yet green. The plants pulled, gathered in small sheaves bound with straw strings. Let th dry on the ground for three or f days, then beat the seeds out wit flail, after which they are put throu a winnowing machine. The aver output per acre from lentils is fr 15 to 20 bushels. To avoid dam by the lentil moth (Bruchus lent it is advisable to dispose of the h vested crop as promptly as possi

The straw remaining after thre ing affords an excellent fodder for tle. An acre will furnish abou ton and a half.

The best lentils in the Europ market are produced as mentioned fore, on the volcanic soils or s similar to our decomposel gran At Gaillardon, near Rambouil France; at Stockerau in Austria at Gomor in Hungary, the best le producing country of the world, soil is all the same, a loose dry, sa or chalky volcanic decomposition.

A Tip on Almonds

On this continent Almond are grown only in California The American market alon demands *four times* the pres ent supply.

With practically an unlimited home market and a monopoly of the product

Plant Almond Trees if you are seek ing a real money-making investmen We have an extra fine lot of tree growing on Bitter Almonds, Peach and Myrobolan Root, but as there usually a shortage of trees on Bitte Almond, place your contract in mediately—don't delay.

Write Us First

The Silva-Bergtholdt C
P. O. Box Newcastle, Ca

ave hundreds of acres of such land n California which are today lying dle.

As the lentil takes from the soil bout four per cent of nitrogen and ome potash, the best fertilizer is vood ashes and some nitrates of am- nonia salt, but beware of rich de- omposed stable manure which devel- ops stems and foliage at the expense f the grain.

After the plants are bound into heaves to dry they must be protected rom birds, especially doves and wild igeons, as they are so fond of the rains that they will gather from far nd near.

In the Santa Cruz mountains where he rainfall is 15 to 18 inches I did ot irrigate. I think it possible to aise a good crop where the precipita- ion is ten inches or more but doubt ot irrigation would increase the ield. In Hungary we have in some ears the same dry springs which we ave here in California and in these ases if the peasants did not apply he lessons which they learned from heir ancestors the crop would be lestroyed. After harrowing the field hey spread over it a mulch of fresh trawy stable manure. This cover- ng protects the young plants from he scorching rays of the sun and the rying northeast spring winds and eeps the moisture in the soil. If he California farmer pursued the ame method without doubt he could ecure a fair yield with little irriga- ion, even in interior valleys. Would especially recommend that plowing be t least 12 inches deep. One thing which is fatal to the lentil crop is wet ground. If at all prolonged it is sure o prove disastrous.

In addition to the direct profit from he crop the straw is quickly cleaned up by live stock. It is especially valu- able for dairy animals. I have offered cows vetch hay and lentil straw in separate bunches and they will in- variably leave the hay and go to the lentil straw.

As to pests, of course the aphis is destructive, as it is with many other similar crops, and I have found that the ground squirrel is desperately fond of the lentil.

WHITEWASH

Whitewash is the cheapest of all paints, and for certain purposes it is the best. Lime, which is the basis of whitewash, makes a very sanitary coating and is probably to be pre- ferred for cellars and the interior of stables and other outbuildings. (The following directions for making white- wash are taken from "White Paints and Painting Materials," by W. G. Scott:)

Ordinary whitewash: This is made by slaking about 10 pounds of quick- lime with 2 gallons of water.

The lime is placed in a pail and the water poured over it, after which the pail is covered with an old piece of carpet or cloth and allowed to stand for about an hour. With an insuffi- cient amount of water the lime is "scorched" and not all converted into hydrate; on the other hand too much water retards the slaking by lowering the heat.

"Scorched" lime is generally lumpy and transparent, hence the use of the proper amount of water for slacking and an after addition of water to bring it to a brush consistency.

Factory whitewash (interiors): For walls, ceilings, posts, etc.

(1) 62 pounds (1 bushel) quicklime, slake with 15 gallons water. Keep barrel covered until steam ceases to rise. Stir occasionally to prevent scorching.

(2) Two and one-half pounds rye flour, beat up in half gallon of cold water, then add two gallons of boil- ing water.

(3) Two and one-half pounds com- mon rock salt, dissolve in 2½ gallons of hot water.

Mix (2) and (3), then pour into (1) and stir until all is well mixed.

This is the whitewash used in the large implement factories and recom- mended by the insurance companies. The above formula gives a product of perfect brush consistency.

Weatherproof whitewash (exteri- ors): For buildings, fences, etc.

(1) Sixty-two pounds (1 bushel) quicklime, slake with 12 gallons of hot water.

(2) Two pounds common table salt, 1 pound sulphate of zinc, dissolved in 2 gallons of boiling water.

(3) Two gallons skimmed milk.

Pour (2) into (1), then add the milk (3) and mix thoroughly.

Lighthouse whitewash: (1) Sixty- two pounds (1 bushel) quicklime, slake with 12 gallons of hot water.

(2) Twelve pounds rock salt, dis- solve in 6 gallons of boiling water.

(3) Six pounds Portland cement.

Pour (2) into (1) and then add (3).

Note.—Alum added to a lime white- wash prevents it rubbing of. An ounce to the gallon is sufficient.

Flour paste answers the same pur- pose, but needs zinc sulphate as a preservative.

Molasses renders the lime more sol- uble and causes it to penetrate the wood or plaster surface; a pint of molasses to 5 gallons of whitewash is sufficient.

Silicate of soda solution (about 35 degrees Baume) in the proportion of 1 to 10 of whitewash produces a fire- proof cement.

A pound of cheap bar soap dissolved in a gallon of boiling water and added to about 5 gallons of thick whitewash will give it a gloss like oil paint.

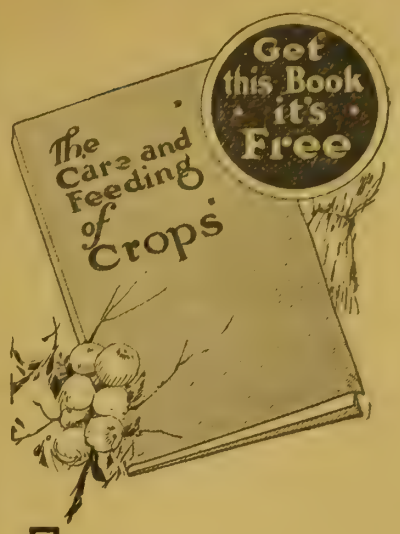
An old recipe for whitewash, is- sued by the lighthouse board of the treasury department, said to be very good for outdoor exposure is as fol- lows:

Slake half a bushel of unslaked lime with boiling water, keeping it cov- ered during the process. Strain it and add a peck of salt, dissolved in warm water; three pounds of ground rice put in boiling water and boiled to a thin paste; half a pound of pow- dered Spanish whiting and a pound of clear glue, dissolved in warm wa- ter; mix these well together and let the mixture stand for several days. Keep the wash thus prepared in a kettle or portable furnace; and when used, put it on as hot as possible, with painters' or whitewash brushes.

The washes which contain milk, flour, or glue are not to be advised for use in damp, interior places, ow- ing to danger of decomposition of the organic matter. For such loca- tions it is better to use one of the formulae containing none of these in- gredients. Whitewash is applied with a broad whitewash brush and is spread lightly over the surface, no attempt being made to brush it in as is the case with an oil paint.

"I saw your advertisement in the California Cultivator and would be glad to know more about the article mentioned." That's good business form, surely.

"Bion, seeing a man who was tear- ing the hair off his head, said: 'Does this man, then, think baldness a rem- edy for grief?'"



Barnyard Manure Can- not Take the Place of a Commercial Fertilizer

When crops are taken from the soil season after season there is a loss of plant food which cannot be supplied by manure.

Any crop requires a par- ticular kind or combination of kinds of plant foods before it will grow to its full matur- ity. Farm manure increases the condition of the soil but does not supply these food elements.

Read this Book

It gives you just such sim- ple, vital facts which are so necessary to you in order to grow the largest crop on your land. Without this informa- tion you are working in the dark—you cannot get the greatest good or the largest crop without working intelli- gently and supplying the land with the necessary food ele- ments.

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Write for this book today —don't put it off because you might forget.

The Pacific Guano & Fertil- izer Company. 801 Security Bldg., San Francisco, Cal.

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The pump you buy should raise the maximum quantity at the lowest cost per gallon, run constantly without repairs and with the minimum attention. "Jackson- Made" Pumps not only do this, but they are Self Payers because their sav- ing in power and repairs will pay their first cost in a very few months.

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Whether you have a small garden or a big farm, you should grow your own strawberries. Kellogg's Big Red Strawberry garden will produce all the delicious strawberries your entire family can eat, summer and winter. You can have shortcake, strawberries and cream, preserves, jam and canned berries the year round for less than one cent per gallon. Our Book gives full information.

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Yield more dollars per acre and give quicker returns than any other crop. Get our 64-page book and learn THE KELLOGG WAY, and make $500 to $1200 per acre. The Book is FREE.

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BEST IN THE WORLD
Prices Below All Others

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Over 700 illustrations of vegetables and flowers. Send yours and your neighbors' addresses.
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245 S. Main St. Los Angeles, Cal.

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Alfred Mitting has had 47 years experience with berries from all over the world. His new berry, Macatawa, is the wonder, to all that see it in fruit. It is 3½ inches one way by 3¾ inches the other way. Send a postal card today for his 1915 catalogue with colored plate, including the cream of all berries from a commercial standpoint or for home requirements.

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The Lawn and Flower Garden

THIS MONTH IN SOUTHERN CALIFORNIA

Written for the California Cultivator

ALL California is busy putting on its best dress for the visitors and everybody says the visitors are coming.

Give the lawn a good application of well-rotted manure. We say well-rotted because if it is not Bermuda and innumerable other seeds may be introduced. If well-rotted manure is not available use a complete lawn fertilizer, or any good complete fertilizer will prove beneficial. Buy a good high grade fertilizer for it is not economical to pay freight on "fillers" or low grade stuff. Where Bermuda has invaded the lawn the cool weather of early December gives it a burnt appearance. This may be helped by the application of commercial fertilizer and wetting down slightly. This, with the warm days which we are now given, will soon bring back the green. Where Bermuda has not taken almost entire possession of the lawn this is a good season to rake out and discourage its more general growth. It is also a good time to seed in the bare spots. Make liberal application of seed, almost as much as for a new lawn, sprinkle lightly with manure, sawdust or other mulch, and then keep wet. Bermuda grows but slightly at this time of the year while blue grass will do well. It is presumed the leaves have all been raked off and added to the compost heap.

Use the hotbed or the glasshouse to start the less hardy annuals for replanting next month. If a glasshouse is available be sure that all dead and dried leaves or dirt of any kind are kept cleaned off. They are breeders of fungous and other pests. This is said to be the coldest month of the year when averages of the weather bureau are considered but it is really the beginning of our spring and every step should be taken to secure a start for a big showing of early spring flowers.

Of course this is pruning month for roses, wistarias, poinsettias, lemon verbena, in fact, all deciduous shrubs. The poinsettia prunings may be used for cuttings for new plants where they are desired. Make the cuttings long enough to take in three or four "eyes" and bury two-thirds of their length in sand or sandy soil. Gather prunings and burn. They are unsightly and of little value in the compost heap. Deep spading around all shrubs and in all beds which are to be used for spring planting should proceed this month. It is hardly possible to give too heavy a dressing of stable manure where sufficient water is available for spring irrigation.

Presumably a good supply of our native poppies have been sown in all waste corners and along paths. If this has not been done invest two-bits in a packet of them and at least plant a few. If every resident of California would make it a religious principle to sow a few of the native poppies every year, even if but a nickel's worth, it would add wonderfully to the attractiveness of the state.

Other annuals such as sweet peas, where they were not planted earlier, phlox, stocks, centaureas, scabiosa, coreopsis, mignonette, candytuft and those of the more hardy type, may be planted.

This is the beginning of the bulb planting season. We mean, of course, the spring bulbs. Gladiolus may be put in the ground. All the little corms which have formed around the old bulbs should be in the soil before this. However, to secure extension of the season the large, full-sized bulbs may be planted as late as June, but no month between now and then should miss a planting of this wonderful flower. New varieties of iris, or those which have not been divided, may be planted but they should be in the ground at once for new root growth is now starting which will give splendid bloom a few weeks later.

It is possibly a little early to divide caladiums, cannas, and other small bulbous plants but the last of the month and the first of February will be timely for that work.

CURING, STORAGE AND FORCING OF GLADIOLUS CORMS

By Madison Cooper in The Modern Gladiolus Grower

It was suggested by Mr. G. D. Black last month that gladiolus bulbs will lose much of their vitality if stored in a warm pace. We beg to suggest in this connection that altogether too much stress is laid on the necessity for drying or curing bulbs before storing. The more drying and curing there is done, the greater the loss of vitality, and only enough drying should be practiced to free the bulb of surplus moisture contained in the skin or husk, so there will be no tendency to mold. After that the bulbs can be stored in thin layers safely in a reasonably dry air at a temperature of 32° F. to 40° F. for almost an indefinite period.

It is not our idea to suggest that no drying be done, but to caution against overdoing the matter. A comparatively slight drying is all that is really necessary, especially if this is done in full sunshine and a full circulation of air. Sunshine tends to not only dry out the husk quickly, but it is a great purifier and germicide and kills mold spores and certain forms of fungus growth. The sun also tends to eliminate various scab diseases and rots, and is a valuable help in preventing troubles of this kind.

The storage of gladiolus corms has not been given the care and attention in the past that it should have had, and very little is known on the subject except as the practical details have been worked out by each individual for himself. It is suggested that storage under refrigeration is the right place for gladiolus bulbs, and if they are so stored we believe that they may be carried, as before suggested, at the temperatures stated for almost an indefinite period and practically without deterioration. It would seem that bulbs might be held over after digging in the fall, until the next fall, for forcing during the winter. This is only by way of suggestion, but someone will doubtless make the experiment. It is well known that plant life which is retarded in this way by cold storage at uniform temperatures, and held past its natural season of growth may be forced much more quickly; lily of the valley pips especially are a good illustration, and there seems no good reason why the same principle will not apply to the forcing of the gladiolus. If this method is properly worked out, we may expect, within the next few years to see many different varieties used for forcing, and the gladiolus will thus become an all the year round flower.

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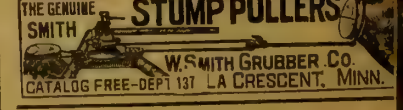

Small Fruits Vegetables

THIS MONTH IN SOUTHERN CALIFORNIA

Written for California Cultivator

THE first month of the year may be considered the spring planting month for many sections of California. With potatoes, planting would not be safe except in very protected sections where the soil is warm and dry. The first of February will see heavy planting of early potatoes in warmer sections.

The month of January, however, is none too early for general preparation for the early spring garden. Heavy applications of manure well spaded or plowed under this month will result in far better condition of soil in the summer when moisture may not be so plentiful as we would desire. Decaying vegetable matter is a wonderful moisture holder. After spreading or plowing keep surface stirred often enough to prevent any growth of weeds; how soon after the rains will depend on the soil. Sandy loams may be cultivated almost immediately while the heavier clays call for particular attention.

One feature of the garden for January not used in California to the extent it should be is the hotbed. This is a good month for starting plants for February planting. Instructions for making the hotbed have been given in former issues of the Cultivator.

Potatoes, cabbage, carrots, turnips, peas, lettuce, onions, radishes, cauliflower, celery and other hardy plants may all go into the open garden. Tomatoes and early peppers and similar plants may be started during this month in hotbed or glasshouse. Asparagus should be reset, as may horseradish and rhubarb plants. If the warm and timely rains of the past two weeks are continued it will be a busy month for the hoe and hand cultivator.

For forcing lettuce, radishes and other succulent crops when the ground is as cool as it is during January it may be wise to use a small amount of nitrate of soda or other quick acting nitrate which will give available nitrogen and more satisfactory growth.

For the fruit garden this is pruning month. Of course with blackberries, raspberries and other small fruits it is presumed useless canes were removed soon after the bearing period, but if not the long pruning hook used to top trees is excellent for them; one may stand at a distance and hook out these vines. Be careful in dragging them out not to tear off fruit buds of the new growth which is to give next year's crop. If the long hook is not used then heavy leather gloves are necessary. Of course all deciduous fruit trees need some attention at this time of the year. Apricots and peaches and some of the plums may need very heavy topping back. Do not leave long slender limbs to break or bend the tree out of shape.

This is also a good month to start the compost heap. Tomato and potato vines which have been raked up may be composted and used in the garden again but it is perhaps safer with such rubbish to either burn or compost and use on the orchard or small fruits for sometimes fungus or blight spores carried over may be injurious to next year's crop. For the compost heap strawy manure, ashes, scrapings from the poultry yard, leaves from trees, garbage from the kitchen and a thousand and one other things can be used to make a rich dressing for the bed where succulents are to be forced. Where considerable strawy material is used several months will be required before this is in condition for use. A little soil or gypsum mixed with the other material aids in saving nitrogen.

FREE SEED

We have from Congressman Wm. D. Stephens of the tenth congressional district information that congress and the department of agriculture are uniting in rather more practical distribution of free seeds than in the past, at least as to one effort now being made. Instead of the usual little dab of seeds of no particular value there is available sufficient seed of each kind to give a thorough test. For instance, there are to be distributed 365 five-pound packages of feterita, 315 four-pound packages of milo, 35 four-pound packages of Peruvian alfalfa. Seeds will be sent to those who will be interested in testing one or more of these crops, and full instructions regarding the culture of the crop will also be furnished them. Each package contains a sufficient quantity of seeds for a satisfactory field trial. The success and value of the distribution are dependent upon the seed being planted by interested farmers who will follow instructions given by the department in so far as possible and report results.

Those subscribers living in the tenth district should write at once to Mr. Stephens, and we doubt not other congressmen representing other districts can supply their constituents.

GOOSEBERRY MILDEW

English varieties of gooseberries suffer more from the attacks of this fungus than American sorts. The frost-like coating of the parasite appears on stems, leaves and fruit. If the disease occured in the gooseberry patch last season it will be well to spray this spring. As a fungicide potassium sulphide is to be recommended. Use one ounce of the sulphide to two gallons of water. Apply the first spray early in the spring just when the buds begin to open. Follow this with sprayings at intervals of about two weeks until six or seven applications in all have been given. —W. W. Robbins, Colorado Agricultural College, Fort Collins, Colorado.

CARE OF SPRAY PUMP

The external bearings of the spraying machine should be frequently oiled, but care should be taken not to let any of the oil get upon the rubber parts of the machine. The machine should be well washed out with water immediately after use, thoroughly cleaned and dried, and the pump oiled before being put away.

TREES

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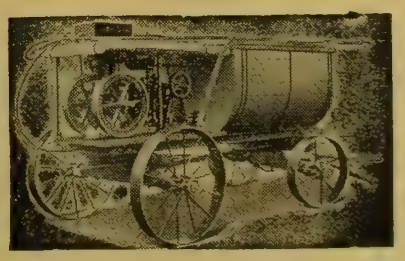

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Healdsburg, Calif.

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Farm Bureaus and Institutes

We are glad to be able to give our readers on this page announcements of farm bureau meetings and visits of farm advisers.

San Joaquin County, Frank F. Lyons, Adviser, Stockton

Stockton, directors' meeting, January 2.

Thornton, G. L. Barber, director, January 4.

Stockton, J. F. Peters, director, January 6.

Acampo, E. M. McCausland, director, January 8.

Lockeford, N. H. Locke, director, January 11.

Linden, Ed. L. Davis, director, January 13.

Manteca, J. Walter Graves, director, January 15.

Escalon, E. A. Clough, director, January 18.

Lodi, H. T. Bailey, director, January 20.

Ripon, J. P. Watkins, director, January 21.

Tracy, H. A. Frerichs, director, January 25.

Holt, Ralph Cople, director, January 27.

Waterloo, R. J. Benjamin, director, January 29.

Napa County, F. J. Baade, Adviser, Napa

Napa, January 4.
Browns Valley, January 6.
Coombsville, January 7.
Salvador, January 9.
Carneros, January 11.
Fly District, January 13.
Soscol, January 15.
Rutherford, January 18.
St. Helena, January 20.
Calistoga, January 22.
Wooden Valley, January 25.
Berryessa, January 27.
Pope Valley, January 29.
Howell Mt., January 30.

Weeds and the importance of their eradications will be discussed at these meetings.

Ventura County, Wm. B. Parker, Adviser, Ventura

Fillmore, January 4.
Camarillo, January 8.
Nordhoff, January 11.
Oxnard, January 13.
Somis, January 18.
Saticoy, January 20.
Moorepark, January 21.
Santa Paula, January 26.
Simi-Santa Susanna, January 27.
Ventura Avenue to be arranged.

Yolo County, N. P. Searles, Adviser, Woodland

Guinda, January 5, 8 p.m.
Esparto, January 6, 8 p.m.
Rumsey, January 7, 8 p.m.

The Yolo County farm bureau also publishes a monthly of news notes and cultural instructions.

San Diego County, Jas. A. Armstrong, Adviser, San Diego

Del Mar, January 4.
San Luis Rey, January 6.
Bonsall, January 1.
Directors' Meeting, January 2.
San Marcos, January 11.
Ramona, January 13.
Alpine, January 8.
Office, January 9.
Spring Valley, January 18.
La Mesa Heights, January 20.
Jamacha, January 15.
Office, January 16.
National City, January 25.
Nestor, January 27.
Mission Valley, January 22.
Office, January 23.
Potrero, January 29.
Office, January 30.

The San Diego farm bureau prints a six-page monthly, free to all members. It contains schedule of visits of farm adviser, news of locals, of farm bureaus in other counties, practical farming hints, etc. On the back page are the "For Sale" and "Wanted" columns.

Kern County, R. R. Mack, Adviser, Bakersfield

Wasco, W. T. Fowler, Monday, January 4, 7:30 p.m.

Delano, R. H. Hiett, Wednesday, January 6, 7:30 p.m.

McFarland, H. L. Heard, Friday, January 8, 7:30 p.m.

Rio Bravo, F. W. Haag, Saturday, January 9, 7:30 p.m.

Panama, A. B. Robinson, Monday, January 11, 7:30 p.m.

Rosedale, J. Waters, Wednesday, January 13, 7:30 p.m.

Tehachapi, L. T. Jenkins, Tuesday, January 19, 7:30 p.m.

Muroc, C. E. Clark, Wednesday, January 20, 7:30 p.m.

Willow Springs, H. W. Mongold, Thursday, January 21, 2:00 p.m.

Bakersfield, M. J. Adams, Saturday, January 23, 2:00 p.m.

Arvin, R. Haven, Monday, January 25, 7:30 p.m.

Shafter, E. U. Combs, Wednesday January 27, 7:30 p.m.

FARMERS' INSTITUTES IN JANUARY

Prof. W. T. Clarke announces the following farmers' institutes during the month of January;

Stanislaus County

Modesto, January 8 and 9.

Fresno County

Kerman, January 11 and 12.
Laton, January 13.
Coalinga, January 15.
Clovis, January 19.
Selma, January 20.

Kings County

Hanford, January 15 and 16.

Tulare County

Exeter, January 21.
Orosi, January 22 and 23.

$200 to $300 an Acre From a Walnut Grove

in full bearing is not unusual and many groves are producing even more. There's money in Walnuts.

MAYETTE! True Wiltz Strain! For productiveness, freedom from blight, and wonderful Quality, the Wiltz strain of Walnuts has no equal in any other of the standard varieties. Late Bloomer.

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Wilson's Quality Trees

Are in heavy demand this season. The selection of buds from established bearing orchards, careful selection of seed, causing healthy, vigorous growth—THE REASON. The following letter is one out of many thousands we have received in the past:

Grass Valley, Calif., Dec. 7th, 1914.

Fresno Nursery Co., Inc., Fresno, Calif.
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Very truly, (Signed) GORDON S. MORGAN.

That tells the story.—Prospective Planters, give us an opportunity of starting you right by supplying strictly first class nursery stock. Send us a list of your requirements for quotations. Our large 52 Page Book describes all varieties of Fruit Trees, Grape Vines, Ornamental Trees and Shrubs, Palms, Roses, etc. We send this book free upon request. Remember we specialize on **DECIDUOUS FRUIT TREES, CITRUS TREES, OLIVE TREES, FIG TREES, GRAPE VINES, and Hardy Ornamentals.** Write us if you want the best that money will buy. Address

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and the treatment Kirkman accords his customers. Our steadily growing patronage has demanded that we grow more stock each year, until we now have more than **five million** trees and vines growing in our nursery plants in California and Arizona. A considerable portion of the stock in our nurseries, which will be ready for delivery this coming winter and spring, is already sold to early customers, but we still have a complete stock of all varieties of fruit trees and vines, as well as a general assortment of **ORNAMENTAL** and **SHADE** trees, etc., etc. What are you going to plant? We have it, without doubt, in large or small quantities. Illustrated price catalog on application. Please mention what varieties you are expecting to use.

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Merced County

Delhi, January 26.
Livingston, January 27.
Le Grand, January 28.
Merced, January 29 and 30.

Program of Kerman Institute

Monday morning, January 11—10:00 a.m., Dairy Cattle, followed by judging, Mr. V. C. Bryant; 11:00 a.m., Irrigation, Mr. S. H. Beckett.

Monday afternoon—2:00 p.m., Irrigation, Mr. S. H. Beckett; 2:00 p.m., (ladies' meeting), Jelly Making, Model Kitchen, Septic Tank, Miss L. D. Clark.

Monday evening—8:00 p.m., local speaker.

Tuesday morning—10:00 a.m., Poultry, Mr. W. E. Lloyd; 11:00 a.m., Soils, Dr. C. B. Lipman.

Tuesday afternoon—2:00 p.m., Alfalfa Culture, Prof. W. T. Clarke; 2:00 p.m., Poultry, Mr. W. E. Lloyd; 3:00 p.m., Viticulture, Prof. F. T. Bioletti; 2:00 p.m. (ladies' meeting), Demonstration—Baking in Fireless Cooker—Salads, Miss L. D. Clark. Chairman of committees, Mr. Vernon R. Churchill, Kerman.

BUD SPORTS IN AGRICULTURE

(Continued from Page 5)

instances the entire 11 have been found on single trees, and several of them have been noted on each of the two parent trees from which the entire Navel planting of the state has originated. Two photographs are presented, one showing some of the sports found in the Washington Navel variety, and the other illustrating some of the variations which occur in Valencias.

Not only are these off-type fruits of very frequent occurrence in nearly every orchard, but they persist continually, year after year on the same trees, showing that they are in fact fixed mutations. In addition to this, in every case where one of these sports has been rebudded into a tree of another type, the new head produced by these buds has been identical in all respects with the form from which the buds were taken. This is very strikingly shown in the case of a sport in a Eureka lemon tree, which consists of a fair sized branch bearing green and yellow variegated leaves and striped fruits and branches, the green stripes on the fruits persisting even when they are mature. A standard type Eureka tree was rebudded from this variegated sport, and both the foliage and fruit on the new head are identical with that on the original mutation, so that if they are removed from the tree it is impossible to tell whether they were produced by the original branch or by the rebudded tree.

Not only do bud sports show as variations in color, shape, size and similar characters, but we have many illustrations which seem to prove that the amount of fruit production is a sporting character and one in which there is very great variation. Moreover, from investigations and practical demonstrations now under way, we have proof that this fruitful or shy-bearing habit can be transmitted by budding. Everyone recognizes the variations in yield between different trees, but few have heretofore realized that this character was a constant one with the tree or that it was hereditary.

From careful, individual tree performance records kept for four years in a well-known and profitable Washington Navel orchard, it was found, as reported by Mr. Shamel at the Fruit Growers' Convention at Davis last June, that the difference in actual net returns to the packing house for the fruit from the highest producing trees over that from the lowest producers, was $417.77 per acre annually.

The owner of a grapefruit grove in San Diego County observed that a few of his trees produced large crops of fine seedless fruits while others in the same grove were not only light bearers, but a large proportion of their fruits were of undesirable sizes and very seedy. For planting a new grove, this grower selected buds from two trees in the original plantation, which had been observed to be very large and consistent yielders of desirable fruits. The new grove is now in full bearing and produces uniformly a large crop of seedless fruits of fine shape and size. Mr. Shamel tells us a similar, though much more striking case in which he has been interested in the lemon groves of the National Orange Company at Corona.

These low producing trees have been termed "drones" and "boarders." They have been found to be bud sports of a very undesirable nature, but as they are usually very vigorous and rapid growing, they are always filled with fine budwood. Some budders, finding such trees, have considered themselves fortunate in being able to get their buds with so little effort, but the grower who has tried to pay expenses from such trees has found himself very unfortunate. However, the vigorous character of these trees makes them well adapted for rebudding and they can thus be easily eliminated and the grove changed to a productive one in a very few years by top-working them to standard types.

A letter which appeared in a recent number of the Rural New Yorker, from a grower in Texas, recites experiences with various deciduous trees exactly comparable to the results obtained in our citrus investigations. He said in part:

"Drone trees were discussed on your editorial page recently. Every orchardist has them unless exceptionally fortunate. My own share of them has been more than liberal, and since they are usually of strong and vigorous growth, my plan has been to put new tops on them by selecting buds from trees that are satisfactory bearers. . . . A number of trees on my place—peach, pear, plum, persimmon and pecan—have been treated in this way, and in every instance subsequent fruitage has met expectation. A season seldom passes that one or more trees are not worked in this way. No longer ago than last April, a lusty young persimmon and strong growing eight-year-old Mobile pecan were worked with dormant buds, not because they were drones, for they were both exceedingly prolific, but their fruitage was inferior. The stems of these trees are now bristling with bud-shoots two to four feet in length, while about one-fourth of the original top is still growing and fruiting above. When the remainder of these tops is taken off next spring, those bud shoots will grow surprisingly fast and new fruits will be expected a season later. Then if the new persimmons and new pecans are not approximately equal in quality to those produced by the mother trees from which the buds were taken, it will be the first failure in a long experience. . . . On the drone tree proposition, I am prepared to show the goods in quantity sufficient to convince the most obtuse or incredulous Missourian."

Potato growers are coming to realize the advantages to be gained by the use of selected stock for planting. This is obtained by what is termed hill selection. The highest producing hills are noted and the best potatoes from these plants are used for seed stock. In this way one of the most progressive growers in Colorado has increased his yields ten per cent and, on account of the uniformity and good quality of the crop, he receives 50 per cent more per bushel than is paid for potatoes grown from unselected stock.

If time permitted many more varieties of plants might be discussed which are of unquestioned bud origin. It has been demonstrated that new varieties may originate as bud sports and hence we have every reason to believe that still more forms of more or less value can and will be developed in this manner. However the introduction of new types is neither our desire nor our purpose. What we aim to accomplish is to improve the standard varieties by eliminating the undesirable forms which have become so common among them. One of the common causes of the so-called "running out" of varieties is the condition of their becoming so contaminated with undesirable forms that their uniformity is lost and their production greatly decreased. The purpose of our study of this subject is to enable us to determine how to isolate the standard type of a variety and then to control that type by bud selection so as to hold it true and unvarying. This means a greater uniformity of the crop and a greatly increased production without an increase of the acreage planted.

Ex-President Roosevelt grasped the real significance of this investigation and expressed it very tersely in conversation with Mr. Shamel last year when he said, "What we need in American agriculture and horticulture is a fuller development and more complete utilization of the crops and plants we now have rather than the introduction of any new varieties.

FARMERS' CONGRESS

The president of the Colorado Farmers' Congress has called for the next annual session to be held at the Colorado agricultural college, Fort Collins, on June 11, 1915. Various live stock and other agricultural and horticultural associations of the state of Colorado are entitled to three delegates each at this convention. The secretary is Mr. M. N. Dillon, Fort Collins.

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SANITARY SCHOOLS

An eastern writer says that societies for the bettering of conditions in penal institutions have brought about in most states a good condition of jails and penitentiaries which is most humane and sanitary. Drinking fountains of approved pattern add to the comfort and even happiness of inmates. Then he describes the country schools in many sections where the old tin dipper does duty for the entire school and outbuildings are maintained in a most unsanitary condition. The pertinent question is asked, "Are not the pupils in our public schools worthy as much consideration as the inmates of our penal institutions?"

FILE THE CULTIVATOR

We did not call attention on last week's editorial page to the index to Volume 43. We did not need to for it speaks for itself with nearly ten columns of fine type giving the contents of the 27 papers making up the issues of the past six months. The index is arranged as to topics and as there was much material used during this period which can be found in no other publication it is well worthy of preservation. It is perhaps a little late to make New Year's resolutions, but it is still in order for every subscriber who has not preserved his files in the past to make a resolution to immediately construct a shelf on which every issue of the Cultivator during the next year shall be preserved. The paper is too large to make a convenient volume for binding, though some of our subscribers do keep it in this permanent form, but it may be at least preserved. The last number of every volume will always contain this index topically arranged so that any subject may be immediately referred to.

SAVE THE WASTES

We have often referred to various methods of making available some of the waste products of orchard and farm and much work has been done along that line during the past year. Now comes suggestion for a new source of wealth in the Salton Sea. The encroachment of this sea on agricultural lands and on the railroad right of way has done so much damage that there should be some return. And it is now promised, for we note there is to be constructed a fertilizer plant which will consume some 20 tons daily of fish from the waters of the Salton Sea. It has been said that the waters of this strange inland lake will "assay 20 per cent carp." As it will be some years before its waters are dried up—if ever they are—it is presumed the fertilizer works will have abundant material to work on for many years to come.

HANDS OFF

It is predicted that there will be all kinds of anti-alien bills presented before the state legislature which convened last Monday in Sacramento. There is no crying need at this time for any of these bills to be presented and without question every one of them will be turned down. The legislator who may wish to make good with the agitator and jingo can do it by the presentation of such a bill. With the world in its present warlike attitude it is unfortunate to press such matters and it is to be hoped that common sense may prevail and these bills be suppressed as quickly and as quietly as possible.

It is not to be presumed that this state will change its present attitude on Asiatic exclusion, but there is a reasonable time for all things and certainly the present is not the time when such agitation will lead to success and it may lead to injury.

GIVE THEM A CHANCE

We recently referred to the agricultural club which is maintained in San Quentin prison for the benefit of those who wish to fit themselves for useful work when they are released. The club is being aided in this work by the university of California and a number of inmates of the institution are receiving material benefit. We now note in the monthly of the San Diego farm bureau that No. 7313 is making application to the San Diego County farm adviser for work subsequent to his release on parole. In this particular case 7313 is a machinist, but we doubt not there are all kinds of workers among members of the farm club to which we refer. There are but few employers who will be able to give encouragement to this class of labor, but those who are so situated that they can may benefit materially a fellow being and it is very probable will have a thankful service rendered which will be equal to any which may be secured.

ANNUAL REVIEW

The California Fruit Grower, for the past quarter of a century the organ of the fruit packing and marketing interests, and for the past few months known as the California Fruit News, has had a custom for many years of issuing its annual review of fruit conditions of California and the Pacific Coast. These annual numbers have been the most pretentious of any publications of its kind on the coast, but the one for the year just ended excels all former numbers. It has 84 pages of heavy coated paper filled with statistics of the year's fruit business, trade conditions and announcements of packers of California products and eastern handlers, touching upon fruit trade conditions of the past year. Reference is made to the fact that there have been many difficulties confronting the trade, but most of them have been overcome, and on the whole the year has been most successful in the fruit trade industry. By-products it is predicted will be developed until they will save millions of dollars to California producers. The fruit canning situation is reviewed, as is the salmon industry, condition of the walnut market and the outlook of the asparagus canners, any many other topics. Of course the greatest one feature in the paper is the announcements of large concerns han the asparagus canners, and many sections of the United States. The paper is edited by Howard C. Rowley, whose father founded it.

1915

California, and we hope all the rest of the world, has been looking forward to 1915 with the expectation of great things doing. It is the year of the great expositions. The enormous sum of $50,000,000 is being spent on the great one in San Francisco. To most of us this sum is beyond comprehension and to all of us descriptions of what has been accomplished are of little value. To get any idea of the greatness of the Panama-Pacific one must stand on the hill tops near the Presidio and look down upon the wonderful coloring of the world's fair buildings. The exposition will open on February 20.

The San Diego Exposition opened on the evening of December 31, or rather at the moment of midnight on the morning of January 1. Thousands of people from many parts of the world were there to honor the opening ceremonies. The president of the United States in his mansion at Washington pressed the button. His representative, Secretary McAdoo, with his wife, the president's daugnter, was present and joined in the opening ceremonies which lasted for several days, and report tells us that at this writing the exhibitors are settling down to the routine of the great exposition which will continue for 12 months, for it will not close until midnight of December 31.

These two great expositions are not to be compared for they are along materially different lines. San Diego's exposition is more the exposition of the west, of the Americas, than of the world. Its site in Balboa park and its architecture and coloring features all have a touch that is strictly American. In beauty of setting the world has never seen anything more perfect. It is not so near the blue waters of the ocean as is the Panama-Pacific whose entire grounds front along the great bay and harbor. At San Diego the harbor is in full view from many parts of the grounds though it is several blocks from the entrance. See San Francisco's international exposition to appreciate the wonderful advancement of the arts and sciences throughout the world; see the San Diego exposition to view America at its best.

The interstate commerce commission has ruled that the proposed increases in rates on fresh fruits and vegetables from points in California to Seattle and Tacoma are justified.

Agricultural Notes

"Fowl yaws" is the rather appropriate sounding name given to chicken pox in the West Indies.

There are now 1,000 counties in the United States which are employing farm advisers on full time.

It is being proposed to pack Florida grapefruit in half-bushel boxes to increase the demand for that fruit.

Wisconsin, it is stated, produces one-half the cheese supply of the nation and one-sixth of its butter.

The area sown to rice in India for the season 1914-15 is at least five per cent greater than last year's acreage.

Boston shipped last week a big cargo of eggs to Europe. It consisted of 12,000 cases. Many heavy egg shipments have been made for the past two months.

Canadian census returns of 1911 show the Yorkshire to be by far the most popular breed of swine on Canadian farms. The next in favor is the Berkshire.

Special train loads of mules are being moved out of the southern states in record time. They are bound for seaports for shipping to the European war fields.

To aid in the fight against the foot and mouth disease the Southern Railway has released three of its livestock agents to the service of the United States department of agriculture.

Careful experiments with Turkestan alfalfa, made by agricultural experiment stations of Hungary, show it far inferior to the variety commonly raised in that country and called the Hungarian.

The dairy industry of Great Britain has been steadily increasing during the last 20 years. Milk selling is often referred to as "the sheet anchor" of the British farmer. The favorite breed is probably the dairy Shorthorn.

The United States this year has produced the greatest crop of cotton in its history, more than 16,000,000 bales. Texas leads with an estimated production of 4,560,000 bales. California comes very close to the bottom of the list with a production of 37,000.

An article in the Tropical Agriculturist for September 1914, forecasts many new uses for rubber: Wherever leather is used today rubber will soon prove a formidable rival; as a competitor of lumber—hadwood flooring, shingles, boat planks; as a rival for steel springs for cars.

The executive committee of the Chicago Association of Commerce has adopted a resolution in favor of setting the clocks throughout the nation ahead one hour in order to secure more daylight after working hours in the summer months. The resolution also asked the United States chamber of commerce to consider the question at its annual meeting in February, in Washington, with the idea of bringing about a nation-wide movement in favor of the change. A special committee of the association held a meeting last week to consider a plan for adopting eastern time for Chicago instead of central, but so much opposition was expressed by railroad men present, on account of the confusion which would result if Chicago made the change, that it was decided to push the movement along national lines.

Agricultural News Notes of the Pacific Coast

Northern California

Sutter County reports a very successful production of broom corn.

There was a largely attended meeting of olive growers at Yuba City on December 22.

Over 3500 cases of Chinese eggs were received in the port of San Francisco the end of last week.

Farmers of the Ukiah Valley have organized a farm bureau center with J. C. Johnson as president.

A Shasta County alfalfa grower has just mailed a ton of alfalfa seed by parcel post in 50-pound bags.

It is announced that the Ehman Olive Company of Oroville will plant 500 acres to olives this spring.

The orange season in northern California is practically ended. The crop has proved larger than was anticipated.

A crop of olives near Natomas, Sacramento County, recently brought the owner $180 per acre from six-year-old trees.

The Santa Rosa cannery handled over 7,500 tons of fruit during the past season. Tomatoes were the heaviest crop.

A potato grower at Grass Valley, Nevada County, recently produced $138.82 worth of potatoes from a quarter-acre of ground.

Hop growers of Sonoma County met recently at Santa Rosa and organized a county association, with a capital of $500,000.

Towns in various parts of the Sacramento Valley are working to secure visits from delegates at the next National Irrigation Congress.

A sheep producer near Willows, Glenn County, recently lost 200 sheep from bloat caused by eating growing barley in a field to which the flock had secured entrance.

Dairying has received a great impetus at Girvan, Shasta County, through the building of several silos. A milking machine will be used on one large dairy just established.

The members of the cow testing association at Gridley, Butte County, are highly pleased with the success of the association in showing the true worth of the cows and their dairies.

There will be an exhibit at the San Francisco exposition of matured bananas grown in the foothills of Tulare County. The grower has a bunch of 30 trees which bear satisfactorily.

The Northern California Stockmen's Association held its annual meeting at Redding December 23. One of the most important items of business transacted was the authorization of a lease by the executive committee of pasture lands of the railroads in northern California.

At the recent annual meeting of the Northern California Stockmen's Association the following officers were elected: President, William Junkans, Redding; vice-presidents, Mrs. Rhoda B. Menzel for Shasta County, James Long for Tehama County, J. B. Parker for Siskiyou County; secretary, M. D. Lack; treasurer, George A. Grotefend.

Central California

Orange picking in the Porterville district has been considerably retarded by rainy weather.

Santa Clara County has the largest acreage planted to cherries of any county in the state.

Pupils of the schools of Orosi, Tulare County, will make extensive plantings of native poppies.

Fresno County is collecting a fine citrus exhibit for the Panama-California Exposition at San Diego.

Apples and celery are both being shipped in large quantities to eastern markets via the Panama Canal.

Lindsay, Tulare County, shipped from 50 to 80 cars daily during the the heaviest part of the orange season.

This year's coldest day for the San Joaquin Valley was December 22, the thermometer in some sections dropping to 25.

To secure payment for fumigation County Horticultural Commissioner Collins of Tulare County has filed liens on crops of 15 growers.

Forty per cent of the raisin crop of California has already been shipped out of the state, according to figures of the Associated Raisin Company.

Growers of Kingsburg, Fresno County, are still working to secure a cooperative cannery which will have a selling commission in connection with it.

Several hundred acres in the south San Joaquin have been contracted for sugar beet growing the coming season. The Spreckels company making the contracts guarantees a $5.50 per ton flat rate.

Fresno is passing the contribution box to raise a fund that will justify its inviting the International Irrigation Congress of 1915 to come to Fresno. The plan is to have the delegates spend one day there.

According to figures recently given out it is determined that the total cost to citrus growers of the protective system this year used for shipping oranges will not be more than one-fifth of a cent per box.

The convention of the State Irrigation Districts' Association was held in Fresno the middle of December. The principal resolution passed was favoring legislation to make irrigation district bonds more saleable.

A bill has been introduced in congress providing that desert land settlers in Fresno and Kings Counties who have not been able to secure sufficent water on their lands at the expiration of the four-year term be allowed a further extension of three years.

At the recent annual meeting of the Porterville Poultry and Pet Stock Association plans were discussed for the next show and the following officers were elected: Lacy Threlkeld, president; T. M. Slusser, secretary; Edward Bennett, treasurer; E. D. Fawcett, exhibition manager. Standing committees include J. H. James, Leslie McAuliff and Robert A. Mack on publicity, and J. P. Holden, W. S. Hayes and Harry Claubes on finance.

Southern California

Redlands shipped 250 cars of fruit in its Christmas pool.

San Fernando's lemon day sale brought a total of $231 for charity.

A second investigation of the Lima Bean Growers' Association is rumored.

Orange County's board of forestry will do its first tree planting in the Garden Grove district.

San Bernardino County's new trout hatchery has been finished. It is located in Bear Valley.

Heavy shipments of cantaloupe seed are being received in Brawley. Planting has already begun.

A Chino stock man has just received two carloads of Holsteins and Jerseys from Port Angeles, Washington.

People at Monrovia are actively at work plowing, harrowing and planting vacant lots to wild flowers.

The production of pimientos in the Garden Grove district of Orange County will reach approximately 1400 tons this year.

Beekeepers of California are holding on to their honey crop until prices show some indication of coming up to a reasonable basis.

The San Fernando Citrus Growers' Association has elected Thomas Knox president, Fred Norcum vice-president and W. S. Shoemaker, secretary.

Horticultural Commissioner Beers of Santa Barbara County has been gathering large quantities of carob beans for distribution in his county.

The 1914 citrus crop will bring to the state about $33,000,000. One hundred and fifty thousand people earn their living through the citrus industry.

The orange show association of San Bernardino has appropriated $19,000 for expenses of the exposition which will be held in that city February 17-24.

It is estimated that California's production of beet sugar for the year will reach 3,500,000 bags. Thirteen sugar factories were operated this season.

The Inglewood high school in Los Angeles County has secured a tract of ten acres near the school building, the ground to be used by classes in agriculture.

Owners of orange and lemon groves in Yorba Linda have been very much worked up over the attempt of oil locators to do assessment work on their lands.

Fears of shortage of beet seed for the season's planting have proved groundless; shipments from Germany have already been received and more are on the way.

President O'Niel of the California Vegetable Union states that Southern California's shipments of vegetables for the season will total 6000 carloads. Two thousand five hundred cars are of celery.

A new prize has been announced for exhibits at the National Orange Show at San Bernardino in February. This will be $10 for a box of navel oranges testing the highest percentage of soluble solids to acid.

The Coast

Eggs are retailing in Spokane at 65 cents.

Farmers of Willcox, Arizona, met Farm Demonstrator Paschall at Willcox December 30.

Wheat prices in Portland last week reached the highest price during the season, $1.18 being offered.

A new creamery has been opened at Dillon, Montana, 283 cows being pledged toward its support.

Washington produced during the past year 22,680,000 pounds of butter, valued at nearly seven and a half million dollars.

Range cattlemen of the Gila national forest of Arizona met at Silver City and perfected a strong organization recently.

The glut of apples in the eastern market is being lessened and better prices are being obtained for eastern Washington fruit.

The Inland Empire Poultry and Pet Stock Show ended at Spokane last week with the largest exhibit yet made by that association.

Arizona was visited by very heavy rains during last week and damage to the extent of millions of dollars was visited upon many sections.

Considerable damage has been done in southern Arizona by floods caused by the exceedingly heavy rains of the latter part of December.

The Northwest Live Stock Association, recently assembled in convention at Lewiston, Idaho, elected E. S. Sweet of Grangerville president.

An Oregon nursery is selling large numbers of filbert trees. It is said the soil and climatic conditions of Oregon are just right for producing that nut.

The annual convention of the Arizona Cattle Growers' Association and the Cochise County Stock Growers' Association was held at Douglas, January 4, 5, 6.

The Washington State college is encouraging the formation of turkey clubs in different sections of that state. North Yakima already has one thriving club.

The Oregon butter and cheese makers met in annual convention at Portland last week. O. B. Neptune of Albany was elected president for the coming year.

The grand champion steer at the recent Portland Pacific International Livestock Exhibition commanded $24 per hundred. Sales of fat cattle aggregated $250,000.

A plant has been constructed at Wenatchee, Washington, by the Sumner Fruit Growers' Association which will operate as a cannery and preserve waste products of that section.

During the recent convention of the Northwest Live Stock Association at Lewiston, Idaho, there was organized The Pure Bred Live Stock Association. The membership is composed of Washington breeders.

North Yakima has been chosen as the next meeting place of the Washington Irrigation Institute. The institute urges location of agricultural experiment stations in irrigation sections of the northwest.

How Many Hides Has a Cow?

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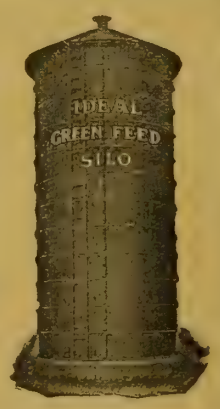

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Live Stock and Dairy

THE DAIRYMAN'S RELATION TO QUALITY

By L. M. Davis

QUALITY is the keynote of a permanent success. Though the individual dairyman may doubt this, its truth is established when the dairy business of the whole of California, present and future, is considered. Failure to realize what constitutes success, refusal to meet the obligation which every dairyman owes to the dairy industry, and competition are at least three conditions which have brought upon dairymen of this state the great problem of how quality can be raised, for the place has been reached where improved conditions must prevail, lest the business suffer materially through a more serious quality situation than was anticipated would exist even at this time. During 1912 an average score of but 91½ points was placed upon over 150 lots of butter sent to be scored at the university farm at Davis, and of this number less than 30 per cent scored 93 points, the requirement for the highest market grade known as "Extras." The percentage of "Extras" changing hands on the principal butter markets is even lower than this, and less than ten per cent of the butter sold in these places will so qualify. The cause for this condition is the improper treatment which milk and cream receive before being placed in the hands of the manufacturer.

Every person who handles milk or cream knows that they are perishable products which require special care. Failure to observe the necessary precautions in handling these products must therefore be considered as a disregard of the principles underlying quality. Were dairymen to apply themselves closely in two particulars, over 90 per cent of the quality troubles would disappear, and this raised standard would be accompanied by a corresponding gain in net profits. Cleanliness and low temperatures are two features the abuse of which leads to low grade dairy production. A large percentage of the bad flavors in milk, cream and butter are the result of dirt, manure, hair and flies getting into milk during the milking process, and this becomes the more serious for the reason that 75 per cent of these contaminating materials go into solution and can be removed in no way, but remain to cause the development of unfavorable fermentations which produce bad flavors in the market production. The results of the butter scoring contests show that 80 to 90 per cent of the criticisms made in California creamery butter are due to defective methods of handling cream before it reaches the creameries.

Dairy conditions which need improvement include not only the maintaining of more sanitary dairy barns, more attention in the matter of cleaning cows previous to milking, clean milkers, properly constructed and cleaned utensils and more care in washing separator bowls, but the length of time and the manner in which milk and cream are held. Along with cleanliness must be the other desirable feature, low temperatures. While the market milk dairyman realizes this to some extent on account of his product being more perishable, the dairyman who sells cream often fails to appreciate the advantage of cooling cream immediately after separating, and thus a condition most favorable to deterioration begins to exist shortly after the milk is drawn. Freshly drawn milk is at an optimum temperature for bacterial growth, and unfavorable fermentations can be checked in no better way than by immediate cooling. If the milk is to be separated, skimming should take place directly after milking, but the cream should be cooled before being mixed with previous skimmings. A tank cooler is so inexpensively constructed and operated that there can be no reasonable objection to its use. Such a cooler may be made from a box or barrel and should be provided with an inlet at the bottom and a discharge at the top. Ordinary milk cans are successfully used as containers, and the water used in cooling may be run into a stock tank. Low temperatures of themselves are effective in helping preserve quality, but an ideal product results when they are accompanied by cleanliness in production.

Careless practices on the dairy favor the adoption of burdensome regulations. With ideal methods in use such would be eliminated, and expensive, artificial processes, such as pastuerization, would be unnecessary. Improvement in the quality of dairy products must begin with the producer, so the dairyman holds the key to the situation. Every effort of the consumer, the distributor, or the manufacturer, will work to his ultimate benefit. Where payment on the quality basis is established, a premium of three to five cents per pound of butter fat is given for cream of highest grade. Such cream can be produced best by paying close attention to cleanliness and immediate and thorough cooling. Were the matter of quality carried to the point where milk and cream would be produced under conditions which prevail upon certified dairies, it would represent an impossible expense, for excessive prices could not be obtained. But this extreme is unnecessary, and the dairy business of California would receive a wonderful impetus if the bulk of our dairymen would but observe the conditions which they know should prevail.

AMERICAN MILCH GOAT RECORD ASSOCIATION

The tenth annual meeting held in Chicago, December 1, 1914, President Professor Francis King Cooke presiding, considering the abandonment of the International Stock show, was very enthusiastic. Mr. D. O. Lively, secretary of the livestock exhibits of the Panama-Pacific Exposition was present and suggested that J. C. Darst, secretary of our Record Association, act as superintendent of the milch goat exhibit. This is the only milch goat record association in the United States, hence there will be only one superintendent.

The secretary was authorized to correspond with the Hon. Holmes Pegler, secretary of the British Goat Society, London, England, the hon-

orable United States consul at Bern, Switzerland, and others for the purpose of obtaining the services of a competent judge of milch goats for awards to be given at the Panama-Pacific Exposition.

Milch Goat Show to be held from October 27 to November 7, 1915 at Panama-Pacific Exposition. The annual meeting of the American Milch Goat Record Association will be held Wednesday, November 3, 1915, in Congress Hall, exposition grounds, during afternoon.

To be eligible for this exposition all goats must be registered in the registry of the American Milch Goat Record.—J. C. Darst, secretary, Dayton, Ohio.

Grade, native goatlings and doe kids need not be registered. No does that have kidded under two years of age will be eligible for this exposition. First, second and third awards for each class. First award in classes one, two and three will designate championship in that class.

Classes

First class—does, two-year-old or older that have kidded.

Second class—Goatling does, one-year-old and under two years, that have not yet kidded.

Third class—Kids, does six months old and under one year, that have not been bred.

Fourth class—Six does in milk, three does with kids, at foot, milk yield of milking does to count 50 per cent.

Owing to the fact that the male goat has a strong odor which is disagreeable to many people, no male goats will be eligible for this exhibition but milch goat breeders are requested to send photographs of their bucks and also milking records of does sired by their registered bucks.

Breeds, eligible for this exhibition—Anglo-Nubian, Guggisburger, Saanen, Toggenburg, native does and grades of above breeds.—J. C. Darst, secretary.

WORLD'S RECORD

We are writing you with reference to a news item which appeared in your paper under date of December 3, entitled "Another World's Record Broken."

That you may be rightly informed on this matter we beg to state that the record which you speak of is a world's record (senior three-year class) for the Holstein breed only and that the Guernsey cow, Dolly Dimple, leads all other breeds for this division with a record of 18,458.8 pounds of milk and 906.89 pounds of butter fat which would be equal to 1132 pounds of butter, as the Holstein breeders figure it.

We commend the Holstein breed on the remarkable record of Duchess Hengerveld Korndyke and upon the remarkable showing they are making with their yearly tests.—The American Guernsey Cattle Club, by C. H. Hulburt.

INDEX TO GUERNSEYS

A complete and extensive, yet compact, alphabetical index of all registered Guernsey cattle has been published by the American Guernsey Cattle Club, Peterborough, New Hampshire.

This contains four sections. In one division of one section appear the names and numbers of all bulls, alphabetically arranged, which are registered in the 28 volumes of the Herd Register now published. The other division contains a similar list of cows, making a total of 27,000 bulls and 48,000 cows which appear in these two lists. Another section contains an alphabetical index of all cows which have entered the Advanced Register up to 2500. The third section contains an alphabetical list of the Advanced Register Sires. Another section of great service to Guernsey breeders is the giving of the errata of the previous volumes of the Herd Register.

The blessed work of helping the world forward happily does not wait to be done by perfect men.—Eliot.

THE FARM HOSPITAL

Written for California Cultivator
By Sacramento Valley Contributor

Every farm should have an animal hospital, where really sick animals can be cared for and nursed back to health and where those suspected of having some disease or any "off color" in any way may be put away from the balance of the herds and flocks.

There are many reasons for having such a place. First, there is the control and check of contagious diseases that might be accomplished by promptly isolating the first prospect and taking vigorous preventive measures with the balance. Thus many young pigs or calves that get "a bit off feed," continue to decline if kept with the balance of the herd because of their inability to "rustle" their share with their healthy, husky mates. If such are put by themselves and given special care and food for a few days they are soon back to normal and go on without serious set-back.

This quarantine place should be a shed or building that is light, clean and comfortable, and one that can be thoroughly disinfected. It should be apart from other buildings and so situated that animals other than those quarantined can not have access to it.

The control of one outbreak of disease or the added gains on a few young animals will pay for such a building.

MILKING MACHINES

The present day milking machines are such an improvement over the old-time machines that they may now be considered beyond the experimental stage. When first put on the market, they naturally had a number of serious imperfections. These have been almost entirely overcome by the inventive ingenuity of man, so that today it may safely be said that the most modern of them are a success.

The two chief stumbling blocks were keeping the machine clean and avoiding injury to the udder of the cow. It is true that in the hands of a careless operator they are still subject to criticism along these lines, but it is the fault of the operator, and not of the machine. It will no doubt always require more intelligence and judgment to operate them than is generally displayed by a large percentage of our hand-milkers. When in the hands of careful men they are a success.

It would be difficult to foretell what the future has in store for the dairyman with the milking machine to do his milking. Nevertheless, the most difficult problem, that of hired help, should be at least partially solved. If there is any one drawback to dairy farming, it is this one of keeping competent and reliable help. All other irksome farm operations seem to have been benefited by mechanical invention, but milking, the most despised of them all, seems either to have been neglected, or to have been the more difficult to solve. Men hate the monotony and regularity of hand-milking. Perhaps mechanical milking should prove more popular, as the amount of time and physical exertion is greatly decreased. Already a great many have been installed in some of our best dairies, and their success there is being watched with much interest by farmer dairymen.—H. E. Dvorachek, Colorado Agricultural College.

AYRSHIRE BREEDERS' ANNUAL

The 40th annual meeting of the Ayrshire Breeders' Association will be held on Thursday, January 14, 1915, in New York, to hear the report of the secretary-treasurer, the advanced registry report and the report of the executive committee. Matters pertaining to the Panama Pacific Exposition will be discussed at this meeting. —C. M. Winslow, Secretary.

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On every 40 acres we install a pumping plant, provide trees and seed adapted to the soil, and necessary farm implements to begin your work.

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Write to Mr. A. L. Rice, Manufacturer, 163 North St., Adams, N. Y., and he will send you a free trial package, also color card and full information showing you how you can save a good many dollars. Write today.

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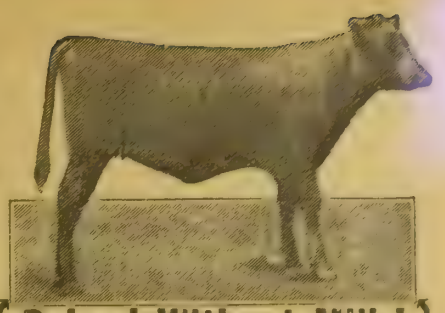

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Her name is "Daisy" and her owner, W. A. Riddle, of Chapin, Iowa, raised her on Blatchford's Calf Meal, which costs less than half as much as milk.

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PLOWS, HARROWS, LAND ROLLERS, RIDGERS, DRILLS, TRANSPLANTERS, CULTIVATORS, MOWERS, RAKES, FEED CUTTERS, CREAM SEPARATORS, BARN EQUIPMENT, GAS ENGINES, SCRAPERS, VEHICLES, WAGONS, TRUCKS, GARDEN TOOLS, MILK CANS, PAILS, ETC.

We can only give you a rough idea of the principal items. Not all styles or sizes are included, but plenty for you to pick from. You can save money on almost everything you need—but remember, the quantities are limited. Make up a list of what you need and write or call and see us.

Please remember that we are not moving our office and salesrooms—merely one of our warehouses. You will still find us at the same old stand.

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In your irrigation work you can be equally sure of your water supply if you will install Krogh Pumps. For every depth of well—Turbines, Horizontals and Verticals. Our "Field" Engineers will advise you in selecting your equipment if you wish. Write Krogh Mfg. Co., Los Angeles or San Francisco, for complete information.

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When writing advertisers, mention The Cultivator.

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Sweeny

I have a young mare with a sweeny as large as my hand behind her right shoulder blade. She has done very little heavy work and has not been injured that I know of. What is the probable cause and a cure?—Subscriber, Thalheim.

Sweeny is only caused in one way, that is by a sudden jerk or strain; by the horse slipping or the vehicle to which the horse is hitched striking some solid object. It may not be noticed much at the time or may be enough to cause severe lameness. In time the muscle atrophies and the only remedy is to apply enough irritation directly to the muscle to cause it to fill up and remain so. A good treatment for sweeny is to put a tape about an inch wide under the skin the whole length of the muscle that is affected. Cut a hole in the skin about an inch long at the upper and lower end of the sweeny and with a blunt needle threaded with the tape pass it under the skin from the upper to the lower opening. Draw the tape through and tie large knots on each end so it can not come out. The tape should be oiled with castor oil and turpentine before using it and it should be moved up and down every day until the muscle fills up to its natural size. Then remove the tape and wash out the canal with a good antiseptic solution. Another good treatment is to inject with hypodermic syringe a solution of equal parts of alcohol and turpentine into the muscle in several places. Once the muscle is filled up it will probably stay so. To soften the skin keep it well greased with lard. You really should have a veterinarian treat it as it will require skill and instruments that you would not have.

Black Leg

In the past ten days I have lost three calves, two about ten months old and one about six months old. One was dead when found and the others did not last long. They were in good condition. On opening them we found the middle stomach entirely dried up. All three just alike. Have been told it is "Dry Mern." The calves had access to an alfalfa field and also a dry pasture but they seemed to prefer the pasture which is salt grass, sage and weeds. Do not know which kind they have been eating. There have been heavy frosts. The weeds have lots of seed which they seem to prefer. Have also been feeding millet hay. I tried to make the smaller calf stand but it seemed to have no use of its hind legs. In skinning them I have found the hind quarters very badly bloodshot as though beaten with a club. Can you tell me what this is and if I can do anything for it? Would it do any good to remove them from pasture and feed alfalfa hay and millet?—Subscriber, Yermo.

Your calves died of the disease called black leg. There has been no cure found for that disease but it can be prevented by vaccinating. It is due to a germ that is found in some pastures. The disease runs its course and causes death so quickly that there is little time for treatment. It attacks young cattle between the ages of six monhs and two years, is seldom seen in older cattle. It is only seen in summer and fall so it will be best to have all your young stock vaccinated every year in the early part of the summer. The first thing for you to do is to remove the young stock to another pasture and vaccinate them now, and again next spring Your nearest veterinarian can do it for you and show you how so you can do it for yourself in the future. You should not skin the calves as it will only help to spread the disease. The carcasses should be burned or buried deep and plenty of lime sprinkled about the place. Fortunately this disease does not attack human beings.

Correction—Goat Fails to Breed

In the reply to "Goat Fails to Breed" on page 681 of last week's paper a typographical error was made. "Mix and divide into 94 powders" should have read "mix and divide into 24 powders."

"What is a cabaret?" asked the Elk delegate from Steamboat Springs. "It is the thing," replied the hard-faced Denver man, "that put the din in dinner and took the rest out of restaurant."

Little Willie, aged three, came in bringing a scratched finger for peroxide and consolation. "I cut it on the cat," he explained.

MORE POTASH COMING

American crops and soils are still as hungry for Potash as before the ou break of the European War, which cur tailed the Potash shipments.

Some of the Fertilizer Companies are trying to induce farmers to buy the one-sided low Potash or no Potash fertilizers of a generation ago. This means a fertilizer that is profitable to the manufacturer, but not the best for the farmer. When the Syndicate in 1910 started the direct sales of Potash to dealers and farmers at reasonable prices. Potash sales increased 65 per cent in one year, a clear proof that farmers know that Potash Pays. They know that Potash gives good yields, good quality and resistance to plant diseases.

Many of the Fertilizer Manufacturers are willing to meet the farmer's wishes and sell him what he thinks he needs. These manufacturers are now willing to furnish as much Potash as they can secure. They offer goods with 5 per cent and even in some cases 10 per cent Potash, if the farmers insist on it.

Shipping conditions are improving, more Potash is coming forward although the costs of production and transportation are higher. The higher price of fertilizers is not due wholly to the slightly higher cost of Potash. Much of the Potash that will be used in next spring's fertilizer had reached America before the war started.

There is no substitute for Potash.

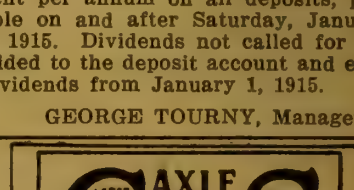
We can no more return to the fertilizer of twenty years ago than we can return to the inefficient farm implements or unprofitable livestock of that period. H. A. HUSTON.

DIVIDEND NOTICE

The German Savings and Loan Society
526 California Street, San Francisco

For the half year ending December 31, 1914, a dividend has been declared at the rate of four (4) per cent per annum on all deposits, payable on and after Saturday, January 2, 1915. Dividends not called for are added to the deposit account and earn dividends from January 1, 1915.

GEORGE TOURNY, Manager.



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Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Property of Wife

When man and wife buy a ranch, each paying half for property and having the ranch recorded in wife's name, what part of property would a child by former marriage of husband get at husband's death? Should the wife die first what would be husband's share in property, also wife's at husband's death?—Subscriber.

Where real property stands in the name of the wife it is the presumption that it is her separate property. It is a presumption that would require the introduction of evidence in court to overcome. Upon the death of the husband the wife would receive one-half of his interest in the property and the child the other one-half. Upon the death of the wife the husband would receive one-half of her interest and the wife's family the other one-half.

Forcing Payment

C instructs E to sink a well for D on a certain piece of land bought or bargained for by D through B. E sinks the well as instructed by C. In the meantime D gives up his contract and the land with the well on it goes back to A, with the work on the well unpaid for. D refuses to pay for the work, so also do A, B and C. Is there any process in law by which E can force the payment for his labor, and which would be the proper one to proceed against? Can a contractor's lien be taken on the land, the work being done by the day at $6.50 per day?—Subscriber, Galt.

E may avail himself of the machanic's lien law, filing his lien for the contract within 60 days after completion of the work; he is entitled not only to foreclosure upon the land but also to a personal judgment against the parties employing him; if he can prove that C was acting as agent of A and B he can hold A and B.

Rent or Vacate

Tenants two months in arrears with the rent have not even made a partial payment. How can I collect it or how do I proceed to get them to vacate the house? Will a written notice sent through the mail be all that is required or how many days' notice do I have to give them?—Subscriber.

If the property is rented upon a lease, oral or written, a three days' notice, signed by the owner, describing the property, requiring payment of the rent and stating the amount which is due, may be served upon the tenant personally or by leaving copy with some person of suitable age and sending a copy through the mail addressed to the tenant at his place of residence. Thereafter if the tenant does not vacate, suit may be brought and upon judgment the constable will put the tenant out of possession. In practice a three days' notice is usually sufficient to get your property.

Pipe Line

A piece of land is purchased under contract which reads "rights-of-way four feet wide along all lines of lots herein described where practicable, and where not so, elsewhere over said lot, so as to cause as little inconvenience as practicable for the construction, maintenance and operation of pipe lines and conduits for the carriage and transportation of water." It would have been possible for the water company to lay their pipe lines elsewhere, but instead they took an easier course diagonally across my property. In making a fill I exposed the company's lateral. Whose place is it to lower this lateral?—Subscriber, Whittier.

It is probable that the company would insist that they were bound only by the condition of the property at the time it was sold to you and are not responsible for your taking away the soil over the lateral. You would have no right to lower the lateral yourself, but by treatment of your land you could probably make it advantageous to the company to do the work themselves. It does not appear that you have any legal right of action however.

Collecting Loan

A lets B have a certain sum of money as a loan, without promissory note. A writes B demanding payment; B in return writes that he is going east and A may get his money sometime. The only papers A has to show that B got the money is a check made to B and letter from B saying he will pay the money. What steps shall A take to compel B to pay his debt?—Subscriber, San Jose.

A should bring suit against B alleging the time when he loaned him the money, that A has made demand and B has refused. The check and the letters, together with his testimony, would be sufficient proof to establish the claim. If B is in the east he can bring attachment against B's property and publish summons and get judgment in that way.

Partnership Pumping Plant

A and B are developing two twenty-acre tracts and to save expenses are dividing the cost of installing a pumping plant, building a reservoir and one line of cement pipe, from which both tracts will be irrigated. Each will contribute half of the land for the reservoir (about 50 feet each). The well, pump and pipe line will be on the property of A. What arrangement is necessary to guard the interest of both parties in case either should sell their property later?—Subscriber, Stockton.

The two parties should make a written agreement, each licensing the other for the use of the ground occupied by reservoir and pumping plant for such time as they may deem wise, which agreement should make provision for the repayment of money advanced by either in case of sale if such should be deemed best. Such agreement should be acknowledged before a notary and recorded.

Misrepresentations of Agent

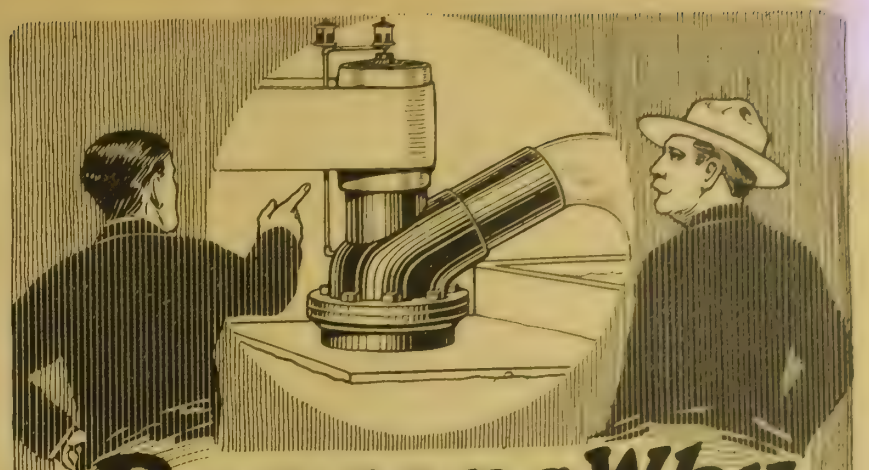
Can a real estate agent be held responsible for misrepresentations?—Subscriber, Soquel.

An agent may be held responsible for any misrepresentation of fact upon which the purchaser relied and by which he has been damaged.

Technical Trespass

A owns piece of land around one-half of lake; B owns land around other half. Can A stop B from going across his line if B stays on the water?—Subscriber, Elizabeth Lake.

It is presumed that each owns to the center of the lake, which it is presumed is not navigable. Such being the case B when he passes over the line commits a technical trespass upon the land of A, for which he could be held for nominal damages. The property of A not being fenced there would be no criminal liability. If B should do damage as a trespasser he could of course be held for such additional damage.



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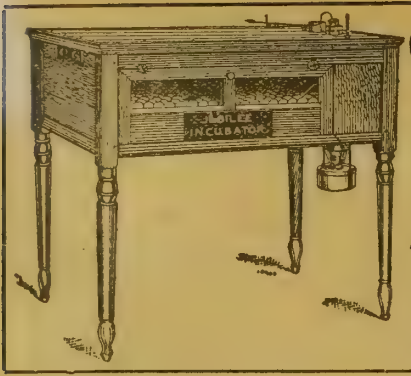

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FEEDING LAYING HENS

Written for California Cultivator

By Jean A. Koethen

I HAVE been much interested this fall in watching the performance of four different pens of hens and pullets. Pen No. 1, which contains six yearling and two-year-old Orpington hens, is not laying at all. Pen No. 2, five yearling Buttercups (fall hatched), has averaged nearly two eggs a day right through the molt, which is very good laying indeed. Only one has seemed to become entirely dormant. Pen No. 3, six Buttercup pullets hatched in March, should, according to all the rules, have given the largest percentage of eggs, but they have not averaged over an egg a day. Pen No. 4, seven Orpington pullets hatched in March and the early part of April have been shelling out the eggs at the rate of two and three a day all the month and have now come up to four.

There is some excuse for the Orpington hens, for they each hatched a brood in the late spring and laid well through August and September, going into a late molt in October, but why should the Buttercup pullets on exactly the same ration fall so far behind the Buttercup hens and the Orpington pullets? There is but one answer, "breeding." They are all thrifty, well developed pullets raised like the Orpingtons on free range, well fed, with big, red combs, but they were bought as chicks from a breeder of whose stock I know nothing, and have apparently not been bred to lay.

The case of these pullets exactly bears out the statement of Prof. A. G. Phillips of Purdue university in Bulletin 10: "Profitable egg production depends on four things—inborn tendency to lay, good health and vigor, comfortable and congenial quarters, proper feed. Therefore while the feeding may be an important item in egg production, it alone cannot control the number of eggs that are desired." This conclusion is not new. The results of all scientific investigation show that breeding comes before feeding as a factor in egg production. We must first have the hen with "inborn tendency to lay" and then feed her the materials she needs for manufacturing eggs.

Proper Materials Required

"Eggs as purchased," according to Professor Jaffa's table in Bulletin 164, are composed as follows: Water 65.6 per cent, protein 11.8, per cent, ash .7 per cent, fat 10.8 per cent, shell 11.1 per cent. The materials we have to supply are, in addition to the shell material and the water, of which all hens require a liberal quantity, protein and fat. But the hen must also maintain her bodily heat and energy, and this requires a liberal supply of carbohydrates, i. e., starches and sugars, which make up the bulk of all grains. She also needs some protein for rebuilding the waste muscular tissue and green food of some sort to keep the digestive organs in condition. Green food also contains some mineral matter and alfalfa and clover are valuable for their protein content.

What shall we feed the laying hen in order to be sure that she has all the material she needs both for egg making and for maintaining bodily health? Grain to supply fats and carbohydrates, animal food in some form to supply the needed protein, and greens are the three kinds of food needed, or has been wittily said, "Grit (for grinding), grain, greens and grubs (meat), cover all her wants." This looks simple enough, and is really not as complex as some people try to make it.

Grain Feeds

First as to the grains. A ration of whole grain will not answer for it consists too largely of fats and carbohydrates; in other words, it is too fattening. Some provision must be made for supplying more protein and reducing the fats and carbohydrates, and this is best done by using the ground grain and mixing with it beef scrap, fish scrap, buttermilk or some other foodstuff such as soy bean meal or oil cake meal which have a very high protein content. The use of bran alone instead of wheat gives a higher proportion of protein than wheat supplies, for the nutritive ratio (proportion of digestible protein to digestible carbohydrates) of wheat is about 1:6, while the nutritive ratio of bran is about 1:3.4. Similarly, ground barley, which is now quite generally used in the dry mash in California, contains a higher per cent of digestible protein than rolled barley, the nutritive ratio of ground barley being 1:8.1, while that of rolled barley is 1:9.6. Wheat middlings contains less protein than bran but rather more than wheat, their nutritive ratio being 1:5.1.

The dry mash mixture which I have been using this fall with very satisfactory results consists of two parts (by measure) wheat bran; one part.

Mandy Lee
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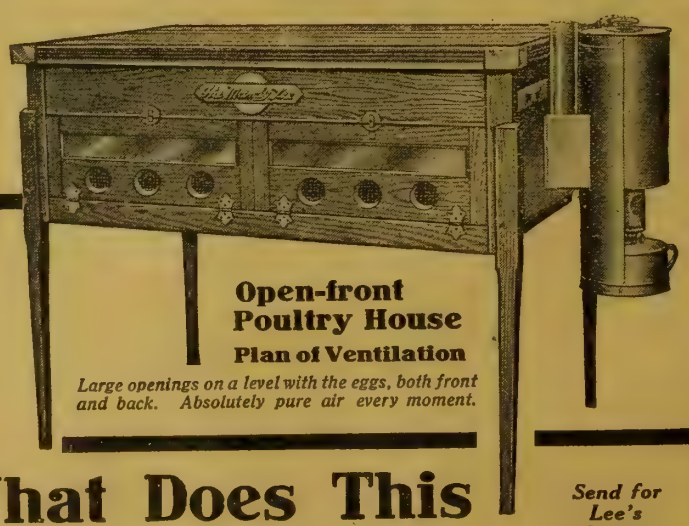

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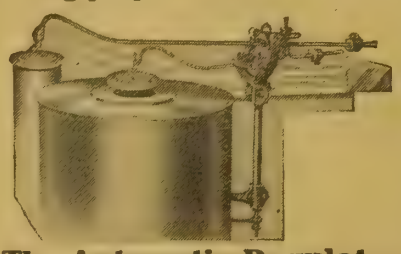

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each of middlings, ground barley and alfalfa meal; about three-fourths part coarse beef scrap and one-half part fine bone meal. I use no corn meal for either Buttercups or Orpingtons except in the moist mash which I usually feed once a day. This moist mash is made of potato skins and table scraps cooked together with a little corn meal added. When it is taken from the stove it is thickened with the above mash mixture. If it contains scraps of meat or fish I thicken with bran and middlings only because the regular mash contains beef scrap and this is not needed. On fish day my fish man brings me the trimmings from the day before; heads, tails, etc. These I cook with my potato and tomato skins, remove as many of the bones as I can, and thicken. If I have lettuce I cut a head in after it has cooled. The hens like this and it gives the variety which is absolutely indispensable.

On the farms of the middle west corn was for many years the chief grain fed to chickens, and it is only of late that poultrymen have learned that this is a grain which must be fed with great discretion. It is still fed much more commonly in the east than in California, and with reason, for it is the most heating of all feeds, and fowls need it in the long, snowy eastern winters as they do not in our land of sunshine. The fat which corn contains becomes in Maine fuel for keeping the body warm; in California it is stowed away as surplus fat to the great detriment of the laying powers.

Fat is of some use to the laying hen. Not only is it needed as the nucleus of the egg when it begins to form, for the yolk is largely fat, but it helps to digest the protein in the ration. Feeds containing a great deal of protein such as beef scrap are rather hard to digest and there is in many of these feeds protein which cannot be assimilated. Investigations at the Massachusetts experiment station have shown that the more fat a ration contains the more easily is the protein digested. Corn when used with a good deal of beef scrap or other animal food may therefore become a very suitable article of diet for a laying hen. It is said that more corn is being used on the Pacific coast since wheat became so dear, and it may be poultrymen have found some way of combining it with a liberal quantity of meat so that the fat in the corn does no harm and the meat is more thoroughly digested. The matter is worthy of investigation at any rate.

In choosing the grains to feed price must always be considered. Wheat, which has a nutritive ratio of about 1:6 (different kinds of wheat vary in their composition), is the best all-round feed and can be used alone for a considerable time without detriment to egg production. One reason for this is that the hens do not tire of it as they do of barley and some other grains. Barley is an excellent feed of nearly as high protein content as wheat and is largely used in place of wheat since the price of wheat went up, but I have never found that hens like it as they do wheat. Even when it is sprouted they tire of it after a while. Some hens will eat dry rolled barley. I suppose mine would if they were compelled to eat it or go without, but they will not eat it if they can get anything else. Rolled barley, steamed with just a sufficient amount of water to soften and swell the grain without making it watery, is palatable and a very good growing feed, but my laying hens seem to prefer the whole barley sprouted. I soak the grain from 12 to 24 hours then pour it into a box with a crack in the bottom—a very small crack is sufficient—cover with a burlap sack and let it stand until the sprouts just begin to show. This is very palatable and more nourishing than grain that is fully sprouted. Sprouted barley for breakfast, with wheat and whole corn, or wheat and corn and barley for the evening meal, makes a very good balance when used with a good narrow mash ration.

The Balanced Ration

The balancing of the ration was a great stumbling block to me for a long time, and it was not till I came to realize that man may balance the ration as he likes, but the hen will dispose of it as she pleases, that light came. Theoretically here in California a ration which contains one part digestible protein to four and one-half or five of carbohydrates and fats is best; in other words because of the warm climate hens do best on what is called a "narrow" ration. Practically you give the hens a variety and they take what they choose. "First come, first served," I suppose. Yesterday I watched a little Buttercup pullet eating from a newly filled mash pan. She picked all over the top, carefully taking the beef scrap and nothing else. The next hen that came certainly got less beef scrap than that pullet did, whatever she may have preferred, and the last hen took what was left or went without. Doesn't this show the futility of worrying over the precise amount of fats and protein feeds to put in the mash? Doubtless the ideal method of feeding is to put the different feeds before the hens in separate hoppers, bran in one, beef scrap in another, middlings, barley meal, alfalfa meal and the vegetable protein feeds in others and the grains in others and let the hens balance to suit themselves. This is not as convenient as feeding all the ingredients in one hopper, but I believe we shall come to it in time.

When all is said, the heart and core of the balanced ration is variety. Hens must have a varity of feeds if only to keep up the appetite, and they must of course have all kinds of food which are needed, i. e., grains, greens and meat.

Animal Food a Necessity

Probably nothing is quite as necessary to the making of eggs as animal food in some shape, and in providing this we have the choice of meat or milk, whichever is most convenient. Green cut bone (scraps of fresh meat cut up fine, bones and all) is the best of all egg foods if it can be gotten fresh. This is the great difficulty. Cut bone that smells rotten and looks dark is not safe to my way of thinking, and hens that are accustomed to clean, wholesome food do not eat it with a relish though they may nibble at it.

Next to fresh meat the best animal food is milk. The poultryman who has skim or sour milk for his hens or can secure it at a reasonable price need not look for other animal food. The best way of using milk is to let it sour and then mix it with the mash. This mash moistened with sour milk is fed once a day at the egg laying contests at the Missouri experiment station with most gratifying results. When a well balanced mash is fed in this way the hens do not have a chance to pick out what they like best, and everyone gets her share of the milk, which is very high in nitrogenous content and very low in fat. Buttermilk, according to the table given in Farmers' Bulletin 22, is 91 per cent water. The other 9 per cent consists of protein 3 per cent, nitrogen-free extract (carbohydrates) 4.8 per cent, ash .7, and fat .5 per cent. Professor Jaffa's figures in Bulletin 164 differ slightly, the protein content being given as four per cent and the carbohydrates as 4.5 per cent. Probably California cows give richer milk than those in the east. At any rate it is plain that about half the available nourishment in buttermilk is protein. Best of all, this protein is all digestible, which is a very great advantage. Skim milk contains less protein than buttermilk, the per cent being about 3.3.

One great advantage in the use of milk, which these tables do not show, is its healthfulness. The acid in sour milk is believed to destroy the bacteria which breed in the intestines of fowls, so that diarrhoea and other digestive troubles are prevented. On the other hand the use of milk in any form is said to encourage the growth of intestinal worms, so that some breeders who use milk find it necessary to supply the birds with wood ashes to keep down the worms.

When neither milk nor fresh meat can be had the poultryman is obliged to fall back on commercial beef scrap and fish scrap, and these are, as a matter of fact, what nearly everyone uses to provide the necessary animal food. Beef scrap is not always fresh and wholesome. I am afraid that if

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all were carefully tested much that is fed would be thrown away as unfit for food.

This is the test: Take a small quantity of the beef scrap in a cup and pour boiling water upon it. If the resulting broth smells like fresh beef steak the scrap is good; if it smells like fertilizer it is unfit for use. I have never tried this test; I didn't dare.

I have not the figures for the nutritive ratio of fish scrap, but it is nearly equal to beef scrap in protein content and perhaps a little more likely to be fresh and wholesome, but it is usually fed in connection with beef scrap. Some poultrymen feed them in turn in the mash, using fish scrap for a while, then beef scrap; others use both at once, making each about half the animal food required.

The necessity of meat in the ration is shown by a test at the West Virginia experiment station where one pen of fowls received a ration largely of corn and other starchy grains, while another pen was fed partly on meat and fresh bones. The meat-fed fowls laid 7,555 eggs, while the grain-fed birds laid 3,431, or less than half as many. The eggs from the meat-fed hens were larger, much firmer, rather better, and produced far more vigorous chicks than those of the others.

Storrs Egg-laying Ration

The ration fed at the North American egg-laying contest at Storrs, Connecticut, has been much commended. It is rather elaborate and contains more corn than it would be wise to use here, but it may be worth while repeating it to show what is considered an ideal ration. It is as follows:

Scratch feed: Cracked corn 60 pounds, whole oats 40 pounds, wheat 60 pounds, barley 20 pounds, Kaffir corn 10 pounds, buckwheat 10 pounds, coarse beef scrap 10 pounds.

Dry mash: Coarse bran 200 pounds, corn meal 100 pounds, gluten feed 100 pounds, ground oats 100 pounds, coarse middlings 75 pounds, low grade flour 25 pounds, fish scrap 30 pounds, beef scrap 30 pounds.

Gluten meal and low grade flour are feedstuffs which so far as I know are not milled on this coast. To supply the protein which they contain, soy bean meal or some of the other vegetable oil meals could be used, I presume. I have read that alfalfa meal was added to the mash this year.

Stimulants and condiments which are sold under the name "egg-maker" or "egg food" should be used with great caution, if at all. Some of them may seem to increase egg production for a time, but, as is the case with all stimulants, there is bound to be a reaction sooner or later, and sometimes they contain ingredients which are positively harmful. An exception may be made in the case of mustard bran, which, moderately used, increases production without harmful results. Many poultrymen speak highly of this stimulant, and it is in quite general use.

No Rule for Quantity

Regularity in feeding is nearly as important a factor as the feeding of the right feeds. Hens must be fed at regular hours; they must have clean, wholesome food and plenty of it if they are to do their best. There can be no fixed rule as to amount. Some hens eat more than others; a hen that is laying needs more food than one that is dormant; and some breeds are larger eaters than others. The good layer will be a good eater and she must have all she needs. It is customary to keep the dry mash before the hens so that each may help herself as she will and to feed the scratch grain in deep litter, giving a sufficient amount so that each hen may go to roost with her crop full. Just how much this is can soon be determined by watching the hens or feeling their crops. When my hens seem hungry half an hour after they have been fed I give them more grain. It is a good plan to keep a little grain in the litter so that the hens may always find it by scratching.

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Apricots, Royal and Newcastle Pears, Apples, Peaches, Cling and Freestone guaranteed, large trees. Don't buy until you get our prices, which are cheap. Newton & Cavanah, Nurserymen, Hemet, Cal.

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USED WINDMILLS, TANKS, PUMPS, ENGINES, RANCH MACHINERY
SPECIAL SALE TILL JAN. 15TH

Aermotor windmills with steel tower	$35.00
Brand new 2000-gal. galv. tank	29.50
7,000 gallon redwood tank	39.50
12,000 gallon redwood tank	55.00
15,000 gallon redwood tank	68.00
25,000 gallon redwood tank	85.00
50,000 gallon redwood tank	95.00

ENGINES ENGINES

3 H. P. Fairbanks $45; 5 H. P. $95; 7 H. P. $115; 18 Union $195; 20 Lambert $195; 28 Lambert $295; also many others all guaranteed first class.

ODDS, ENDS

Post drill $7; heavy drill $25; water meter; shovels and picks 20c; pipe fittings, gates, stocks and dies, sundries.

RANCH MACHINERY

Two Holt tractors, mowers, rakes, scrapers, plows, harrows, cultivators, potato and beet machinery, sprayers.

WANT TO BUY IRRIGATING PIPE AND RANCH TOOLS OF ALL KINDS. SPECIAL SALE ON PUMPS, ALL KINDS.

Material fully guaranteed; save half. Pioneers in our line. OFFICE DEMMITT CO., UPSTAIRS, 120 N. Main, Los Angeles.

Gas engines, centrifugal and deep well pumps, motors, and everything pertaining to irrigation, for sale and exchange. If you want a complete plant or any part write us; we are experts in irrigation; advice and estimates cheerfully given. Will buy, sell or exchange. Reliable and responsible, everything guaranteed as represented. Machinery & Motor Exchange, Inc., 733-735 San Fernando St., Los Angeles. Main 6382, F-3433.

For Sale—Used and new gas engines, 2 H.P. up, rebuilt and fitted with modern equipment. 22 years' experience enables us to repair and rebuild gas engines correctly. Get our prices. Lloyd, 306 N. Main, Los Angeles.

For Sale—2500 new smudge pots at a sacrifice; also electrical thermometer alarm outfit complete with wiring. G. E. Kennedy, El Centro, Cal.

For Sale—Cheap 25-H. P. gasoline, high-wheel traction engine, also a 15-H. P. gasoline engine and 7-inch cylinder plunger pump. R. Stuart, Palmdale, Cal.

On account of moving one of our warehouses, we are making many special prices on gas engines, plows, harrows, land rollers, ridgers, drills, feed cutters, etc. Write for prices or call and see us. Newell Mathews Company, 200 N. Los Angeles St., Los Angeles.

TURKEYS

For Sale—Mammoth White Holland Turkeys. Mature hens and toms. ALSO young stock from five distinct pens, headed by toms from yards of leading breeders of this breed in the state. EGGS IN SEASON. Orders given prompt attention. Prices on application. Address H. McKusick, Box 733, Calexico, Imperial Co., Cal.

Thoroughbred Mamomth White Holland Turkeys from strong, vigorous prize winning birds, thoroughly domesticated; the stay at home kind. Eggs in season. Orders given prompt attention. Prices on application. Mrs. E. H. Broadwell, Crows Landing, Cal.

Mammoth Bronze Turkeys—Strong, vigorous, well marked toms and hens from the best blood of prize winning and utility stock. Prices reasonable. Geo. A. Smith, Corcoran, Cal.

Sharp's White Holland Turkeys made a clean sweep at California State Fair, including sweepstakes. And also at Fresno County Fair. Also snow white Leghorns; stock for sale. Henry Sharp, R. 2, Box 70, Selma, Fresno Co., Cal.

Red Bourbon Turkeys for sale. First prize winning birds. 3 pairs breeders 1½ and 2 years old, and younger stock. Some fine young toms and pullets. A. E. Balmer, Alhambra Valley, Martinez.

Giant Bronze Turkey Toms from prize winning stock; weigh over 20 lbs. at 8 months. Write for prices. Mrs. Nellie Hart, Holtville, Cal.

March Hatch Mammoth Bronze Toms— Big bone, large frame, 25 lbs., $7.50. Prize winning stock. Mrs. Jessie W. Kimball, Farmington, Cal.

BEES

Beekeeping Pays Big—Price list, bees, instruction books, etc., free. Spencer Apiaries Co., Box 14, Nordhoff, Cal.

POULTRY

How to Make Money—Mrs. A. Basley's latest Poultry Book is without exception the best ever written. The secret of how to raise every turkey hatched and the "Basley Formulas," now published for the first time, are worth many times the price of the book. The "Western Poultry Book" is a practical book by a practical woman. Price, $1. Order from Cultivator Publishing Co.

Macfarland Strain White Leghorn eggs $5 per 100, chicks, Jan., Feb., $12, afterward $10, order now, any quantity. Cockerels $2. White Rock eggs, chicks, cockerels; write for prices. Big plant, best stock, lowest prices. Newton Poultry Farm, Dept. 3, Los Gatos, Cal. N. B.—See article about us by Prof. Adams, U. C., in October Poultrycraft.

White Leghorn baby chicks from McFarland Strain, from two years old hens; there is no better laying strain than this. You cannot succeed in the poultry business with poor stock. I guarantee safe arrival by express. My specialty is pleasing my customers. Chicks $10.00 per 100. Book your order for Spring delivery now. $2.00 per hundred with the order. J. W. Lyon, Gardena, Los Angeles Co., Cal.

S. C. White Leghorn Baby Chicks—From my pure-bred flocks S. C. White Leghorns, carefully selected for laying and Standard qualities, $9.00 per 100, $85.00 per 1000. A first class chick at a reasonable price. Eggs for hatching, $5.00 per 100, $45.00 per 1000. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

Incubator Chicks—White Rock, Rhode Island Red, Black Minorca, White, Brown and Buff Leghorn, and Indian Runner Ducks, high class stock—Standard bred and Hoganized. Send for booklet of prices and make your contracts now. Mahajo Farm, P. O. Box 597, Sacramento, Cal.

Baby Chicks and eggs for hatching. White Leghorns (McFarland strain), Buff Leghorns and Rhode Island Reds (Harrison strain) Baby Chicks $12.50 per 100; $100.00 per thousand. Eggs $5.00 per 100; $45.00 per thousand. Terms 10 per cent with order. Book orders early. H. E. Thomas, Box 93, Palms, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. National Poultry Co., successors to Allaway & Layton Co., 607 E. Third St., Los Angeles, Cal.

White and Brown Leghorns—Day-old chicks from healthy vigorous breeders. "Chicks well hatched are half raised." We will be pleased to send you circular and prices. San Jose Hatchery, 371 Meridian Road, San Jose, Cal.

Rhode Island Red Chicks and Hatching Eggs—Hundreds or thousands. Chicks hatched right in our $60,000.00 Hatchery from eggs laid by our 1800 heavy-laying breeders. Pebbleside Poultry Farm and Hatchery, Sunnyvale, Cal.

Baby Chicks—Eggs for Hatching—Pure Bred—Booking orders for February and later hatches. R. I. Reds, Buff and White Leghorns, Black and White Minorcas, White Wyandottes, Buff Orpingtons. Gem City Yards, Los Gatos, Cal.

Rhode Island Reds and S. C. W. Leghorns; greatest laying strains in California. Baby chicks: Reds, $15.00 per hundred; Leghorns, $12.50. Rainescourt Poultry Ranch, Zelza, Cal.

Pullets—Thoroughbred stock—Golden Buff Leghorns—Sheppard's strain Ancona—White Leghorn—White Minorca hens—baby chicks and eggs. Prices reasonable. Sand Ridge Hatchery, Kerman, Cal.

Berry Plants and Belgian Hares delivered free. Brahma Cockerels from Oakland and S. F. Winners. Catalogue free. Old Hickory Supply Co., Dept. 4, Capitola, Cal.

Booking Orders for Hatching Eggs from S. C. White Leghorns, utility birds; selected stock, $6.00 per 100; $50.00 per 1000. No baby chicks. Pine Tree Poultry Farm, Los Gatos, Cal.

Barred Rock Cockerels—(Hawkins Royal Blue Strain) ready for mating, also Barred Rock, R. I. Red, Buff and White Orpington day-old chicks every week. Enoch Crews, Santa Cruz, Cal.

Baby Chicks (White Leghorns)—Shipped on approval. Examine at your home before remitting. No weak ones charged for. Schellville Hatchery, Sonoma, Cal.

Silver Spangled Hamburg—Silver Laced Wyandottes, White Wyandottes and Light Bramah cockerels, beautiful large birds. Tribble Nurseries, Elk Grove, Cal.

Barred Plymouth Rocks—Winners at New York, Kansas and California shows. Eggs and choice stock for sale. C. H. Vodden, Los Gatos, Cal.

Trapnested White and Buff Leghorns, records 120-279 eggs per year. Eggs, chicks, stock. Arthur R. Schroeder, R. 18, Box 179-D, Mountain View, Cal.

Petaluma Hatchery—Now booking orders for December and January. Early chicks bring big money. Send for circular. L. W. Clark, Petaluma, Cal.

Barred Rocks—Only a few fine breeding cockerels for $3.00 each. G. L. Hawley, Madera, Cal.

White Plymouth Rock Cockerels, standard bred birds. Ramona Farm, Box 1361, R. D. 2, Sacramento, Cal.

For Sale—Buff and S. C. Black Minorca cockerels. Also eggs for hatching. Mrs. N. Schilling, Alpaugh, Cal.

HORTICULTURAL PRINTING

Catalogues for the seed and nursery trade. The live stock and poultry industries are a specialty with us. Two thousand illustrations to select from. Write for prices and samples. The Kruckeberg Press, 237 Franklin St., Los Angeles.

LIVE STOCK

Ohio Improved Chester White (O. I. C.) Entire herd immunized against hog cholera. Nothing but immunized stock sent out. Extra fine lot of fall pigs, both sexes, ready for shipment during December and January. Three herd boars used. All stock crated and registered. Make reservations now. C. B. Cunningham, Mills, Sacramento Co., Cal.

Grape Wild Farm Thoroughbreds—Guernsey Bulls of A. R. Breeding. BERKSHIRE HOGS. Finest herd in the state All ages for sale. A. B. Humphrey, proprietor. Mayhews, Sacramento Co., California.

For Sale—Young registered Berkshire boars and sows; fine, strong stock. Boars ready for service—January. Stanislaus Ranch Co., Crows Landing, Cal.

Thoroughbred Berkshire Boars of all ages from developed and large-boned hogs Riccomi Bros., Mountain View, Cal.

Glenview Poland China—Stock for sale Chas. R. Hanna, R. F. D. No. 3, Riverside, Cal.

M. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale.

FARM LANDS FOR SALE

VICTORIA, AUSTRALIA, WANTS SETTLERS

Special inducements; government land, railways, free schools; cheap irrigation; 31 years to pay for farms adapted to alfalfa, corn, grains, fruit, etc.; climate like California; ample markets; reduced passages; special excursion being arranged. Free particulars from F. T. A. Fricke, Government Representative from Victoria, 687 Market St., San Francisco, Cal., Box X.

A Double Your Money Land Buy—312 acres near Watsonville, all first class fruit soil. Fine dairy or stock ranch, splendid buildings, well watered. 7 acre family orchard. Adjoining land, same class, held at $200 an acre. $95 an acre buys this, part cash, part city property, balance easy terms. If you're looking for a giltedge investment, write for full description and photos. E. STEINHAUSER, WATSONVILLE, CAL.

For Sale—Half mile from Exeter 40 acres, 10 acres four-year-old oranges, balance alfalfa, good 10 H. P. electric pumping plant. One-third cash, good terms on balance. Address Box 236, Exeter, Cal.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

For Sale—800 acres, large and small tracts, Pittsburg County; farming, pasture, oil and gas land. $5 to $25 per acre. Write JOHN CAVANAGH, McAlester, Okla.

A Splendid Chicken and Fruit Ranch, improved, 80 acres, very cheap at $3000. Address owner, A. Frederikson, Santa Maria, Cal.

MISCELLANEOUS

St. Joseph's Agricultural Institute, Rutherford, Napa Co., Cal. An Agricultural High School for boarding students. A thorough training given in the theory and practice of diversified farming. The school is located on a thousand acre farm. The students assist in all the branches of work conducted on the farm, plowing, seeding, cultivating, orchard and vineyard work, dairying, hog raising, poultry raising, etc., thereby acquiring a practical knowledge of agriculture which is of equal importance to the theory. The Eighth grade is also conducted, as a preparatory class. The fee for board and tuition is very reasonable. Classes reopen on January 4th, 1915. For further information apply to the President, Bro. Thomas H. Claffy, S. M.

We are preparing to move from one of our warehouses to a new one, and find hundreds of items that we wish to close out quickly. Plows, Harrows, Land Rollers, Ridgers, Drills, Transplanters, Cultivators, Mowers, Rakes, Feed Cutters, Cream Separators, Milk Cans, Pails, Barn Equipment, Gas Engines, Scrapers, Vehicles, Wagons, Trucks, Garden Tools, etc. Prices sharply reduced. Write or call and see us. Newell Mathews Company, 200 N. Los Angeles St., Los Angeles.

Free for Six Months—My special offer to introduce my magazine "INVESTING FOR PROFIT." It is worth $10 a copy to anyone who has been getting poorer while the rich, richer. It demonstrates the REAL earning power of money, and shows how anyone, no matter how poor, CAN acquire riches. INVESTING FOR PROFIT is the only progressive financial journal published. It shows how $100 grows to $2200. Write NOW and I'll send it six months free. H. L. Barber, 430, 28 W. Jackson Blvd., Chicago.

How to Make Money in California on an investment of $1,000.00 or less. I will tell you how to double your money yearly. Send 25c for book. Alfred Mitting, expert horticulturist, 8 New Street, Santa Cruz, Cal.

WANTED

Wanted — Responsible party to take charge of business in each county. New Automatic Combination Tool, combined wire fence stretcher, post puller, lifting jack, etc. Lifts or pulls three tons, weighs 24 pounds. Sells to farmers, shops, teamsters, etc. Descriptive catalogue and terms upon request. Harrah Manufacturing Co., Box M, Bloomfield, Ind.

Farms Wanted—We have direct buyers. Don't pay commissions. Write describing property, naming lowest price. We help buyers locate desirable property free. American Investment Association, 12 Palace building, Minneapolis, Minn.

Wanted—To hear from owner of good farm for sale. Send cash price and description. D. F. Bush, Minneapolis, Minn.

IMPLEMENTS

We are preparing to move from one of our warehouses to a new one, and find hundreds of items that we wish to close out quickly. Plows, Harrows, Land Rollers, Ridgers, Drills, Transplanters, Cultivators, Mowers, Rakes, Feed Cutters, Cream Separators, Barn Equipment, Gas Engines, Scrapers, Vehicles, Wagons, Trucks, Garden Tools, Milk Cans, Pails, etc. Prices sharply reduced. Write or call and see us. Newell Mathews Company, 200 N. Los Angeles St., Los Angeles.

SEEDS AND PLANTS

Sudan Grass—Pure, officially inspected, recleaned Sudan Grass Seed in seamless cotton bags, prepaid, 5-pound packages, $2.50; 10-pound, $4.50. Cash accompany order. Write us for prices on 100 pounds or more. Our prices are right. Dee Turner Pure Seed Company, Lubbock, Texas.

Strawberry Plants — Gold Dollar, Clark Seedlings, Magoons, Wm. Belt, Marshalls, Goodells, Early Ozark, and new Oregons, $2.50 per thousand. Thoroughbred plants. Mr. John Christiansen, R. F. D. 2, Canby, Oregon.

Sudan Grass—Government inspected, 50 cts. per lb. If you pay more you are throwing away your money. Amarillo Seed Co., Amarillo, Texas.

Berry Plants, Rhubarb, Cacti—It will be worth your while to send me a postal right now if you are interested. Louis F. Scribner, P. 2, Pasadena, Cal.

Sudan Grass, Kudzu, Imp. Alfalfa, Spineless Cactus—The big four forage plants. Prices O. K. Write, J. L. Lawson, San Jose, Cal.

Rhubarb—Crimson Winter, $3.00 per hundred; Wagner's Giant, $5.00 per hundred. Good, strong, one-year plants. Currier Bulb Co., Seabright, Cal.

For Sale—Avocado Seed, also fine budded "Taft" Avocado trees. C. P. Taft, Orange, Cal.

For Sale—Beldi Barley, clean for seed. H. Pile, Ramona, Cal.

Brandywine Strawberry Plants — Fine large plants. J. H. Shirk, Tulare, Cal.

Himalaya Berry Tips—$2.50 per 100; $15 per 1000. A Cooley, Sunnyvale, Cal.

RABBITS

For Sale—New Zealand Rabbits. "The best meat producers." A grand bunch of fine, red, half-grown youngsters, 1 buck and 3 does for $5.00. Also mature stock. Your chance to secure a start of this splendid strain at small cost. Shipped anywhere. Standard Rabbitry, Santa Ana, Cal.

New Zealand Reds—Scored and sold on merit. Investigate. Our Catalogue is free. Caldwell Bros., Los Angeles, Cal., Box 613.

HELP WANTED

Wanted—3 or 4 berry growers to come to SANTA CRUZ, CAL., to grow berry plants for us under contract for 5 years; will also buy all the fresh berries when we put up our new berry-drier in 1916. We will guarantee that you will double your money each year. We need 1,000,000 berry plants grown each season, and also use 100 tons of berries for our drier. Send for particulars to SANTA CRUZ BULB & PLANT CO., 8 NEW ST., SANTA CRUZ, CAL.

DOGS

For Sale—Airedales. If you want a companion for the children, a faithful friend, a guardian for the home or an unequaled hunter for game, big or little, get an Airedale Terrier. A. H. Brinton, Woodland, Cal.

GEESE

Thoroughbred Toulouse Geese—Large stock. One, two and three-year-old. Breeders for sale. $7.00 per pair, $10.00 per trio. Snapshot photo on request. A. E. Nelson, El Monte, Cal.

A SIMPLE THERMOMETER SHELTER FOR ORCHARD USE

(Continued from Page 3.)

cludes rising air currents and intercepts any radiations from the earth, while the latticed sides allow a free circulation of the air. The shelter must be located at least five feet above the ground. It has been found as a result of many experiments that the indication of the thermometer in such a shelter usually gives the real air temperature correct to within half a degree. It is most in error on still, clear, cold nights, and on still, hot, summer days. In both cases the indications of the sheltered thermometer are too conservative.

"66. Sling Thermometer—Another method of getting the real air temperature is by means of the sling thermometer, which was devised by Arago in 1830. Since a thermometer shelter is not portable, a sling thermometer is particularly advantageous for scientific expeditions and for those observations of air temperature which are not made constantly in the same place. The sling thermometer consists usually of two thermometers attached to a board, which is provided with a chain or string, so that it can be whirled rapidly. In some cases the bulbs of the thermometers are covered by wire netting in order to protect them from injury.

"Whirling the thermometer brings a much larger quantity of air in contact with the bulb, and the exchange of heat with the surrounding medium by means of conduction is thus emphasized. The underlying principle in the use of the instrument in getting real air temperature is to so emphasize conduction that the effect of the radiant energy received or emitted becomes negligible in comparison. Several minor errors are introduced by whirling the thermometer. The centrifugal force causes a slight lowering in the indication of the instrument, and the friction of the bulb with the air would raise the temperature slightly, but these small errors counterbalance each other for the most part. It is supposed that the sling thermometer will give the real air temperature accurately to within a half a degree Fahrenheit under almost all circumstances."

FEDERATED POULTRY ASSOCIATION

A meeting of poultrymen of California was recently held in San Francisco, at which time was organized the new federated poultry association. George H. Crowley was elected president and E. J. Talbot of the San Francisco Poultry Association was made secretary. The aim of the association is to give stronger backing to poultry people the state over, watching especially over legislation and preventing, if possible, adverse laws going into effect. The association will endeavor to create a better sentiment toward the poultry industry generally and to induce chambers of commerce, railways and other large forces of the state to give it more consideration.

Poultrymen feel that if the state can appropriate $100,000 to maintain a horticultural commission to advance the fruit interests of the state, with large amounts to dairying, viticulture and other branches, it should not neglect so completely as it has the poultry industry.

The headquarters of the association will be at the office of Mr. Crowley, 316 Underwood Building, San Francisco.

CALIFORNIA "BRANCH" AMERICAN POULTRY ASSOCIATION

The California Branch American Poultry Association, under the presidency of Lyman C. Byce of Petaluma, is a live wire. Secretary Kruckeberg is mailing statements of financial condition and transactions for the past year. Referring to the proceedings of the National, and also to the local situation, President Byce says in his annual:

"One or two things I am indeed glad to note, viz.: The adoption of a new constitution, broader and more comprehensive than the former one, by which the term "Branch" is eliminated and the organization of state or provincial associations is made possible.

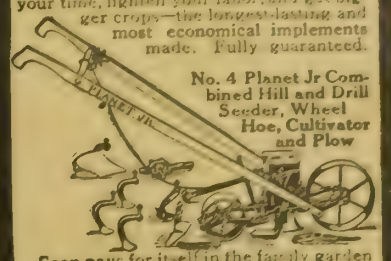
"The term "Branch" has always been distasteful to your president and secretary, and the latter had the courage to place on our stationery "American Poultry Association of California," and is entitled to all due credit for having done so. Your president was called upon at the convention at Atlantic City for an explanation of this deviation, and voiced his disapproval of the word "Branch" as being detrimental to the best interest of the institution in state work, and had the honor of being heartily commended by many of the most prominent members and received a great deal of favorable comment from leading poultry journals for his stand.

"It is a considerable source of satisfaction to know that the newly adopted constitution enables the members to drop the word "Branch" and adopt some other suitable appellation, and to California is the credit largely due."

From this it will be seen that the use of the word "Branch" in the heading of this article is not according to the constitution, and that from now on the state association will be known as the American Poultry Association of California.

Planet Jr.
Seeder-Cultivators

The farm and garden tools that save your time, lighten your labor, and get bigger crops—the longest-lasting and most economical implements made. Fully guaranteed.

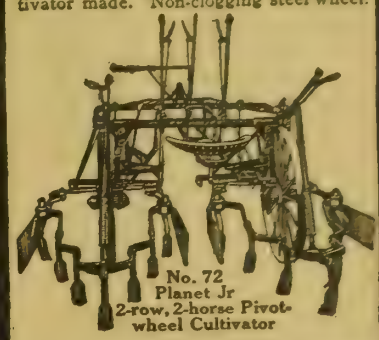


No. 4 Planet Jr Combined Hill and Drill Seeder, Wheel Hoe, Cultivator and Plow

Soon pays for itself in the family garden as well as in larger acreage. Sows all garden seeds (in drills or in hills), plows, opens furrows and covers them, hoes and cultivates quickly and easily.

No. 8 Planet Jr Horse Hoe and Cultivator

Stronger, better-made, and capable of a greater variety of work than any other cultivator made. Non-clogging steel wheel.



No. 72 Planet Jr 2-row, 2-horse Pivot-wheel Cultivator

Saves a man, a team and a cultivator every day it is used. Cultivates 2 rows of corn, potatoes, beans, etc., at one passage, even if rows are crooked or of irregular width. No wood used except for break pins.

72-page Catalog (168 illustrations) free

Describes 55 tools including Seeders, Wheel Hoes, Horse Hoes, Harrows, Orchard- and Beet-Cultivators. Write postal for it.

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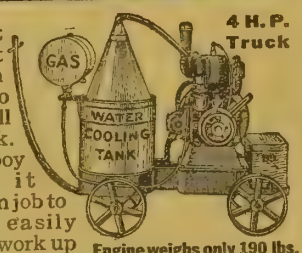
Cherry Trees

Cherries are the first, the most attractive and the best fruit of the summer season. This, together with the fact that they are very profitable, yielding from $400 to $600 an acre, makes them a good "buy" for any fruit grower in position to raise them.

Our block includes Bing, Black Oregon, Black Tartarian, Burbank, Royal Ann, and other good varieties on Mahaleb and Mazzard Root. Write Us First.

THE SILVA-BERGTHOLDT CO.
"Fruit Tree Specialists"
P.O. Box A Newcastle, Cal.

Light Weight Cushman Engines For All Farm Work



4 H. P. Truck

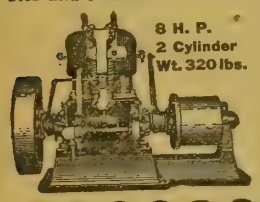
Engine weighs only 190 lbs.

This Light Weight Cushman Truck is so handy for all power work. So light a boy can pull it around from job to job, yet it easily handles all work up to 4 or 4½ H. P.

Runs at any speed desired, speed changed while running. Pump circulation to water tank prevents overheating, even on all-day run. All Cushman Engines are

Throttle Governed—Steady and Quiet

No jerky, explosive hit-and-miss running. They are the **most useful engines** for farm work, as they do everything the big fellows do and so many jobs big engines cannot do. May be attached to binders and other machines as power drive. Equipped with Schebler Carburetor and Friction Clutch Pulley. **Not a cheap engine**, but cheap in the long run. Sizes 4 to 20 H. P.



8 H. P. 2 Cylinder Wt. 320 lbs.

Engines Distributed from Pacific Coast centers. Write for free Engine Book.

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Better Crops on Perfect Seed Beds

Prepared With the

ACME Pulverizing Harrow

AFTER-plowing sod or stubble it must be worked down thoroughly and pulverized. Sods, clods and lumps must be broken up; air spaces and voids worked out and filled to insure a seed bed that will give BETTER CROPS. Make available the plant food in plowed-in manure by thoroughly mixing with pulverized soil. BETTER CROPS will result.

The "ACME" Pulverizing Harrow

makes possible the *perfect seed bed*. Sizes 8 to 17½ ft. wide for one to four horses.

Light Draft—All Steel—Low Price

Write for catalog and name of nearest dealer.

DUANE H. NASH, Incorporated
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No. 23 6½ Ft. Wide

Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Bermuda Grass

What may I use to kill Bermuda grass or retard its growth in an open irrigation ditch? Hoeing out gives only temporary relief owing to the continual moisture in the ditch.—Subscriber, Anaheim.

To keep down Bermuda grass along ditch banks is a serious problem. Everything from goats and other live stock down the line to several kinds of chemicals have been tried and all have been found wanting to a degree at least. Keeping down the pest along ditch banks by pasturing with goats is perhaps the best method. Wherever possible to cultivate, a good team and sharp cultivator is most effective. Chemicals which will destroy this pest will also prove injurious to other crops growing on the same land or possibly to crops which may be irrigated with water from the ditch.

Grafting Almonds

Will you kindly tell me when is the best time to prune almond trees for grafting? Have six Nonpareils that have not borne and want to graft to some other variety. Would it be practicable to graft almonds on peach trees planted a year ago last spring?—Subscriber, Merced County.

Unless one is experienced in grafting stone fruits we would recommend resetting the young peach trees rather than grafting over. The making over of such an orchard is possible, but for the novice to attempt it would cost more and lead to less satisfactory results than to start in with clean grown, young, thrifty trees true to name. As to the larger almonds it is also a matter of experience and as a rule will not pay. However, we know some have succeeded in grafting over. This is the season for the work if subscriber wishes to try it.

Olive Cuttings

When is the best time to plant Manzanillo olive cuttings in the San Joaquin Valley? Should the ground be kept wet?—Subscriber, Terra Bella.

If truncheons or ripe wood cuttings are referred to plant any time for the next month or two. If it is intended to plant the herbaceous cuttings and they are going to be rooted in sand before being put into the open a few weeks later would be better. Roots of the olive require air, which cannot be secured if the soil is kept soaked. However, they do require sufficient moisture to keep them growing well the same as any other tree or, perhaps more correctly, the same as a garden crop.

Listing

I am planning to list my kafir corn, etc., next spring instead of plowing and planting with a drill as is usually done in this state. Will you or some of the Cultivator readers please tell me if it is safer to plant in that way. I would also like to know where I can get a lister and the proper size to buy.—Subscriber.

There is but little listing done in this state. Except where irrigation is possible it would probably not be best for the reason that the ground is not put in the best condition for holding moisture by this procedure. As to securing a lister, we think any implement dealer advertising in our columns can supply you.

Beans on the Desert

I have been told that in parts of Colorado and New Mexico Blackeye and Mexican Pink beans are grown profitably under desert conditions, with irrigation, yielding 15 to 30 sacks to the acre. By "desert conditions" I means no danger of frost from May 15 to September 15, with hot dry winds possibly after July 1st, very probably during August. The soil is a decomposed granite 6 to 12 inches deep, the subsoil a mixture of sand and red clay. There is no visible alkali but a probable deficiency in nitrogen. There are scanty native legumes. Cow pea plants grow thriftily and bear well, while others are lighter in color and less prolific. Evaporation is very rapid from June 15 to September 1. Last season Tepary beans planted May 5, yielded at rate of 800 pounds per acre. No previous experience in raising beans on desert but have grown on coast to some extent. Might do better with Teparies but there seems to be no demand for them. Whippoorwill peas planted June 24 for green manure matured some peas and were in full bloom when turned under late in September.—Subscriber, Lancaster.

In your section would suggest continuing the planting of the Tepary. It may not bear exceptionally heavy crops but it is certain and stands desert conditions. If other varieties of beans are planted and the hot dry winds should come at blossoming time the blossoms would all be blasted. The best proof, however, in this case is to try the Pinks and the Blackeyes, especially the latter, alongside the Teparies. One year's trial will give a very good idea as to how they will do under your conditions.

Renewing Orchard

I have an orchard of figs and peaches planted in 1912. The trees have made very little growth, less than two feet, having never been irrigated, but are of good color. If we are able to get water in a couple of years will they start to grow or will they be forever stunted? Will it pay to keep them?—Subscriber, Merced County.

We believe we would forsake the present plan and wait until water is secured and put in fresh young trees. It will be very difficult after trees have stood such a long period without thrifty growth to overcome the hard dry bark or hide-bound condition. This is one reason why good orchard trees should at all times have sufficent moisture to keep up growth until the regular dormant season in the fall. Ordinarily it does not pay

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The Farmer's Guide Huntington, Ind. Established 1889.	80,000 Weekly
The Nebraska Farmer Lincoln, Neb. Established 1859.	50,000 Weekly
Farm and Ranch Dallas, Tex. Established 1882.	90,000 Weekly
Field and Farm Denver, Colo. Established 1872.	30,000 Weekly
California Cultivator Los Angeles, Cal. (Rural California merged July 1, '14) Established 1877.	21,000 Weekly
The Washington Farmer (Formerly The Ranch) Seattle, Wash. Established 1881.	20,000 Semi-Mo.
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The Idaho Farmer Boise, Idaho.	10,000 Monthly

For advertising rates or any other information about any or all of these papers address nearest office.

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to try to overcome the natural tendency of a stunted tree.

Horse Beans

How early can I safely plant horse beans in this locality?—Rancher, Merced County.

The horse bean is susceptible to frost, as are practically all members of the bean family, therefore your own neighbors, if you have no records, can best inform you as to safe period to plant. In some sections of the state this might be in March, but in most sections probably not until April or May.

Turnips for Humus

Would like to know the humus-making value of turnips. They bear an immense tonnage, and it seems to me they should prove of value to the land if grown and plowed under.—Subscriber, Orange County.

We have no very definite information as to the humus value of turnips, but since they contain a very high percentage of water the organic matter is low. Then, too, the crop is somewhat deceptive as to weight and a crop of 10 to 15 tons to the acre will be found oftener than a larger crop. Mangel beets will average 20 to 22 tons to the acre, and have a larger percentage of organic matter. Barley that is sowed early often produces a very heavy tonnage and much more humus than either turnips or beets, but the humus of neither is of as much value as that from vetches or some other leguminous crop. Vetch as grown in open ground will frequently produce a crop of 20 tons of green material to the acre though in some places it will not produce a paying crop and it then becomes necessary to plant a crop which will produce a larger tonnage. Plant vetch first, but sow early in October, so it can get a good start in the warm weather. If the vetch does not produce a good crop try barley for a few years and then vetch, but get humus in the soil however it is done. —J. B. Neff.

Pruning Roses

When is the best time to prune rose bushes? Should new growth be retained as much as possible?—Subscriber, San Fernando.

Now is a good time to prune roses, and if much new growth has been made do not cut too much of it away. Note that the old, mistletoe-like heads are not throwing out vigorous growth, therefore cut these away if strong canes below are putting forth strong laterals from vigorous buds. Thus will you get new heads in place of the old ones of many small and insufficient bushy twigs. Aim to cut away small and weakly wood, especially where there is manifest promise of its replacement by strong new growth. Never sacrifice really vigorous new growth for the reason that all such can, and probably will, produce a good crop of fine blossoms.—E. B.

Public Lands

Have read in your paper of homestead opportunities in Modoc and Siskiyou Counties. How can a man locate such lands?—Subscriber, East Bakersfield.

Write the United States Land Office at Susanville, California. In addition, we may suggest that anyone interested in public lands where the new settler may establish a homestead should write the Superintendent of Documents, Washington, D. C., for Price List 20, entitled "The Public Domain." This price list contains over 30 pages of titles of bulletins which may be had for a sum that covers merely the cost of publication. A great number of these pamphlets cost the applicant only 5 cents each and few cost more than $1. No money is required for postage, as government publications go free through the mails. Here are a few sample titles taken at random from the bulletin: Suggestions to Homesteaders and Persons Desiring to Make Homestead Entries, price 5 cents; Use of National Forests for Recreation Purposes, price 7 cents; Summer Homesteads on Public Land, price 7 cents; Homestead Entries by Minors, price 9 cents; Vacant Public Lands in the United States, price 5 cents. Other pamphlets listed will be of value to those interested in conservation and irrigation. There are also publications on boundaries, coal lands, desert lands, drainage, forest service, Indian lands, and lands in the various states, including the Philippines, Panama and Hawaii.

Breeding Sow and Cow

How soon should sow be bred after her first litter? Also how long should it take for her second litter?

Heifer will calve December 15. Would like the next calf to come in November. Will that be too soon?—Subscriber, Kerman.

Sows that are strong and vigorous should have two litters of pigs each year which divided evenly would be one each six months. The average period of gestation is 112 days. Young sows often farrow a few days earlier than that while mature sows may run over a few days. This period is approximately four months, and to have two litters annually the sow must be bred by the time her pigs are two months old. If one has skimmed milk to feed the pigs they may readily be weaned at the age of six weeks and the sow given time to recuperate.

November next will not be too soon for the heifer to calve again. The average period of gestation in cows is 280 days. This is approximately nine months and as the heifer will calve the middle of this month she will not need to be bred until February in order to have her calve in November.—L. A.

Fertilizers for Cantaloupes

What is the best commercial fertilizer to use with cantaloupes? Will early maturity be secured through the application of any fertilizer? The soil is rather heavy and contains a little alkali. On this land alfalfa has been growing for the past three years. —Subscriber, Imperial.

Fertilizers are applied to promote the growth of the plants and continued rapid growth is not conducive to early ripening of fruit. If alfalfa had sufficient time to decay the soil should be in excellent condition for cantaloupes as the soils of Imperial Valley are rich in all plant requirements except nitrogen, and the alfalfa should have supplied that. The time of ripening can be regulated by the supply of moisture better than by any other means. A smaller crop will be grown but it can be ripened earlier if the water is partly withheld after sufficient growth has been made.

Bitter Cream

My cow was fresh in August and since bean harvest her ration has been bean straw with mash once a day composed of Proteina and wheat bran. The cream is bitter and it takes from six to eight hours to churn it into butter and when the butter comes it is so bitter that we can scarcely use it. We have fed bean straw before and never had this trouble. The milk is properly cared for. Can you tell us what is wrong?—Subscriber, Ventura.

It is not likely that the feed of the

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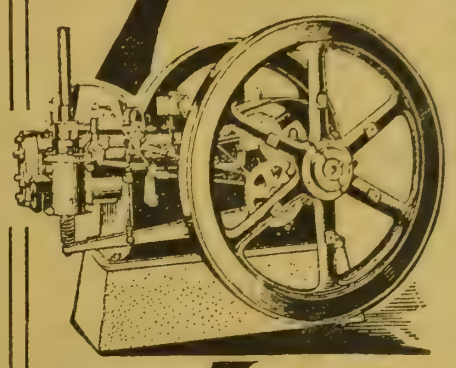

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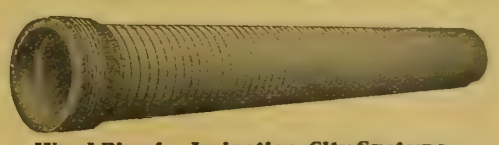

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Send for samples.
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cow is the source of the trouble. Bitter flavor in milk or cream is more often caused by bacterial action. The bacterium which causes this flavor thrives at a low temperature and thus bitterness may be present when the cream is not sour because souring is caused by a bacteria requiring a relatively high temperature. When cream is refined at as low a temperature as possible the bitter flavor occasionally appears because the particular bacterium enjoys the cold. No such flavor may be detected in the fresh milk but if the germ is there latent it may appear later in cheese or other products made from the milk.

In this instance the probabilities are that the bacteria causing bitter flavor are in the milk and thus go over into the cream. The weather is so cool that lactic acid (or souring) bacteria do not multiply rapidly and the bitter flavor grows apace. If lactic acid formation is begun early it seems to retard the growth of some other flavors such as bitter, etc. The suggestion in this case is to warm the cream (not above 70 degrees) as soon as skimmed so that it will begin to sour in a few hours. Then if churning is done only once or twice a week cool the cream immediately so that it will not become too sour. This starting of the lactic acid formation should retard or prevent bitterness. The fact that churning requires six to eight hours indicates that the cream is too cold. Use a thermometer and if a temperature of 62 degrees does not bring butter in 30 to 40 minutes try a few degrees higher. Put the cream near the stove or in a warm room where it will warm gradually as this is better than heating it quickly just before churning.

The best thing would be to eradicate the bacteria causing the bitterness. It is probable that the germs get into the milk at the time of milking. After grooming the cow, wipe the udder and flank with a damp cloth, in which case a minimum of dust will fall into the milk. Another precaution is to pour boiling water into the pails, pans and churn after they have been washed clean. Let the water stand in them a few minutes, preferably with the utensils covered, and no live bacteria will be left there.—L. A.

Pecans on Ditch

Will pecan trees grow in what is called slightly alkaline, or white alkali soil? How much irrigation do they require? Will they grow where the ground is kept wet, as for instance along an irrigation ditch that is used for watering more than half the days during the summer and for ten or fifteen days at a time? At what age do the trees begin to bear? What variety will do best on sandy-silt to sandy-adobe soil at an elevation of 2400 feet?—Subscriber, Lancaster.

We do not know how much alkali the pecan will stand, but we have seen some very fine trees growing near Lathrop, San Joaquin County, that showed a considerable alkali. The pecan will thrive under more water or irrigation than any other tree. The above conditions of irrigation would be ideal. Trees begin bearing a few nuts at from three to five years. Under all conditions the Stuart, Success, Delmas and Pabst seem to be the best we have seen tried out.—Claud D. Tribble.

I would not advise that pecan trees be planted in alkaline soil unless the alkali content is almost negligible. The pecan only succeeds well in a rich alluvial soil and in a warm climate. There are such conditions in parts of the San Joaquin and Sacramento valleys where this nut matures perfectly and bears well. They naturally need a great deal of moisture, but must have warmth, otherwise even if they set fruit they do not mature it. We would not recommend it at all for the elevation of 2400 feet. The trees begin to bear under suitable conditions at about the same age of the walnut. As to varieties, they have not been tested sufficiently long in California to determine their respective merits.—Leonard Coates.

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Every owner of a Caterpillar, a Holt Gas Harvester, a Caterpillar Harvester, or a Holt Harvester Motor is invited to come himself or send his operator to a four weeks' free course in tractioneering to be held at Stockton between the above dates. Every man attending should plan to stay the entire four weeks, but those who come for only a week or two will be well repaid.

PROF. F. L. PETERSON,
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leaves his position January 1, 1915, before continuing important work as Irrigation Engineer of the

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will organize and conduct this course. Prof. Peterson handled the big tractor demonstration at Sacramento last May, has taught the scientific side of farm mechanics at Berkeley and practical tractor farming at Davis, and is the strongest man we could possibly secure. He will be assisted by our big service staff and outside lecturers, and will have the entire facilities of our big plant and laboratories at his disposal.

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The work will be divided into lectures, demonstrations and practical operation. Here are some of the subjects:

Electricity, Magnetism and Magnetos.
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Several evenings a week Prof. Peterson will hold round table talks with groups of students on any subject connected with tractors or scientific farming, in which a considerable number may be interested. This chance to exchange experience with other top-notch men is alone worth all the time and expense of attending the course.

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Rain or shine, you'll have plenty of practical work in handling the various Caterpillar models. We have arranged for plenty of room to work engines under cover if the weather is bad. This is the best way to put in your slack time and learn the latest kinks in operating.

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January Prize Photos

WE have often preached the doctrine of cleaning up back yards. The back yard which afforded the scene for the first prize winner this month is of the kind we would see near every farm home. To use an illustration which possibly may be worn out but expresses the situation so well that we use it once more, "Too many of our homes are built with Queen Anne fronts and Mary Ann backs." The family spends more of its time near the back door than it does at the front and for the sake of the family, members of which are securing their education at least in part from their daily environment, the environment should be made elevating so far as possible. It takes a little time to build rustic seats, to rake up the dead leaves and the rubbish and grow a lawn and keep it clipped, to plant a flower here and there, but the reward is so immediate—and the time may be secured if one wills it—that it should be encouraged on every ranch home. Perhaps we are not ready for it but we think that some time there should be a contest in which back yard photos are given exclusively. In addition to giving a lesson to all homemakers the photo which is the first prize winner this month is an excellent piece of work.

A COSY NOOK IN THE BACK YARD IS POSSIBLE IN EVERY HOME GROUND
First Prize Photo by Harvey Kishimura, Los Angeles.

We are not certain that the second prize winner is a front door scene for the little porch is a comfortable enough place for the homemaker herself to occupy for a moment's rest during a hard day's work. However, front or rear, it makes an attractive entrance to the home. This home is far more inviting because of its cluster of roses than would be a far more pretentious one without the roses, or at least without some attractive plant about the door.

The contest this month brought out

Next Contest

For best candy recipe, $2.00; second best, $1.00; for all published, six months' subscription to California Cultivator. Recipes should be in this office by Thursday morning, January 14.

Send Name of Subscriber

With recipes submitted send name of member of your family now subscribing in order that his or her subscription may be extended rather than adding an additional subscription.

EVEN THE HUMBLE COTTAGER MAY HAVE HIS ROSE-EMBOWERED VERANDA
Second Prize Photo by Milo Hunt, Whittier.

HOW TO HANG MIRRORS

Place one, after the French fashion, over the fireplace to reflect the room.

Place one, in English fashion, between the windows at the end of a long, narrow room, to emphasize the light there.

Place one where it will reflect a charming glimpse of the garden through a window opposite it.

Place one in the hall opposite the entrance into the drawing-room or the living-room to give a sense of spaciousness.

Place one on a dark wall, where it will catch the light.

Place one in a bedroom, where it will reflect the mirror of the dressing table.

Remember that flowers in front of a mirror are twice as attractive as flowers placed against a wall.

Remember that the ideal frame for a mirror is inconspicuous—as much as possible a part of the wall where it hangs.

THE OLD FABLE REVERSED

"Times have changed."

"How so?"

"The ant toils for meager wage while the grasshopper teaches the new dances at exorbitant rates."

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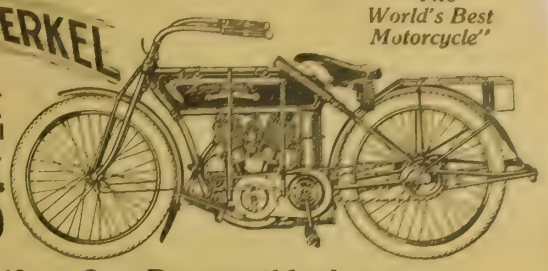

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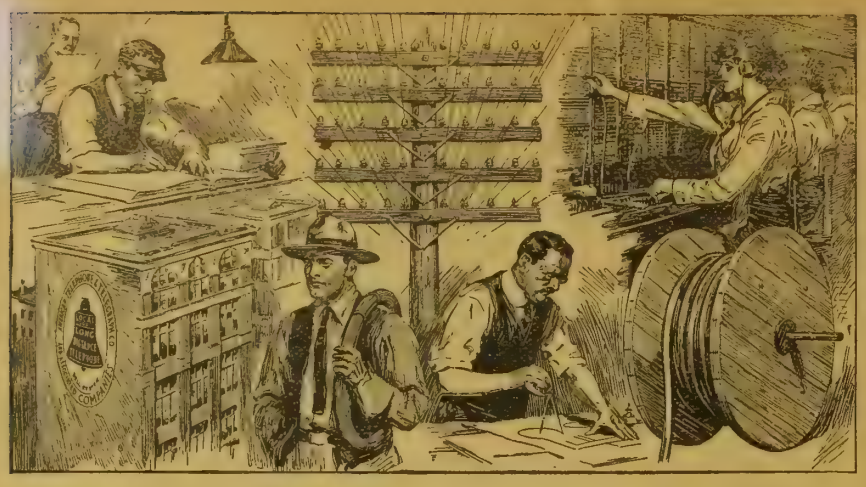

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The Household Department

IF WE HAD THE TIME

If I had the time to find a place
And sit me down full face to face
With my better self that cannot show
In my daily life that rushes so;
It might be then I would see my soul
Was stumbling still toward the shining goal;
I might be nerved by the thought sublime—
If I had the time!

If I had the time to let my heart
Speak out and take in my life a part,
To look about and to stretch a hand
To a comrade quartered in no-luck land;
Ah, God! If I might but just sit still
And hear the note of the whip-poor-will,
I think that my wish with God's would rhyme—
If I had the time!

If I had the time to learn from you
How much for comfort my word could do;
And I told you then of my sudden will
To kiss your feet when I did you ill;
If the tears aback of the coldness feigned
Could flow, and the wrong be quite explained—
Brothers, the souls of us all would chime,
If we had the time!

—By Richard Burton.

LEONE'S LESSON

LEONE walked slowly along the country road in the morning sunshine, and kicking the sand with lagging feet. She was a newcomer in the country school, and was miserably swinging her lunch pail disconsolately, homesick. She actually dreaded the very sight of the schoolhouse just around the corner, where she knew the girls were gathering on the playground for a merry chat before the bell should call them to study. It was almost time for it to ring now. Leone had lagged purposely, so that she might arrive as nearly on time as possible, without a moment to spare for greetings.

It was only a month since she had come into school, but it seemed like a year to Leone, who had never been among strangers before. If only she could have brought Frances, her dearest friend, with her, she felt that she could have faced this new world of strangers almost joyfully. But Frances had been left in the old home school with many other dear, familiar forms and faces. Leone's heart swelled with a fresh burst of homesickness as she came in sight of the schoolhouse and recalled the glad voices from that other playground so far away.

A Month is really a long time when one is nine years old and very lonely—plenty long enough for Leone to have formed many new and pleasant friendships had she not resolutely shut them away from her. Marie Stoner was also a stranger—having come into the school the week following Leone's advent—but she had already made a friend of nearly every girl there. As Leone came up the walk, she saw Marie, the center of a laughing group, including the teacher, and the sight not only intensified her loneliness, but added to it the bitterness of jealousy.

Miss Kennedy separated herself from the group and came to meet Leone. "We are planning for our picnic, Leone," she said. "You know this is to be a half-holiday, and we are to put all our lunches together and eat in the woods. You haven't forgotten, have you, dear?"

No, Leone hadn't forgotten; neither had mother when she packed the lunch. The tin pail was filled to the brim with good things. But Leone had fully decided not to join the merry company at lunch in the woods, although she said nothing of her determination to her mother. Now she turned an unresponsive face toward her teacher.

"I am not going to the picnic," she said coldly.

"Not going?" Miss Kennedy's voice expressed genuine surprise. "Why, my dear child, what is the matter?"

"Nothing, only I don't know the girls very well, and they don't seem to care a bit about me, and—" there was a spspicion of tears now in the rebellious voice—"I just don't want to go, that's all."

A look of pitiful understanding crept into Miss Kennedy's eyes. "I think you are mistaken about the girls not caring," she said kindly; "but how about yourself, dear? Do you care very much about the girls? It doesn't really matter half as much how people feel toward us, as how we feel toward them. It is the love in our own hearts that makes our sunshine, you know."

Without waiting for a reply, Miss Kennedy hurried into the schoolroom, and in another moment the bell summoned them all to study. Leone sat alone at her desk, feeling very friendless and far away from everybody. There was an aching sensation in her throat, and she could scarcely see the lesson on the page before her. Suddenly she felt a kind arm thrown across her shoulders, and her teacher said:

"Are you thinking of my question, Leone? Have you tried being kind and friendly to the girls?"

Leone turned a tearful face toward the kind one bending above her. "I don't care a straw for any girl in this whole world but Frances," she said fiercely, "and I don't want any of them to like me!"

"Hush, girlie! you don't mean that, I know." Miss Kennedy's voice was very tender and loving, for she understood that this was but an outburst of long-pent bitterness. She waited a moment in silence, and then continued in her usual cheery voice: "And now promise me, dear, that you will go to the picnic, won't you? You shall be my partner, and we will find just the right way to have a good time."

Leone reluctantly consented, and as Miss Kennedy turned away, looked up to meet the direct gaze of Marie Stoner. There was something so genuinely friendly in the look, that she unconsciously returned it in like manner. Just then the bell sounded for intermission, and the next moment Marie had Leone by the hand.

"You are going with us to the woods, aren't you, Leone? I saw Miss Kennedy talking to you, and I just knew you didn't want to go, and I knew why, too. You see, I felt the same way—

lonesome and strange and homesick, you know—until I got to liking the girls, and then it all left me."

Leone's eyes were wide with astonishment. "Why, I didn't think you ever felt that way," she said; "you didn't act as if you did."

"Didn't I? Well, it didn't last long; the girls were all so nice to me, and that makes it lots easier to forget. I know I am going to like this school just exactly as well as the one I left. Let's go out where the others are; they will be glad you are going."

Before the noon hour came, Leone found herself looking forward with joyful anticipation to the picnic; for, with her decision to go, all the bitterness seemed to drop out of her heart. It is needless to say the afternoon was a happy one, and long before the lengthening shadows drove them homeward—a laughing, tired crowd—Leone had learned the true way to win friends and be happy.—Girls' Companion.

IDEAS FOR THE COOK

Written for the California Cultivator By Isabel Cottle

Breakfast

Stewed Dried Plums
Country Sausage Fried Apples
Corn Muffins Coffee

Lunch or Supper

Clear Beef Broth
Scalloped Salmon and Spaghetti
Graham Nut Gems Preserved Apricots
Tea or Milk

Dinner

Savory Beef Roll Banana Croquettes
Special Baked Potatoes
Orange and Celery Salad
Maple Custard Pie Coffee

Savory Beef Roll

Select the piece of meat called the inside flank, wipe with a damp cloth, remove skin and fat and lay out flat on the bread board. Place in a mixing bowl a cup of grated bread crumbs, add one teaspoon of onion juice, one scant teaspoon of salt, one teaspoon of chopped celery tops, a sprinkling of paprika and a tablespoon of melted butter. Mix well and spread over the meat; roll up, tucking in the ends, and tie securely in shape. Slice into the bottom of a baking pan one white onion, two small carrots, a stalk of celery and a small turnip; place the meat upon the vegetables, lay on top three slices of bacon and pour into the pan two cups of soup stock, or hot water to which has been added a generous lump of butter. Cover closely and cook slowly for about four hours, basting frequently. When done season gravy and thicken with a tablespoon of flour rubbed into a lump of butter. Pour over the meat and garnish with crisp celery tops.

Banana Croquettes

Cut raw bananas into halves crosswise, dip in egg and crumbs, then in egg and crumbs again, and fry in deep fat. Serve hot with the meat.

Special Baked Potato

Wash potatoes and when thoroughly baked remove from oven and cut in halves lengthwise. Scrape out all of the potato (being careful not to break the skin), mash well and whip with salt and cream to make very white, light and smooth. Have one medium-sized onion chopped, ready to add to the potato. Whip together one minute and refill the skins, placing on top of each a slice of butter; sprinkle with pepper, place in hot oven and bake to a light golden brown on top.

Scalloped Salmon and Spaghetti

Break one-half cup spaghetti into short pieces, cover with boiling salted water and boil until tender, about 20 minutes. Free one can of salmon from skin and bones, place in layers in a baking dish, alternating with the spaghetti. Pour over all one cup thin white sauce made in the proportion of one tablespoon flour, two tablespoons butter, one cup milk. Season well with salt, pepper and one tablespoon lemon juice. Cover with buttered crumbs and bake 20 minutes in a moderate oven.

LACES IN THE LAUNDRY

Written for The California Cultivator By A. M. H.

Perhaps there never was a time when laces were so extensively worn as at the present. Every piece can be employed to good advantage, and both the black and white laces can easily be cleaned and freshened.

Rusty black lace may be restored by soaking for several hours in vinegar and water. The right proportions are two tablespoons of vinegar to a pint of water. When removed from this bath the lace should be rinsed in well-strained cold coffee. If any stiffening is desired, dip the lace in weak gum arabic water. The best way to dry a short piece of lace is to spread it smoothly over a large window pane while it is still damp, and when perfectly dry it will be crisp and new in appearance. The best way to wash a lace collar or any piece of lace that can be laid out flat is to baste it carefully to a piece of muslin larger than the collar and then baste another piece of muslin over the collar, as care must be taken to displace the threads as little as possible.

Fine white laces can be cleaned by washing in alcohol by using it as if it were water. Put the lace in the alcohol and allow it to soak for ten minutes, then wash by lifting up and down and pressing and squeezing between the hands and rinse in clear alcohol.

To clean white laces that are very soiled, cut up nice white soap and make a strong lather with hot soft water, then add a tablespoon each of ammonia and turpentine to two quarts of the suds, then drop in the laces and pound gently with a wooden potato masher and lift the lace up and down and pound until every part has been cleaned. When perfectly clean pour off the water and cover again with clear hot water. Pound well to remove the suds. Pour off, then dissolve a tablespoon of package borax in two quarts of hot water, pour over the laces and let stand for an hour, then rinse in clear water, and the laces will come out beautifully white.

To give them just the right degree of stiffness, dissolve a tablespoon of borax in a quart of water and use instead of starch. This also is the best way to stiffen fine lingerie blouses. They should be dried first then dipped in the borax water, wrung out, folded in a towel for a few hours and then ironed dry. There is nothing better than warm suds in which a little borax is dissolved for washing all the pretty crocheted laces so much used now, and for washing lace curtains of any quality, as the borax softens the water and this loosens all soil in the goods, and curtains should always be handled lengthwise instead of crosswise, to prevent breaking the threads.—A. M. H.

HE KNEW

Observing an unfamiliar shrub by a country roadside, a student of botany stopped to make an examination. "Are you acquainted with this flower, young man?" he asked of a passing yokel. "Yep," the boy laconically answered. "To what family do you think it belongs?" Indicating a near-by house with a pudgy thumb, the boy answered: "Higginses."—Puck.

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San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, Jan. 6, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Butter has declined heavily. Market steady at the lower price.

Prices to trade 4 cents above following quotations:

Creamery Extras .... .26
First .... .24
Country .... .20
Ladle .... .19

CHEESE

Prices to trade, 1 and 2 cents higher:

California Fresh .... 15@15½
Domestic Swiss .... 20@21
Eastern Daisy 18½
Longhorn .... 18½@19
Imported Swiss .... 34@35
Oregon Triplets 18

EGGS AND POULTRY

Heavy receipts of local eggs have caused a ten-cent decline during the past week. There are also liberal receipts from the north.

Prices to trade, 3 cents higher than following quotations:

Fresh ranch, case counts 35
Candled 37
Northern Case Counts 35
Petaluma-Santa Rosa 34

Prices to producers:

Hens, lb. .... 15@18
Roosters, old 9
Broilers, lb. 26
Fryers 20
Roasters, lb. 15
Turkeys .... 18@20
Ducks 17
Geese 16
Squabs, doz. 2.00

LIVE STOCK

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs., per cwt. $7.75
Prime Steers .... 7¼@7½
Heifers .... 6¼@6½
Calves, lb. .... 8½@9
Sheep—
  Ewes, head 4.50
  Wethers .... 4.50@5.00
  Lambs, head .... 4.50@4.75

POTATOES

Wholesale selling price:

Idaho .... 1.40@1.50
Sweets, lug .... 65@75
Northern Burbanks, cwt. .... 1.35@1.50
Salinas .... 1.80@1.90
Shimas .... 1.50@1.60
Lompocs .... 1.80@1.90

ONIONS

Australian Brown, cwt. .... 1.50@1.65
White Globe 4.50
Yellow Danvers .... 1.50@1.65
Spanish Red Globes .... 1.25@1.60
Garlic .... 15@17

VEGETABLES

Wholesale selling price:

Artichokes, Northern, doz. .... 1.00@1.15
Beets, doz. .... 30@35
Beans, String .... 13@14
  Lima .... 5@6
Cabbage .... 65@75
Carrots, doz. .... 30@35
Cauliflower, doz. .... 60@70
Celery, crate, northern .... 2.25@2.50
  Local .... 1.75@2.00
Cucumbers, hothouse .... 75@2.00
Egg Plant .... 8@9
Escarole, doz. 40
Horseradish, lb. .... 9@11
Leeks, doz. .... 35@40
Lettuce, crate .... 80@90
Mint, doz. .... 35@40
Mushrooms, Outdoors 25
Okra, lb. .... 9@10
Onions, Green, doz. bunches .... 15@20
Oyster Plant .... 30@35
Peas, lb. .... 13@15
Parsnips, doz. .... 25@30
Peppers—
  Bell, lb. .... 7@9
  Chili, lb. .... 7@9
  Pimientoes .... 8@10
Pumpkins, lb. .... 1@1½
Radish, doz. .... 20@30
Rhubarb, box .... 80@1.00
Spinach, doz. 20
Squash—
  Summer, lug .... 1.25@1.40
  Chayote, lug .... 50@60
  Crookneck .... 50@60
  Hubbard, lb. .... 1¼@1½
Turnips .... 30@35
Tomatoes, lug .... 1.00@1.15

FRESH FRUIT

Wholesale selling price:

Apples—
  Bellflowers .... 75@1.00
  Jonathans .... 1.35@1.60
  Spitzenbergs .... 1.35@1.75
Guavas, basket .... 5@7
  Rome Beauties .... 1.25@1.35
  Pearmains .... 75@90
Bananas .... 3½@4
Berries—
  Strawberries, basket .... 5@10
  Blackberries .... 13@15
  Casabas, doz. 1.25
Cranberries, bbl. .... 9.00@9.50
Figs, box .... 1.50@1.75
Grapes .... 1.25@1.50
Pears, Winter Nelis, lug 1.50
Persimmons, lb. .... 5@8
Pineapples, lb. .... 5@6
Pomegranates, box .... 1.50@1.75
Quinces .... 75@85

CITRUS FRUIT

Wholesale selling price:

Lemons .... 1.50@2.35
Grapefruit, Seedless .... 2.10@2.25
Navels .... 1.75@2.00
Tangerines .... 1.75@2.00
Limes, basket .... 75@1.00

DRIED FRUITS

Wholesale prices to retailers are:

Evaporated Apples, Fancy, lb.
  boxes .... 6¼@8
Apricots .... 8¾@11½
Nectarines 12½
Peaches .... 5¾@6¾
Pears .... 10@11
Prunes .... 5¾@11
Plums 10

HONEY

Wholesale selling price:

Comb, Fancy, Water White 14
White 12
Light Amber 11
Extr. Water White 7
White 6
Light Amber 5½
Beeswax 32

NUTS

Prices named by California Walnut Growers' Association are:

No. 1 .... 16½
Budded Walnuts 20
Jumbos 19
No. 2 12
Culls 9

Prices fixed by California Almond Growers' Exchange, f. o. b. California.

Almonds—
  Nonpareil 21
  I X L 20
  N P U 19
  Drake's Thinshell 15
Pecans 17
Peanuts—
  California, Raw 6
  Japan 7½
  Eastern 7½
Rice Corn .... 5.00@5.25

RICE

Wholesale selling price:

California .... 4.75@5.00
Broken 3.75

BEANS

Wholesale selling price:

Producer's price not far from one dollar under these quotations:

Limas .... 5.60@5.75
Lady Washington .... 5.15@5.25
Pinks .... 4.15@4.25
Black Eyes .... 4.90@5.25
Lentils .... 8.00@9.00
Navy .... 5.25@5.35
Small White .... 4.80@4.90
Garbanzos .... 6.00@7.50

HAY

Buying prices f. o. b. cars Los Angeles:

Barley .... 10.00@11.00
Wheat Hay .... 10.00@11.00
Tame Oat .... 11.00@13.00
Alfalfa .... 9.00@11.00

GRAIN

Wholesale selling prices f. o. b. Los Angeles:

Corn, Yellow 2.00
Corn, White 2.10
Wheat .... 2.35@2.40
Oats, Red .... 1.95@2.35
Oats, White 1.90
Kaffir Corn 1.75
Millet 3.75
Popcorn .... 4.75@5.00
Egyptian Corn 1.85
Barley Seed 1.55
Milo Maize 1.75
Cal. Seed Oats 2.25
Rye 2.00
Sunflower Seed 6.50

FEED STUFF

Wholesale selling prices f. o. b. Los Angeles:

Bran, Heavy 1.60
Alfalfa Meal 1.05
Alfalfa Molasses, per cwt. 1.15
Beef Scraps 3.00
Beet Pulp 1.25
Cracked Corn, cwt. 2.05
Cracked Wheat, cwt. 2.50
Cotton Seed Meal 1.75
Bloodmeal 3.60
Bone Meal 1.95
Meat Meal 3.00
Bone, Green 1.85
Charcoal 1.90
Oil Cake Meal 2.15
Fish Meal .... 3.15@3.25
Rolled Oats 1.95
Rolled Barley 1.50
Middlings 1.70
Feed Meal 2.05
Oat and Wheat Middlings 1.70

San Francisco Market

SAN FRANCISCO, Jan. 5, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

There has been a general decline in butter and present condition is very weak. Large quantities of Australian butter are on the market.

Prices to trade, 4 cents above following quotations:

Extras 25½
Prime Firsts 25
Firsts 24½
Fancy Creamery 29½
Seconds 24

CHEESE

Wholesaler to retailer.

Oregon Y. Am. 16
Young America .... 12½@13
California Flats .... 10@12½
Cheddar 20
Oregon Twins 14½

EGGS AND POULTRY

Eggs are declining rapidly and large quantities of Chinese stuff are coming in.

Prices to trade 3 cents higher than following quotations:

Extras 38
Select Pullets 43
Storage Extras 31
Select Pullets 35½
Storage Select Pullets 27

Price to producer:

Hens, lb. .... 15@17
  Eastern .... 16@19
Fryers .... 18@19
Roosters, old 11
Roosters, young .... 16@17
Broilers .... 18@20
Ducks .... 15@17
Geese, pr. .... 2.00@3.00
Squabs .... 2.50@3.50
Belgian Hares, lb. .... 9@10
Turkeys, live .... 16@19
  Dressed .... 20@24

LIVE STOCK

San Francisco prices, gross weight:

Steers .... 4@7¼
Cows and Heifers .... 3@6¼
Calves, lb., live weight .... 6@9½
Hogs .... 5@7½
Wethers .... 6@6½
Ewes .... 5¼@5¾
Milk Lambs .... 7@7½

POTATOES

Wholesale selling price:

Delta Burbanks .... 1.25@1.40
Salinas Burbanks .... 1.35@1.60
Oregons .... 1.25@1.65
Idaho .... 85@1.10
Sweets, cwt. .... 1.35@1.50

ONIONS

Wholesale selling price:

Yellow .... 90@1.00
Bermudas, crate .... 90@1.25
Garlic, new .... 12½@15

VEGETABLES

Wholesale selling price:

Beans—
  Wax .... 5@8
  Strings .... 7@10
  Limas .... 6@8
Brussels Sprouts, lb. .... 2@4
Cabbage, cwt. .... 1.00@1.25
Carrots, sack .... 30@40
Celery, doz. .... 10@20
Cucumbers, lug .... 1.25@1.70
Egg Plant, lb. .... 5@8
Lettuce—
  Southern .... 75@1.25
  Delta .... 1.00@1.75
Peas, lb. .... 8@15
Peppers—
  Bell, lb. .... 4@6
  Chili, lb. .... 3@5
Squash, sack .... 40@50
  Summer, crate .... 75@1.00
Tomatoes, lug .... 30@75
  Southern, crate .... 40@75

FRESH FRUIT

Apples—
  Newtown Pippins .... 50@95
Bananas, Hawaiian, bunch .... 1.25@1.75
Cranberries, bbl. .... 12.00@13.00
Grapes lug .... 80@1.00
Pears, Winter Nelis, wrapped,
  box .... 1.00@1.50
Pomegranates, box .... 50@1.00
Pineapples, doz. .... 2.75@3.25
Persimmons .... 50@1.00
Quinces, box .... 25@40
Strawberries, chest .... 3.50@5.00

CITRUS FRUIT

Wholesale selling price:

Grapefruit, Seedless, new crop .... 1.25@2.00
Lemons .... 1.75@3.00
Lemonettes .... 75@1.25
Limes, case .... 3.00@5.00
Navels .... 1.25@1.75
Tangerines, halves .... 1.00@1.85

DRIED FRUITS

Wholesale prices are:

PRUNES—1914 crop, bulk basis: 30-40s, 7c; 40-90s, 6½c; 90-100s, 6c. The above are for both Santa Clara prunes and stock from outside sections.

Other Fruits. 50-lb. boxes—	Standard	Choice	Extra Choice	Fncy
Evapt'd apples	....	5½c	5¾c	6 c
Apricots	9 c	9½c	10 c	11 c
Peaches	4 c	4¼c	4½c	5¾c
Pears	7 c	8 c	9 c	10 c

RAISINS

RAISINS—The following prices are f. o. b. Fresno, as given out by the Associated Raisin Company, for immediate shipment, and are guaranteed against a decline till April 1st: Fancy seeded, 16-oz., 7¼c; 12-oz., 5⅞c; bulks, 6c; choice seeded, 16-oz., 6⅞c; 12-oz., 5⅝c; bulk, 5½c; Thompson seedless, No. 1, 16-oz. pkgs., 7⅝c; 12-oz., 6¼c; 50-lb. cs., 6½c; loose, Muscatels, 1-crown, 5½c; 2-crown, 5½c; 3-crown, 5⅞c; 4-crown, 6c; Sultanas, 50-lb. cs., 5¾c; bulk, layers, 50-lb. bxs., $2.75; in 20-lb. bxs., 6-crown, $2.75; 5-crown, $2.25; 4-crown, $160; 3-crown, 5-lb. bxs., $1.50; on all bulk stock, 50c additional. Cartons—Clusters, 20 to cs., No. 1, $1.70; No. 2, $2.10; No. 5, 4 to cs., $2.25. Local representatives of the association are asking about ¼c higher, while several of the largest independent packers are quoting ½c under these figures.

NUTS

ALMONDS—Prices fixed by Almond Growers' Exchange to the trade, f. o b. California:

  Nonpareil 21
  I X L 20
  Ne Plus Ultra 19
Drakes 16

Wholesale selling price:

Peanuts—
  Unpolished .... 5@8
  Polished .... 6@6½
  Shelled, Jap .... 6¼@6¾
Italian Chestnuts .... 6½@7

BEANS

Wholesale selling price:

Limas .... 5.45@5.55
Lady Washington .... 3.60@3.75
Pink .... 3.50@3.65
Black Eyes .... 4.20@4.40
Cranberry .... 4.50@4.60
Small White .... 4.55@4.65
Garbanzos .... 5.75@6.00
Large White .... 4.30@4.40
Bayou .... 5.35@5.50
Manchurian Speckled Bayous .... 3.50@3.75
Manchurian Butters .... 3.75@4.00
Manchurian Cranberry .... 4.15@4.25
Red Mexican .... 545@5.55
Red Kidney .... 5.50@5.75
Horse Beans .... 3.00@4.00
Bayou .... 5.35@5.50

HONEY

Comb, Water White .... 14@16
Comb, Water White .... 14@16
Amber .... 10@12
Dark .... 7@10
Extracted White .... 7@9
Light Amber 5½
Dark .... 4@5½
Beeswax .... 27@32

HOPS
1914

Sacramento Valley .... 7@9½
Sonoma-Mendocino .... 9½@11½
Oregon Clusters .... 9½@11½

HAY

Fancy Wheat Hay, lt. bales .... 11.00@12.00
No. 1 Wheat or Wheat and
  Oat .... 9.00@10.00
No. 2 Wheat or Wheat and
  Oat .... 6.00@8.50
Choice Tame Oat .... 10.50@12.00
Other Tame Oat .... 6.00@9.00
Barley .... 5.00@8.50
Wild Oat .... 6.00@8.00
Alfalfa .... 6.00@9.00
Stock Hay .... 4.50@5.00
Straw .... 30@45

GRAIN

Wholesale prices.

Alfalfa Seed .... 14@1[illegible]
Wheat, Cal. Club .... 2.05@2.07½
Corn, Eastern Yellow, blk. .... 1.55@1.57½
Corn, Egyptian White .... 1.55@1.57½
Barley, Feed .... 1.25@1.3[illegible]
Shipping and Brewing .... 1.26¾@1.27½
Oats, White .... 1.55@1.6[illegible]
Oats, Red, Seed .... 1.35@1.4[illegible]
Oats, Red, Feed .... 1.25@1.3[illegible]
Millet .... 3@3½
Flax .... 6@6½
Rye .... 1.50@1.6[illegible]
Sunflower .... 5@5½

FEED STUFF

Wholesale prices.

Alfalfa Meal, car lots .... 14.00@14.5[illegible]
Bran, ton .... 27.50@29.0[illegible]

WEATHER CONDITIONS

For Week Ending January 2, 1915

Report from the various stations of the U. S. Weather Bureau, by Geo. H. Wilson, director, San Francisco:

	Rainfall Data: Past Week.	Rainfall Data: Seasonal to Date.	Rainfall Data: Normal to Date.	Temperature Data: Maximum.	Temperature Data: Minimum.
Eureka	.17	15.53	17.37	66	38
Red Bluff	.02	8.02	10.33	54	32
Sacramento	.60	4.59	7.30	54	36
San Francisco	.17	6.50	8.56	56	42
San Jose	.20	5.56	6.40	58	34
Fresno	.00	2.28	3.69	54	32
Independence	.00	.52	3.65	52	20
San Luis Obispo	.20	5.74	6.16	72	40
Los Angeles	.00	4.21	5.40	78	44
San Diego	.00	4.02	3.28	70	48

T means trace.

Feed Cornmeal, ton	38.00@38.50
Cracked Corn	38.00@38.50
Rolled Barley, ton	28.50@29.00
Rolled Oats, ton	37.00@37.50
Middlings	32.00@33.00
Shorts	29.00@30.00
Oilcake Meal	36.00@37.50
Cocoanut Oilcake Meal	23.00@24.00

Citrus Fruit Market

LOS ANGELES, Jan. 6, 1915.

The market has been cleaned up to a certain extent of the great mass of fruit caught in the blizzards all over the east. Much fruit in many of these cars has been so badly injured that a very heavy discount has been necessary. In some cars the lower tier has been frozen solid. The weather is now somewhat warmer and the fruit is being moved as fast as possible. North of Tehachapi total to date 5000 cars with perhaps not over 150 cars yet to go. The southern end of the state is anxious to enter into market with heavier shipments, but it is probable these will not begin to any extent before about the 15th. The season has been almost perfect for highest grade of fruit in the south as well as in the north.

The lemon market is slightly better with very light shipments.

Shipments

Shipments of oranges from Southern California to date since November 1, 1914: 094 cars; lemons, 482; total, 1576. To same date last season: Oranges, 1150; lemons, 258; total, 1417. From Tulare County: Oranges, 4760; lemons, 82; total, 3842. To same date last season: Oranges, 3885; lemons, 19; total, 3904. From northern California counties: Oranges, 457 cars; last year same date, 348.

NEW YORK, Jan. 4.—Thirty cars navels, two cars lemons sold. Navels fully 25c lower; lemons slightly higher. Weather fair.

NAVELS—	Avg.
Solano, Stewart F. Co.	$1.55
Heart Merryman, F. L. & L. Co.	2.15
Washington, F. L. & L. Co.	1.85
Mallard, Randolph F. Co.	1.95
H. & M. Merryman, F. L. & L. Co.	2.10
Washington, F. L. & L. Co.	1.90
Golden Trout, Randolph F. Co.	1.70
Mallard, Randolph F. Co.	1.80
H. & M. Merryman, F. L. & Co.	1.90
Washington, F. & L. Co.	1.75
Randolph Special, Rand. F. Co.	1.40
Golden Trout, Randolph F. Co.	1.65
Gold Seal	1.50
EarliBest, C. C., Lemon Cove	2.55
Kaweah Chief, C. C., Lemon Cove	2.55
Mt. Whitney, T. C., Success	2.25
Golden State, C. C., Lemon Cove	1.90
LEMONS—	
Dan Patch	$2.55
Pony	2.45
Whittier	2.25
Pico	2.00

BOSTON, Jan. 1.—Six cars oranges sold. Also one car lemons. Clear, cold. Market unchanged oranges; strong, higher lemons.

LEMONS—	Avg.
C. C. Lindsay Blue Dry Bog	$1.65
Dan Patch, S. B., Bloomington	2.55
Pony, S. B., Bloomington	2.30
Kaweah Chief, C. C., Lemon Cove	2.40
Basket, C. C., Lemon Cove	2.00
Porterville's Best, T. C., Ponca	2.00
Prince of Orange	2.10

BOSTON, Jan. 4.—Twelve cars oranges, one car lemons sold. Clear and cold. Market unchanged oranges and lemons.

NAVELS—	Avg.
Tuberose, S. C., Palermo	$1.75
Forgetmenot, T. C., Ponca	1.80
Porterville's Best, T. C., Ponca	1.95
Forgetmenot, T. C., Ponca	1.90
Porterville's Best, T. C., Porter	2.15
Pocahontas, T. C., Zante	2.05
Exeter, C. C., Exeter	2.05
Heart Merryman, F. L. & L. Co.	2.00
Washington Merryman, F. L. & L.	1.75
LEMONS—	
Hiddendale, E. C. U.	$1.75
Del Diabolo	1.45

PHILADELPHIA, Jan. 4.—Six cars navels, one car lemons sold. Market steady. Five cars Florida oranges sold. Market steady. Oranges $1.30 to $2.95, average $2.00; grapefruit 65c to $1.30, average $1.10.

NAVELS—	Avg.
So. Beauties, Q. C., Corona	$2.00
Justrite, Q. C., Corona	1.85
Pocahontas, T. C., Zante	1.90
Golden State, C. C., Lemon Cove	1.75
Strathmore, T. C., Strathmore	2.10
Heart Merryman, F. L. & L. Co.	2.00
Washington Merryman, F. L. & L.	1.75
Malan Bros., ch.	1.60

CLEVELAND, Jan. 4.—Six cars navels, one car lemons sold. Market is advancing lemons. Steady navels. Cold. Two cars Floridas sold, averaging $1.30.

NAVELS—	Avg.
Porterville's Best, T. C., Porterville	$1.70
Forgetmenot, T. C., Porterville	2.05
Forgetmenot, T. C., Porterville	2.10
A One, Amer. F. Dis.	2.25
Diamond Mtn., Randolph F. Co.	1.90
Niagara, Stewart F. Co.	1.60
LEMONS—	
Arab, S. D., San Dimas	$2.95
Greyhound	2.25
Pup	2.05
Duck	1.85

ST. LOUIS, Jan. 4.—Cloud, cold. Market easy on oranges; steady lemons. One car lemons, six cars oranges sold.

NAVELS—	Avg.
Redlabel, C. C., Lindsay	$1.80
Bluelabel, C. C., Lindsay	1.80
Pocahontas, T. C., Zante	2.10
Hiawatha, T. C., Zante	1.95
Holiday, Placentia M. O. Co.	1.60
Boneka	1.75
LEMONS—	
Pico, S. T., Whittier	$2.35

CINCINNATI, Jan. 4.—Cold. Market is advancing on Floridas. Sold four cars Florida oranges, one car grapefruit. Florida oranges sold $1.00 to $2.35, average $1.65; grapefruit 70c to $2.05, average $1.25.

PITTSBURG, Jan. 4.—Five cars navels, one car lemons sold. Cool.

NAVELS—	Avg.
Newsboy, R. H., Redlands	$1.65
Gold of Ophir, B. C., Therm.	1.60
Yellow Hammer, S. C., Loomis	1.75
Sapsucker, S. C., Loomis	1.70
Kaweah Maid, C. C., Lemon Cove	2.35
LEMONS—	
Airship, F. C., Fillmore	$2.05
Cycle	2.00
Oriole	1.10

MOTOR CARS NEEDED FOR FARMS

Nearly one and a half million automobiles have been sold in the United States since 1902, when the business may be said really to have begun.

The number of these machines that have gone to the scrap heap is as yet negligible for commercial reckoning. The oldest is only 12 or 13 years old. You see the quaint old timers in service every day.

Next year, according to the forecast of the trade, nearly a half million more cars will be sold. These facts cause many to wonder where these hundreds of thousands of cars will go next year—and the years after that. They figure that there is now one automobile to each 70 or 80 people in the country. How many possible purchasers remain to be supplied?

Jasper, the well-known financial authority and writer for Leslie's Weekly, partly indicated the answer when he says, "Half of next year's output will be sold to farmers more largely for utility than for pleasure." The fact is, when the farm market is thoughtfully considered, it is found to be the dominant factor in the future of the automobile industry. And Jasper's words, "more largely for purposes of utility than for pleasure," furnish the reason.

Without taking into account the scrapping of old machines, which must be replaced with new ones, it may be said that stupendous as the business is, the possibilities have not been much more than "scratched."

Not quite 50 per cent of the automobiles in use now are owned by farmers. But there are in the United States, according to the census of 1910, 6,361,502 farms, with a total value of $40,991,449,090—an average value per farm of $6,444.

A supply averaging one automobile to a farm is a long way in the future—but the demand is not inconceivable. Some day, without doubt, it will be approximated—and when it comes it will represent a degree of progress and efficiency as far ahead of the present as the supply of that day will be ahead of the present supply.

Thus far the number of automobiles owned by farmers is only about 10 per cent of the total number of farms. The manufacturers would have to produce over five million more cars to fill the farm market alone.

The coming of the automobile has made remarkable changes in farm conditions. It is carrying the farmer far and wide over the countryside and bringing him into close touch with all the great improvements in agriculture.

Today it is no uncommon thing in any of the middle western states to see anywhere from 50 to 300 automobiles grouped about a field where a plowing contest is going on, or standing about the stable where there is a sale of fine cattle. These automobiles come from distances of 10, 20 and even 30 miles. They bring the farmer to these centers of interest quickly and without a great waste of time.

The automobile on the farm is a paying investment in many ways. On many farms the car does service both as a pleasure car and a truck. By removing the body the car is converted into a truck on which farm products are quickly taken to market at little expense.

In the old days, if a member of the family, or a valuable horse fell ill or was hurt, or a machine broke down in the midst of harvesting, the farmer had no choice but to take the consequences. He would drive off to town for help, but it was a long, slow drive over bad roads and help almost always arrived late. The car gives him the quick service he needs.

When it comes to the boys on the farm, no one can doubt the influence of the automobile in making the farm attractive. Both the boys and girls of the farm drive the car and take care of it, and you may be sure that the young men or women on the farm where there is an automobile see to it that the car is kept in good shape. There is a marked decrease in the desire on the part of the young to get away from the farm, and the automobile is one of the most important influences to bring about this change.

The automobile has promoted the good roads movement all through America. This is decreasing the cost of transportting agricultural products to market. And so important an item is this that it could almost be said that the improvements in roads alone would more than pay a big interest on the amount the farmer has invested in automobiles.

PARADISE OF THE PACIFIC

The Hawaiian Islands have adopted for themselves the name of Paradise of the Pacific and for those of us who are not fortunate enough to have verified the claim of the islands a fair idea of the correctness of the term is given by a magazine published in Honolulu under the title of the Paradise of the Pacific. It is a genuine wonder magazine every month, but the last number, that of December, was an annual which exceeds all others in beauty of workmanship and in views given of those beautiful islands. Many of the illustrations are three-color, and hundreds of others are excellent halftones. Perhaps the most striking of the illustrations are those of varieties of hibiscus growing on the islands, of which, by the way, there are more than 3000. These are accompanied by text by Mr. E. V. Wilcox, fully describing these plants. If our Hawaiian friends can get copies of this magazine into the hands of attendants at California's great expositions this year it will certainly give them a great desire for a visit to these beautiful islands.

A LONG WAYS FROM HOME

Last June a 540-Egg Pioneer Incubator was shipped to J. B. Merrett, Christchurch, New Zealand. Mr. Merrett is the owner and publisher of the New Zealand Poultry Journal.

A letter just received from him says: "We had a fine hatch, and the machine gives every satisfaction." We hope to get an order away to you at an early date.

A free 32-page catalog will be sent you if you mention this paper and address the Pioneer Hatchery, 112 East 8th St., Los Angeles, Cal.

1915 SEED CATALOG

Aggeler & Musser Seed Co., Los Angeles, is mailing its catalog. One of the first illustrations in the book gives the idea of the greatest plant on the Pacific Coast. Of course, the catalog is filled with descriptive matter and illustrations which may be of special value to the gardener.

The Fancher Creek Nursery's 60-page price catalog is certainly a classy publication. It is filled with illustrations and a world of information as to planting and care of plants and trees which are offered by these great nurseries. The Fancher Creek has been advertised and made known the world around, and has delivered goods in practically all parts of the world. If the Cultivator is mentioned we think this publication may be had for the asking. Write Fancher Creek Nurseries, Fresno.

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See Yuba Tractor Advertisement on Page 8

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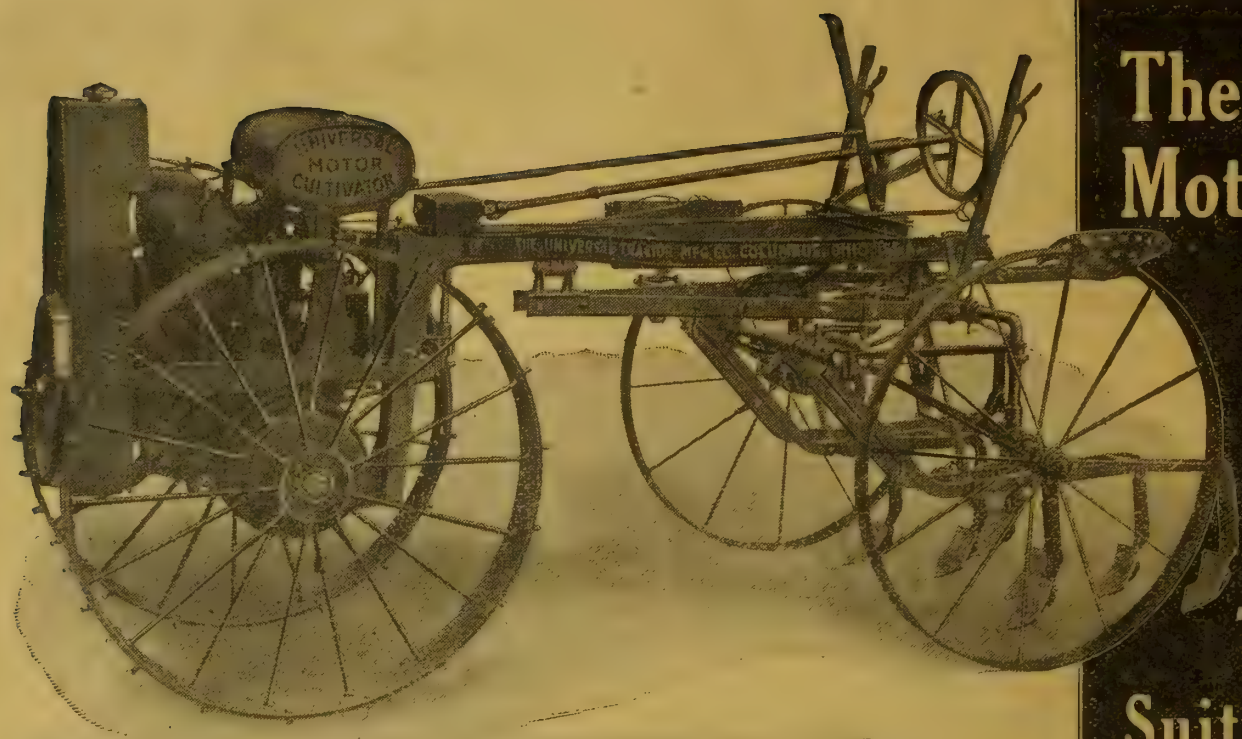

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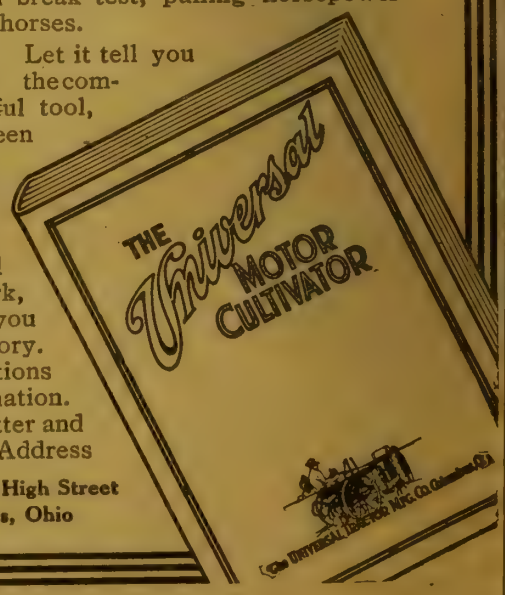

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LOS ANGELES | January 14, 1915 | SAN FRANCISCO

Bud Sticks for Orange Stocks

See Article by L. B. Scott on Leader Page

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WRITE FOR BULLETINS

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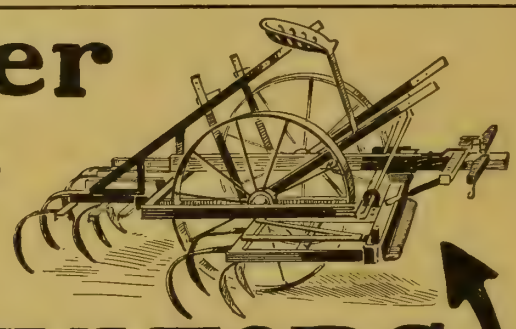

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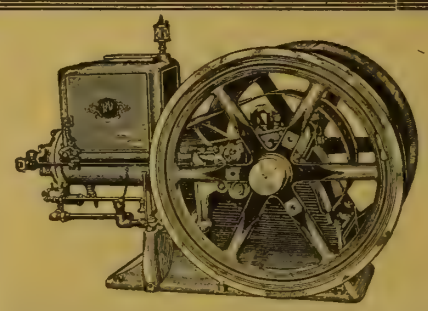

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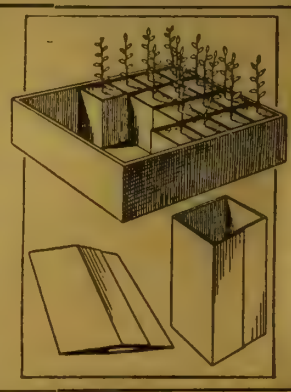

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Vol. XLIV No. 2 LOS ANGELES: THURSDAY, JANUARY 14, 1915 One Dollar Yearly

Is There to be a State Agricultural Association?

Movement Launched at Recent State Fruit Growers Convention May Lead to Ambitious Organization Which Shall Represent All Phases of Agriculture, Economic, Cultural and Scientific. Committee Meets in Sacramento. Larger Meeting to be Held in San Francisco

CALIFORNIA has live stock breeders' associations, swine breeders' associations, draft horse breeders' associations, poultrymen's associations, bee keepers' associations, grape growers' associations, deciduous associations, citrus associations, nut associations, nurserymen's associations, with bean, alfalfa, date, cotton, cantaloupe and celery associations, a Protective League, Farmers' Union, granges and a dozen other associations, but no general fruit nor agricultural organized body to aid in advancing the larger interests of the producers of the state. For some months many fruit men of the state have felt that organization should be perfected. There have been annual or semiannual conventions called and financed by the state horticultural commission, and these will doubtless continue, but even then there is room for an effective organized working body.

At the 45th State Fruit Growers' convention held in Los Angeles the matter of such an organization which shall work for fruit growers' interests especially in working out plans for each meeting and in financing the publication of reports was presented. A committee was appointed which reported to that convention two plans.

First: The committee have considered the organization as at first proposed of a state horticultural society to be composed of all horticultural interests of the state with a corps of officers elected annually, and publishing annually a report of their proceedings financed by the dues of members. The committee believe this plan to be thoroughly practical and think that such an organization once started would attract a membership of from 2000 to 3000 people, which with annual dues of from $1 to $2 would furnish ample means for the publication of the report of the society. The committee are highly in favor of such an organization, if no better plan can be devised.

Second: The committee have considered a second plan which is more ambitious and appeals to them as preferable and as one likely to command the interests of the agriculturists of the state because of its broader conception and its greater ultimate usefulness in the development of the agricultural interests of the state. This second plan contemplates organizing in one great society all of the varied agricultural interests of the state, including horticulturists, agriculturists, stock raisers, dairymen and men engaged in scientific research related to agriculture. Such an organization would be comparable to the American association for the advancement of science.

The committee contemplates that such a general California agricultural society would have its corps of officers for the general association, and then would be composed of various sections representing the different horticultural and agricultural interests of the state, as for instance the following sections:

First. Citrus fruits.
Second. Deciduous fruits.
Third. Tropical fruits.
Fourth. Small fruit and bush fruits.
Fifth. Nursery interests.
Sixth. Dairy section.
Seventh. Live stock section.
Eighth. Grain section.
Ninth. Vegetable section, and such other sections as demanded by any special agricultural interests. If such an organization were formed the general association would probably hold a meeting biennially, at which business matters of general interest could be taken up, and the association in general be directed by its executive committee consisting of the officers of the various sections.

The different sectional meetings could be held as often as the various sections desire, and in places most convenient for the members of such sections.

The committee see many difficulties in the organization of such a general society, but believe that such difficulties can be overcome, and that a broad general agricultural organization of this sort would strengthen and cement the various agricultural interests of the state. They would recommend that a strong committee be appointed by this meeting for the careful consideration of these suggestions, and for the drafting of permanent plans, constitution and by-laws to be presented at the next meeting of this association for consideration and action.

The report embodying these two plans was unanimously adopted but the matter of accepting the definite plan and working out the scheme of organization was referred to a committee of seven of which State Horticultural Commissioner Cook should be one. Dr. Cook named the following as the other six of the committee: F. B. McKevitt of Sacramento County, Geo. H. Hecke, Yolo County; Dean H. E. Van Norman of the University Farm School, Senator B. F. Rush of Solano County; Dr. Herbert J. Weber of Riverside County and C. B. Messenger of Los Angeles County. This committee was called together at Sacramento last Thursday and the two plans discussed. Unfortunately Dr. Weber was unable to be present. He had suggested the larger of the two plans—the second given above. The committee decided that the more ambitious plan was the more worthy of the effort of Californians. This meant far more than a fruit growers' association and the committee which was appointed by a horticultural gathering felt that the next step would be the presentation of the matter to live stock and general farm interests before any definite report could be made to the State Fruit Growers' convention, to be held at Stanford University next July. It was decided to invite representatives of all farming interests to meet on the Panama-Pacific Exposition Grounds on Monday, February 22. That is Washington's birthday and the second day after the opening of the Exposition, so it is thought many representatives of state associations and many interested may be brought together at that time. The following statement and invitation is issued by the committee:

A proposed plan for a general agricultural society to include all branches of the industry, the purpose of which shall be to promote and protect the economic and other interests of the several branches of the industry, and which shall hold an annual convention including one or more sessions of general interest to all branches and sectional sessions devoted to farming interests. The recent successful campaign against the eight-hour law is an illustration of the need and power of united effort in behalf of the agricultural interests. Vital problems affecting all branches are before the industry and demand concerted consideration and active effort.

January, 1915. Secretary Live Stock Association. Dear Sir:—By direction of the recent State Fruit Growers' convention the undersigned committee was instructed to consider the feasibility of starting a movement looking to the organization of a state-wide agricultural association of some kind. We take the liberty of inviting your association to be represented by two or more persons at an informal conference to be held at the..... Building, Panama-Pacific International Exposition Grounds, San Francisco, February 22nd, at .....o'clock, to discuss the proposition. Enclosed is a tentative outline merely as a suggestion for discussion. Can we count upon your association's being represented with a view to reporting back to the association such suggestions as you may see fit to make after the conference? This meeting is a preliminary conference to discuss the feasibility, and, if approved, outline a plan of action. Yours truly, (Signed, members of committee.

Improvement of Fruits by Bud Selection

Address by L. B. Scott Before Kansas State Horticultural Society. Investigations Which Will Prove of Interest to All Fruit Growers

IT is needless to mention the Babcock test or to dwell on its importance to the dairy interests. Nor is it necessary here to discuss the value of careful seed selection in the improvement of corn and other grains. It is not so many years ago that men like Holden, Shamel and others were conducting their seed corn experiments and showing the results that could be accomplished by careful seed selection. This movement, like all pioneer movements, was at first ridiculed, but the investigators kept on, undaunted, and now those who a few years ago ridiculed the idea of careful seed selection are among its most enthusiastic advocates.

Turning to the field of vegetatively propagated plants, we see where marked improvements in yields and in improved types have been secured by a careful selection of cuttings or buds.

It was in the nineties that Dr. B. T. Galloway, now dean of the college of agriculture at Cornell, but formerly of the United States department of agriculture, and Mr. P. H. Dorsett of the department, found that by careful selection of cuttings from productive violet plants they could materially increase the number of flowers per plant. They kept performance records on each plant, counted the numbers of flowers, and by carefully selecting cuttings from those plants which produced the greatest number of flowers they were able to secure a very productive type of violet. Similar results

"Behind each tree is our guarantee"

Our name and guarantee stands back of every tree leaving our nursery. We specialize on foothill grown stock for hardiness, good, well branched roots, freedom from root knot and disease. They are superior to and unequalled by those grown in any other soil or location.

TRUE TO NAME

THE SILVA-BERGTHOLDT CO. CALIFORNIA FRUITS NEWCASTLE, CAL. TRADE MARK REGISTERED

REMEMBER

When you purchase **Silva-Bergtholdt Trees** you buy from a firm who are fruit growers and shippers as well as nurserymen.

Our buds are selected for propagating only from parent trees having the best record for quality of fruit and productiveness, thus insuring a pedigreed tree.

Our years of experience, knowledge and observation in horticulture are at your service. We show you how to succeed.

Write to-day for our Fall Catalogue

giving accurate description of each variety and valuable suggestions as to tree planting.

Order now while the assortment is still fairly complete.

The best varieties are selling rapidly. Don't wait too long.

ALMONDS

Plant Almond trees for profit. California has a monopoly of the American market, which demands four times the present supply. We have an extra fine lot of trees in all the standard varieties on Bitter Almond and Peach root.

WALNUTS

Mayette—The true Wiltz strain for productiveness, freedom from blight, and quality, has no equal in any of the other standard varieties.

Franquette — The true vrooman strain, next to the Wiltz Mayette. The best Walnut for Northern and Central California. Our scions of Mayette and Franquette are absolutely of true strain, cut from selected trees.

CLINGSTONE PEACHES

California Canned Clingstones have a monopoly of the markets of the world for the reason that Eastern grown Clingstones can be canned only for pie fruit.

Tuscan — Are our improved round Tuscan; firmer; more symmetrical; more productive; not subject to windfall and split-pit and preferred by all canners to the Oblong Tuscan commonly propagated.

Phillips—We cut our buds from a block of trees that have proven of an exceptionally good strain of this variety.

Levi—A fine late Cling and desired by many growers to prolong the canning season. Very productive.

Our trees received first prize and gold medal at the State Fair.

OLIVES

Our Mission Olives are worked on Picholine root. The Picholine is a stronger growing and a deeper feeding root system than one grown from cuttings. Plant Olives only on Picholine root.

PRUNES

Prunes are a staple money maker. Our parent trees of French, Imperial, Sugar and Robe de Sargeant have been selected for quality, productiveness, and size of fruit.

PEARS

The California Bartlett monopolizes the markets of this country and Europe. The opening of the Canal route reducing the cost of their transportation East and for Export by one-half, will create a demand for the California Bartlett and California grown Fall Pears that the present planting cannot supply. We have a fine block of Bartlett, Comice, Winter Nelis, Anjou, and other varieties. Buds are cut from selected parent trees.

CHERRIES

The first and best fruit of the summer season, grown only in California during their season of ripening and more profitable even than Oranges in Riverside County. Don't miss this fruit in your planting.

APRICOTS

Apricots being another fruit grown successfully only in California. Have a monopoly of the American market, and canned and dried the export demand is unlimited. We have a fine lot of trees in the standard varieties—Royal, Blenheim, Moorpark and Tilton on Peach and Apricot root. They are selling fast.

Write to-day for our catalogue, price list and full information about planting—it's free.

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***The* McIntyre Tree Prop Brackets**

Are the Best Made

Have a smooth, rounded surface for the limb to rest upon. Strong, well made and will last for years. Will not chafe the tree like the wire brackets.

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have been accomplished with roses, carnations, potatoes and many other vegetatively or bud propagated plants.

Why then when corn growers, tobacco growers, florists, vegetable men and many others are securing marked improvements in yields by selection should fruit growers work on the assumption that "all horticultural practices are based on the precedent of centuries" and that there can be no improvement of varieties by careful bud selection? Fortunately all fruit growers and all investigators did not work on that assumption. Within the last few years the department of agriculture has carried on a series of investigations with citrus and deciduous fruits to see if marked variations did not exist, and if by careful bud selection whether or not very productive types could be secured.

While we have published very little of our results to date in government publications, Prof. L. C. Corbett, in charge of all the horticultural and pomological investigations of the department of agriculture, has given us permission to appear at this meeting and in a general way give a summary of our results and outline methods whereby orchardists can study their individual tree differences and secure their own records.

Nearly seven years ago Mr. A. D. Shamel who had made an international reputation by his work in selecting productive types of corn, tobacco and cotton, went to California. He was assigned to the careful handling squad working under the direction of Mr. G. Harold Powell. His work took him all through the citrus groves in Southern California. Near San Diego he saw a very productive Marsh Seedless grapefruit grove which the owner claimed had been propagated from two very productive Marsh Seedless trees. Now this set Shamel thinking. He knew from his own experiences of the great increases in yields that had been secured in corn, tobacco and other crops by careful seed selection and he said to himself, "Why can not the same methods be applied to fruit trees by careful bud selection?" He talked the matter over with Mr. Powell and later with Dr. Galloway, at that time chief of the bureau of plant industry, and secured permission to commence the fruit improvement investigations.

The first investigation was commenced with Washington Navel oranges near Riverside. The writer became associated with this work in June, 1911. In July, 1913, our staff was further augmented by Mr. C. S. Pomeroy. In addition to the department men working on this problem, we are carrying on cooperative investigations with Prof. H. J. Eustace, head of the department of horticulture, Michigan agricultural college, Prof. A. V. Stubenrauch, head of the division of pomology, University of California, and a number of prominent fruit growers and nurserymen, both citrus and deciduous, in various parts of the country.

The principles we have found underlying this study are just as applicable to deciduous as to citrus conditions. After discussing the citrus investigations we will take up our deciduous work and lastly the methods whereby a fruit grower may find out for himself just what his individual trees are doing.

Citrus Investigations

We have, roughly speaking, under observation 1000 Washington Navel trees, 200 Valencia orange trees, 400 Eureka lemons, 200 Lisbon lemons and 100 Marsh Seedless grapefruit trees.

Our work naturally divides itself into three parts:

A study of the differences as they occur among individual trees under the same conditions. This includes a difference in type and a difference in production within each type.

Can these differences be propagated?

Will these differences be consistent from year to year in the budded trees?

Let us take up the first part of our work. Formerly a Washington Navel was thought to be a Washington Navel; a Baldwin apple, a Baldwin apple. We have found in the case of the Washington Navel that instead of one type there are 11 distinct types and these types are as distinct from each other as the white race is from the black. These types occur as tree sports, limbs sports and individual fruit sports. So far 11 types of Valencias, five of Eureka lemons, five of Lisbon lemons and five of Marsh seedless grapefruit have been found.

We wish to contrast for you two of the prominent Eureka lemon types. This will show better than any attempted definition of ours just what we mean by types.

First take the standard open Eureka lemon type of tree. Any time you look at that tree you can see fruit in all sizes from blossoms up to fruits ready to pick. That is just the condition you wish to have in a lemon tree, fruit coming on during each month in the year. A six-year-old tree of this type will bear from five to six packed boxes of fruit scattered throughout the year. The lemons from this type of tree grade as high as 95 per ent or higher first grade or fancy fruit.

Now right by the side of this tree is a dense, rank growing, unproductive "shade tree" type of Eureka lemon. All the fruit comes at one time in the fall, just the condition you do not want to have in a lemon tree. A six-year-old tree of this type will bear not more than one packed box of rough, poor quality fruit, and this fruit is all borne at one or two picks in the fall. The lemons from this type of tree grade as low as one per cent or lower first grade or fancy fruit, and practically all go with a third grade or culls.

Look at the difference! Both trees are healthy and vigorous; one produces five boxes of fine quality fruit in a year, the other, one box of poor almost worthless fruit.

We hope we have made ourselves clear on this matter of types. A variety is made up of a number of types, some worthy of propagation others not.

Now in addition to these variations in types there is a great individual tree variation within each type. Take two standard Washington Navel trees growing side by side. One produces ten boxes of oranges, the one next to it four. These differences are consistent from year to year. Both receive the same care, the same fertilizer, the same pruning, the same culture. No matter how much attention you give the four-box tree you can never bring it up to the standard of the ten-box tree. One is inherently a heavy producer, the other is not.

You will ask "How have you found out these variations?" They are not the result of "swivel chair observations." We pick each one of our trees separately, grading the fruit, coun

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All Leading Varieties

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Practically anybody can grow a citrus tree, but it takes years of experience to produce a tree that will prove a money-maker when it comes into bearing. Nice-appearing nursery trees are desirable and promising, but do not always prove to be good bearing trees in the long run. Plant for profit and not for appearance only. Our trees are straight, thrifty, well rooted and have strong, full heads, but the main consideration is that: Our buds are carefully selected from heavy fruiting trees and will prove true-to-name revenue producers.

OUR TWENTY-FIVE YEARS

of experience in the growing and handling of citrus nursery trees gives the buyer the advantage of starting out RIGHT, thus avoiding disappointment at the end of four or five years' labor in bringing the young orchard into bearing.

ANOTHER POINT TO CONSIDER

Growing a good tree is only part of having it do well after planting. Many a good tree is ruined in the taking up from the nursery and shipping. We give the best of service in the proper handling and delivering of our trees.

WRITE,

'phone or call on us before buying your trees. Tell us your wants and we shall be glad to give you the benefit of our wide experience as to planting, soil conditions, fertilizers, etc.

Our illustrated new booklet on citrus culture mailed to any address upon receipt of 25 cents.

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(INCORPORATED)

Established in 1890 by R. M. Teague

San Dimas
California
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Teague trees are started right, grown right, and shipped right.

ing and weighing the fruit in each grade. These records are kept in special performance record blanks, following the tree through from year to year and keeping a yearly series record.

We will discuss the blanks more in detail when we take up the deciduous fruit work. We can turn to our notes and show you the actual amount of fruit, the numbers, weights and grades of fruit borne by each of our trees for the last five years. Our work is not based upon theory but upon actual observation in the groves and orchards.

Now we come to the second part of our work, the propagation of these differences. In the citrus work we only use or recommend for use for bud wood, fruit bearing wood with the fruit attached, because we believe the fruits on a limb can be taken as a guide as to what we can expect the buds from that limb to produce.

One or two examples will suffice to show these differences can be propagated.

One striking bud sport that we found was a limb on a standard Eureka lemon tree. This limb produces striped fruits and variegated foliage. Buds have been taken from this limb and show in the budded trees the same variation in fruits and foliage as the original limb.

Three years ago at Corona, the National Orange Company, on whose property some of our experimental work is located, decided to rebud 3000 of the unproductive or "shade tree" type of Eureka lemon out of their 200 acres of Eureka lemon trees. This is the type we referred to previously as being a shy bearer, bearing a few poor quality fruits in the fall. We selected the buds for this rebudding from as good productive type trees as we could find without having actual performance records to base our judgment on. Those trees came into bearing last year and every one of them were productive type trees. This year as three year old rebuds they are bearing four times as much fruit as they formerly bore as large unproductive trees. Just think what that means. In three years' time the worthless unproductive type has been replaced by a valuable productive type which bears four times as much fruit as it formerly bore.

Now take up the third part of our work. Are these differences consistent from year to year? We can show you whole groves in which the buds were selected from unproductive trees, and the budded trees have been consistently poor producers from year to year. We can show you other groves where the buds were taken from productive trees and these budded trees have been consistently high producers from year to year.

We have three and four year records on some of our own budded trees, and in every case differences in type and differences in production could be propagated and were consistent from year to year in the budded trees.

(To be continued next week.)

BY-PRODUCTS AT ORANGE SHOW

Special prominence will be given to citrus by-products at the National Orange Show to be held in San Bernardino February 17-24.

During the last year the manufacture of citrus by-products has been placed on a higher standard than before, but the industry has by no means reached the development that it will.

During the National Orange Show exhibits of by-products will be shown by manufacturers. In addition to the manufacturers, the citrus fruit growers have invited housewives to display their kitchen product from oranges and lemons and the domestic science classes of various educational institutions of the state will likewise display their work in citrus by-products.

Prizes are offered in all three branches of the by-products department.

In every manner possible the manufacture of citrus by-products is to be encouraged by the National Orange Show, at which many thousands of people will be shown how the orange and lemon can be made into various table desserts.

The citrus fruit men see a big field for manufacturers in the industry, and one that will become of importance to the state.

ORANGE
LEMON
GRAPE FRUIT
LIME

TREES

WE are digging our citrus stock now and the trees are splendid. We never handled or grew finer trees. They are of large caliper, well branched and absolutely free of all insect or fungus pests. We have about 75,000 trees to dispose of during the coming season which accounts for the low prices at which we are offering them: Oranges, Navel and Valencias; Lemons, Eureka; Grape Fruit; Limes. These are not "cheap" trees. They are first class in every particular but we are overstocked. The trees can be seen any time at our Nursery Salesyard back of the big store.

We also carry a full line of ornamentals, parking and street trees, roses and fruit trees. We invite your inspection.

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20 Years Experience Growing Nursery Stock

Our nursery is located in a clean district, therefore our trees are absolutely free from insect pests.

These trees are excelled by none, for the reason that our stock of one-year-old buds are grown on new soil, and the greatest of care has been taken in the selection of buds which were taken from our own groves.

Lemons, Oranges and Grapefruit ⅝ and up, guaranteed to be true to name.

If it's Citrus Trees we can supply your demand.

Before buying write or call and inspect our stock.

POLLARD & MARTIN, **Puente, Cal.**

First Class Citrus Seed Bed Stock

Nothing better in the market Clean and Thrifty
Genuine Florida Sour Stock. Sweet Stock grown from carefully selected California seed. Before buying see us. Prices right.

Locke Nurseries, Chas. H. Harle, Mgr.
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Deciduous Fruits

PRUNE PLANTING IN CALIFORNIA

Written for California Cultivator
By a Sacramento Valley Contributor

"HOW many more prune trees can be planted in California without overdoing the prune business?" is a question that many prospective planters are asking.

Prune trees, especially on Myrobalan root, for planting on heavy land have found great favor during the past two or three years, and because of a shortage in the supply of Myrobalan seedlings from France, the principal source of supply, nurserymen have had difficulty in catching up with the demand.

The California French prune, well grown, on good land with an abundance of moisture for the maximum efficiency of the tree, is a product that ranks high among the fruits and foodstuffs of the world. It is a superior article of diet, and it has practically all of the world for a market, selling at a premium in competition with the home grown article.

Then there are many of the older orchards that are falling off in production, not because the trees have attained too great an age to bear if they had been given the right treatment, but because of one or a combination of things that could have been remedied. Lack of irrigation during dry years, with dieback of some limbs because of an effort on the part of the tree to protect itself against destruction by cutting off evaporation and the flow of some sap, or sunburn and consequent decay because of insufficient foliage on account of a limited water supply is one prominent reason.

Lack of fertility in old groves where big crops have been taken off for years without addition of plant food from barnyard manure, chemical or commercial fertilizers, or cover crops is another factor that is curtailing yields. And in other places where there may be plenty of fertility in the soil it has been made unavailable by a breaking down of the physical condition or mellowness of the soil by constant cultivation year after year with no addition of vegetable matter from any source. The humus has been gradually burned out, the soil grains run together, air and water penetrate less readily and the bacterial action by which plant food is rendered available for the rootlets of the tree is arrested to a greater or less degree.

Malnutrition, literally lack of food or moisture, makes opportunity for crops from new plantings, and the sapping of vitality from the tissues of the trees in old orchards by insect pests, far more.

There are many who are free to predict what they think the future may be as regards the planting of any crop. Right now people in position to be well informed say that we can never produce more high-class California French prunes than the world's markets can handle if they are properly distributed. And others are fearful that when the young trees now planted come in bearing prunes will be hard to dispose of at profitable prices.

As we see the situation one thing is certain, that prune growers in some of the older sections can make expenses, those who are planting trees on the rich irrigated or overflow lands of the Sacramento valley can grow the crop at a profit. If worst should come to worst, a three-ton or better crop will make a good return as hog feed, and the hogs will gather it themselves.

But a prophet of California futures in the fruit business is in a very bad business at best. Some of the things that seemed best to plant 15 or 20 years ago would not be used in a new planting today by the same people, and the fruit that by all the guessing and reasoning at this time appears to have a hopeful and profitable future may not prove out that way in 10 years more.

As an indication of the probable planting of French prunes this season one salesman of nursery stock in a Sacramento River locality is reported as having sold 18,000 trees before he began to solicit orders.

But to return again to the side of optimism. Our prune is a staple article of high-class food more and more appreciated by all classes of consumers, and when present day channels do not provide a profitable outlet for the crop, growers will unquestionably find other means of marketing and distribution that will be satisfactory. California fruit men have proven themselves very resourceful in emergencies, and can be depended upon to continue so to be.

IRRIGATED AND NON-IRRIGATED FRUITS

By J. S. Jones and C. W. Colver of the Idaho Agricultural Experiment Station.

It is a generally widespread belief that irrigated fruits are more liable to decay and possess less flavor than non-irigated fruits. Since this inferiority is attributed to abnormally high percentages of water and correspondingly low percentages of solid matter, analyses were made of the content of dry matter, sugar, acid and crude protein in various fruits grown under these two systems, with a view to testing the truth of these suppositions. It was not presumed, however, that chemical analyses alone could settle questions relating to quality in fruits.

The material used in these analyses was not obtained from specially controlled plots; all irrigated samples were grown in districts where climate and soil render irrigation imperative, all non-irrigated samples in districts where the annual rainfall varies from 25 to 35 inches and where the soil and topography of the country render irrigation methods impracticable. The comparisons are therefore made between normal irrigated and normal non-irrigated fruits.

In the case of drupaceous fruits analysis shows distinct differences in favor of non-irrigated fruits, especially when the results are calculated on the dry matter, but they are not considered sufficiently large to seriously affect the taste, except in the case of Italian and Petite prunes.

In the case of apples the non-irrigated almost invariably contain greater percentages of acid and sugar, but the differences are small and practically disappear when calculated on the total dry matter. Irrigated apples contain a smaller percentage of solids insoluble in water, but in intensity and uniformity of color, and in percentage of waste, they have somewhat the advantage over the non-irrigated.

Of the small fruits, strawberries alone show any marked difference in composition due to irrigation. When irrigated they are decidedly inferior in dry matter, sugar, acid and crude protein, and they lose their freshness and keeping qualities much earlier. In the case of blackberries and raspberries irrigation results in an increased percentage of sugar and a decreased percentage of acid when calculated on the total dry matter, and is therefore a distinct advantage in growing these fruits for marketing in the desiccated condition.

In general, it may be said that no marked differences in food and market value of fruits can be attributed to the effects of irrigation.

THE ROSY APPLE APHIS

Measured by its immediate effects the Rosy Apple Aphis (Aphis Sorbi) is the most dangerous of the plant lice. The unchecked presence of this species in the spring of the year results in a worthless crop of stunted and gnarled fruit at harvest time. This species is increasingly prevalent in the irrigated orchards of the Northwest, and already many millions of boxes of fruit have been destroyed through its working. Fortunate it is that control of the species is easy if undertaken in time.

Unlike the common but less dangerous Green Aphis of the apple, Aphis Sorbi neglects the new growth to work in and about the blossom clusters. The overwintering eggs hatch just as the buds are opening, about March 1, producing powdery, bluish-green lice. These aphids work down into the developing leaves, poisoning them and the future fruit, and later give birth to lice which finally become pinkish in color. In June blackish winged individuals appear, to fly from the apple trees which then are free of aphids until the return migration in the fall. In the meantime the poisoned apples grow but little, but ripen early as dwarfed, irregular, tasteless caricatures of fruit, hanging on the branches to testify to the destructiveness of the insect.

The customary sulphur-lime spraying as given in March fails to destroy both the eggs and the hatched young of this aphis. To become effective against plant lice this spray should contain tobacco, as in the form of Blackleaf 40, one part to 900. Recent experience in California warrants the recommendation of fall spraying with weak oil emulsions as the most dependable treatment. The winter eggs are not laid for several weeks after the fall migrants return to the apple trees and in the meantime the insects are susceptible to a weak spray and are easily reached. For such spraying a four per cent emulsion of crude oil, or a one to 1000 Blackleaf 40 spray would answer. In the latter case four pounds of soap should be added to every 100 gallons of the spray.—A. L. Melander, Entomologist, Washington State Experiment Station.

THE GRAPE LEAF HOPPER

By R. M. Roberts, Agricultural Demonstrator, Santa Fe System

The vine hopper is one of the most destructive insect pests that has to be dealt with in grape growing sections. It obtains its food by sucking the plant juices from the grape leaves which rapidly turn a pale yellow color and finally fall from the vine. Injury to the crop is two-fold. The absence of leaves prevents the vine from elaborating food with which to mature its fruit and also allows the sun to burn the berries. The fact that the vine is prevented from making its normal growth has a tendency to reduce the crop of the following year as well as that of the present year.

Control of this insect in the adult or winged stage as shown above is very difficult. They are immune to any spray as yet devised and their numbers in this form can be reduced only by the use of hopper cages. The over wintering brood can be reduced by cleaning up the vineyard before the

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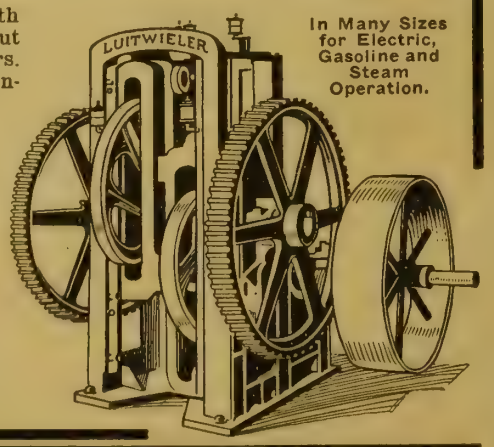

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oliage starts to grow, this operation utting off their food supply.

The eggs are laid on the under side f the leaf just beneath the epidermis, nd the young hoppers, or nymphs, fter hatching live and feed on the nder side of the same leaf. A period f 17 to 19 days elapses between the ime of hatching and the time the nsect attains wings and has ability o fly. During this period they go hrough five stages of development, ach denoted by a molting of the skin nd an additional growth of wing pads. Before attaining wings the nymphs re susceptible to liquid sprays of vari- us kinds, which kill by contact. The argest number are killed by spraying ust before the oldest are able to ly.

To effectively control these pests it s desirable to use a power sprayer with a pressure of 200 to 225 pounds. Two standard nozzles on the end of each spray rod add greatly to the effectiveness of the work which should be done largely from the under side.

After repeated trials with various nixtures the following has been found o be safe and satisfactory and at east 90 per cent efficient: Whale oil soap (bar or hard form), 5 pounds; black leaf 40, 1 pint; water, 200 gal- ons. Increase the soap 25 per cent where the soft or liquid form is used. The hard soap must be dissolved in hot water before being used. The per- centage of insects killed depends argely upon the thoroughness with which the work of spraying is per- ormed.

If it is desired to control mildew at he same time, atomic sulphur paste at the rate of 12 pounds to each 200 gallons of water or dry sulphur in the desired amount per acre can be added o the above mixture. It is important hat an agitator be used in this con- nection else the sulphur will settle to he bottom of the container. The cost of this work with a good power spray outfit should be about $2.50 to $3 per acre for material and $1.50 to $2 for abor.

DESTROYING SCALE WITH FUNGUS

The Los Angeles County Horticul- ural Commission is giving warning regarding use of so-called cures for black scale on oranges, olives, peppers and all other trees which harbor this pest. The material is sold either in liquid form, which is sprayed over the tree, or mixed with bread crumbs or similar material and attached to branches at various points in the tree. These "cultures" are supposed to spread the disease or fungus from scale to scale. The commission has thoroughly investigated results of the experiments and is sending out warn- ing that there is no value in the pro- cess, which appeals to many who are anxious to reduce cost of operating the orchard as low as possible. Fortunate- ly, the cost is very low, hence the direct financial loss is not great, but the injury to the orchard owing to false hopes may be serious. If one wishes to use such material he should experiment on trees which are entirely removed from the commercial orchard. There have been certain fun- gus enemies of insect pests which have been declared by the experiment station of Florida to do some material good in that state. This is especially true in the case of white fly, but we believe our experiment station or coun- ty horticultural commissioners have never reported favorably on any of these efforts in California. Of course, our climatic conditions are entirely different. Commissioner Wood is giv- ing warning: "In the future we shall give no consideration to the fact that this treatment has been used, but will require that groves needing treatment for scale infestation shall not be en- dangered by delay of the fumigation, and those which have this year been allowed to wait for a test of the fun- gus shall be treated just as if no treat- ment had been given."

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Tehachapi, Cal., Dec. 18, 1914.

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I want to give you a few particulars concerning the Bartlett pear trees which I purchased from you in the spring of 1909. My orchard of 40 acres has made a remarkably fine growth, and my place excites the admiration of everyone who sees it. When I planted this place, the people in this vicinity intimated that my undertaking was that of a tenderfoot and that it would be only a question of time, when I would find that I had made a great mistake in attempting to convert a locality that was only a sheep and cattle grazing country into a fruit district. Within two years after I had planted my orchard, it had made such a remarkable growth and the trees were so thrifty and free from disease, that it attracted widespread attention and caused prominent fruit growers from all over the Pacific Coast to make investments and immediately commence the development of their properties, so at this time, there are over two thousand acres planted to pears and apples.

I want to take this opportunity to express to you my appreciation of the advice given me by your Mr. George C. Roeding concerning pruning and general cultural directions. Although I gave the orchard the best of attention, I do not hesitate to say that the actual demonstrations which he made in pruning had much to do with the uniform, shapely appearance which the trees present today. My orchard is located on an elevated plain 4000 ft. above sea level where the climatic conditions are extremely favorable, causing the pears to open very late in the fall so that they keep in perfect condition for the holiday trade. Experts have pronounced these pears perfect in appearance and exceeding in quality anything which they have ever received from any other section of the country. I have planted several orchards since and I obtained these trees from you. These younger orchards are doing just as well as the first one I planted. I have simply had splendid success with your trees.

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(Signed) B. M. DENISON.

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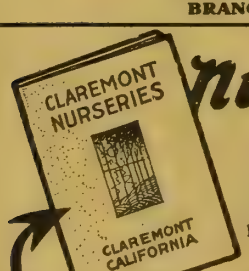

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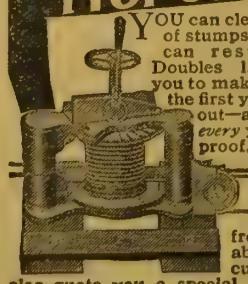
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General Agriculture

MIXING CONCRETE ON THE FARM

ON account of its cheapness, uniformity, and quick development of strength, practically the only cement used at present is the kind called "Portland" There are almost as many brands of Portland cement as there are of wheat flour. For farm work choose some brand guaranteed by the local dealer to meet the standard specifications of the American Society for Testing Materials, which standards are approved by the national government.

Keep Cement Dry

Cement takes water so easily that care must be exercised in storing it. Upon the regular floor of a good building place timbers close together as a support for a false floor upon which the cement should be piled.

Cement is heavy; do not overload the floor of the building by piling it too high and do not store it against the side walls. Keep it covered with canvas or roofing paper. Cement once wet sets up and is unfit for use. However lumps due to pressure in the store house must not be mistaken for set-up cement. Such lumps are easily crumbled and may then be used.

Do Not Buy Stone Screened To One Size

Concrete is a mixture of Portland cement and particles of stone. The stone should vary in size from pieces one inch in diameter to sand grains. By so grading the stone the smaller particles fit in the spaces between the larger pieces, thereby producing the most compact and the strongest mixture.

The best stone for crushed rock is one which is clean, hard and breaks with sharp angles. Trap, granite and hard limestone are among the best; the use of shale, slate and soft limestones and sandstones should be avoided. The crushed rock should be screened on a one-fourth-inch screen to remove the fine particles. These small particles should be considered as sand; and if insufficient in quantity to make the proper proportion of the concrete as is described later, enough sand should be added to them to produce the required amount.

Well-Graded Gravel Good

Gravel well graded in sizes is at least equally as good for concrete as crushed stone. Bank-run gravel, just as dug from the pit, seldom runs even and rarely has the right proportion of sand and pebbles for making the best concrete. The mixture most suitable has one part sand to two parts gravel, measured by volume, in which all sizes passing through a one-inch mesh screen and retained on a one-fourth-inch screen are considered gravel. As there is usually too much sand for the gravel it is both advisable and profitable to screen the material and to remix them in the proper proportions. Gravel should have no rotten stone and should be clean so that the cement may adhere to it tightly.

Sand Must Be Clean

With dirty sand no amount of cement will make strong concrete. Generally sand is clean, but if not, it can easily be washed by playing a hose or flushing water upon thin layers of sand placed on a tight jointed inclined wooden board. In size of grain it should vary uniformly from fine to coarse. All particles passing a one-fourth-inch screen may be considered sand.

Any good tasting drinking water is suitable for concrete.

Tools

The tools and equipment necessary for making concrete in moderate quantities are already at hand on a well conducted farm or will be useful afterward for other purposes.

The list: two square pointed "paddy" shovels, No. 3, one round pointed tiling shovel or one garden spade, one heavy garden rake, one sprinkling can or bucket or one spray nozzle for hose, one water barrel or one length of hose, one sidewalk tamper or home-made wooden tamper, one sand screen made of a section of one-fourth-inch wire mesh nailed to a wooden frame, one measuring box or frame. See description further along in art-

cle, one mixing board, two wheelbarrows with steel trays.

Proper Proportions for Farm Work

For farm work the following proportions are most suitable: For concrete necessarily waterproof, 1:2:4 or 1:4; for all other ordinary purposes, 1:2½:5 or 1:5.

Such proportions of three parts, as 1:2:4, indicate that the concrete is to be mixed one part cement to two parts sand to four parts screened gravel or crushed rock; and 1:4 that it is to be mixed one part cement to four parts bank-run gravel.

Measurement by counting shovelfuls is poor and uncertain practice. To avoid splitting of bags of cement make as the unit of measurment one cubic foot, the amount of loose cement contained in one cement bag. Such measurements are made a very easy matter by gauging the wheelbarrows. For this purpose use a bottomless box holding one cubic foot. A shallow bottomless frame is also a convenient means of measuring. Such a frame, when set on the mixing board and filled, should contain the full amount of sand or one-half the quantity of gravel, or crushed rock, required for one batch of concrete.

Using a "Two-Men Board"

The size of the batch is dependent upon the amount of help and the dimensions of the mixing board or platform. For work of ordinary size sufficient room will be had on a "two-men board," 8 by 14 feet, framed solidly and covered with one-inch stuff with tight joints the short way of the board. A wooden strip nailed around the outer edges will prevent the loss of liquid cement. For such a board and the proportions designated above make the bottomless frame of the clear dimensions given in the table below.

Proportions:	Sacks of Cement	Framefuls of Sand	Framefuls of Crushed Rock or Screened Gravel	Clear Dimensions of Frame
1:2 :4 or 1:4	2	1*	2	0'6"x2'8"x3' 0"
1:2½:5 or 1:5*	2	1*	2	0'6"x2'6"x4' 0"

*For bank-run gravel use the same table, but no sand is required except that which is already in the gravel.

Labor-Saving Factors in Mixing

All the materials (slightly more than the computed quantities) should be on hand before beginning the work. They can often be hauled at odd times. The sand and gravel or stone should be piled so as to cause the least amount of wheeling, to make the mixing most convenient to the water supply, to allow room for the future location of the mixing board.

If the gravel does not need screening place a bottomless frame, previously described for a 1:4 mix, on the mixing board and fill it level full with gravel. Lift the frame, spread the gravel slightly with the garden rake and upon it distribute evenly two bags (the full amount) of cement. Set the frame upon the leveled surface of cement and gravel and again fill it in the same way.

Mix Carefully With a Rake

Remove the frame and spread the entire mass by dragging it back and forth with the rake. Two men opposite each other then turn the batch with the square pointed shovels. Again use the rake. Keep turning until the cement no longer shows in streaks, until the mixture has a uniform color. Throw up the ragged edges and with sprinkling can or hose with spray nozzle apply water in quantity, according to special directions given later for each particular kind of construction. Turn again and add as much water as may be required. If dry streaks are still evident continue the turning until they disappear. With wheelbarrows quickly remove the concrete and immediately use it in the work.

If crushed rock or screened gravel is to be used fill the bottomless frame with sand and distribute upon it two bags of cement. Drag the materials back and forth with the garden rake, then turn as described above until the mass has a uniform color. Spread the mixture so that two framefuls of crushed rock or screened gravel may be placed upon it. Wet the mass and turn as for bank-run gravel until each stone is coated with cement mortar. Remove as for the gravel concrete.

For the proportion of 1:2½:5 or 1:5 the method of mixing is the same.

Since crushed stone is more or less porous, in dry hot weather it is advisable to keep the stone pile wet or at least to water the stone well as it stands on wheelbarrows ready for the mixing board.

No vast amount of knowledge and experience is necessary to do first class work in concrete. Success is dependent upon the care and thoroughness exercised in the selection of the materials, mixing of these ingredients and protection of the freshly placed concrete.

VINE PRUNING IN CALIFORNIA

Bulletin 246 of the California agricultural experiment station, Vine Pruning in California, No. 2, by Frederic T. Bioletti will be in demand by every grape grower of California. It gives information as to pruning systems, ideals of pruning, handling vines before planting, first winter pruning and staking, second summer and winter pruning and, in fact, takes up in the most complete way of any work we have seen general outline of pruning operations. It has been some weeks since it was issued but we doubt not the experiment station still has copies for all vineyardists who are interested. Write to the experiment station at Berkeley.

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THE GARDEN

Written for California Cultivator
By Ernest Braunton

EVERY garden owner may, if he wishes, have plenty of rich red berries on his own bushes at Christmas. He may even grow his own supply of mistletoe with but little effort.

Aside from the Heteromeles, or native berries locally called holly, there are a goodly number of shrubs which do well in this climate, that carry scarlet berries at yuletide. Nearly all of these find our summers too dry, and if such shrubs could be planted where the sun will not strike them during the hottest part of the day, fair success may be had with any of them. Under the shade of large trees is an ideal location, for in the shadow of buildings light and air is not as free and soils lack these neces saries also, as well as the atmosphere. Bacterial action is always deficient in the close shadows of buildings.

There are several species of cra taegus that are as well adapted to California conditions as any class of berry producers and grow in the open, under full sun, better than any similar plants except the native Christmas berry, holly, toyon or whatever popular name you choose for Heteromeles arbutifolia. English holly thrives splendidly when of some size, but small plants grow very slowly and fare poorly in California. Skimmia Japonica, Aucuba Japonica, Ardisia Crenulata, all need a mold-like loam of a free nature, and drainage must be good. All grow ideal berries. Our summer air is too dry for them and the more you can supply of moisture overhead during the hotter weather the better the results you will obtain. In the close damp shade on the north side of buildings it might be well to try the Partridge Berry popular in the East—Mitchella repens.

Now for mistletoes. The most showy one of native species is Phoradendron flavescens, which grows on cottonwoods and poplars. But a few miles from my home, up in the Arroyo Seco, they may be found on native trees and I have found them on the cottonwoods north of Sacramento and in all intervening sections. The mistletoe on the oaks is not so showy as the one parasitic on cottonwoods, though but slightly inferior and very closely related, being also a Phoradendron (P. villosum). The name is Greek—Phor, a thief; and dendron, tree. One could plant a cottonwood, slit the bark in numerous places, place a mistletoe berry beneath, tie a strip of cloth around the branch to keep birds from eating berries and doubtless grow all the mistletoes you care for. Or get berries from the other species and try on oaks, apples, and a host of trees quite common. In some parts of Europe, especially in England, the European mistletoe (Viscum album) spoils apple orchards and infests many native and introduced trees. In parts of California oaks often succumb to these vegetable parasites. In Amador County I estimated over 300 were growing on one large oak and the latter was decidedly on the wane. Two other species of mistletoe live on the pines and on cypress and juniper, respectively, the former (on pines) being leafless.

Planting Gladiolus

There is no better month than January for planting gladioli, and those who from year to year have watched them closely seem to agree in this particular. In light soils I would plant the bulbs down six inches and in the heaviest but three inches, varying the distance according to texture of soils.

Before planting, to prevent bulb rot, top rust, and to ward off diseases and insects, especially if bulbs are to be planted where gladiolus grew last year, I would dip the bulbs in the formaldehyde solution recommended for potato scab, one ounce of formalin to two gallons of water and allow them to stay long enough to be sure they are thoroughly wet through the loose skins that cover the bulb. Or one may soak two hours in Bordeaux mixture and allow to dry before planting. Even a dip in whitewash may benefit.

If found advisable to fertilize soil just before planting, dipping will certainly prove beneficial. Never use fresh stable manures of any kind when planting gladioli. If used at all, it should be so thoroughly rotted as to be black and mealy. Then use but little and thoroughly incorporate with soil. A better plan would be to mix well with top soil a commercial fertilizer containing about five per cent nitrogen, ten per cent phosphoric acid and ten per cent potash. Any fertilizer known to be good for potatoes or any underground crop will prove of great benefit to gladioli. But if used at time of planting we again caution you to mix it well with the soil.

Roses From Seeds

Ripe rose hips or apples are now plentiful and several readers have wanted to know how best to start the seeds. The first necessity is a stock of patience, for often all seeds in a mixed lot will not germinate for nearly a year. The effort to start them should not be given up before eight months have passed.

The seeds may be sown as soon as ripe though if in fresh pulp this should be washed away and seeds allowed to dry until they are fairly hard, for until a seed is cured "down" it is not ready to start "up." Sow seeds in a mixture of loam, leaf-mold, and sand and cover with a half-inch of the same material. After sowing keep cool and moist. The soil must never be allowed to dry, yet drainage must be good, so that if in boxes or pans see that holes are provided for the escape of surplus water. After seedlings have started your troubles are largely ended, for the young plants need no special treatment.

Keep Old Azaleas

Do not throw away potted azaleas when past flowering or even if they look sickly and lose their leaves. If you cannot plant them out in a cool place where they may be kept in a damp atmosphere during summer try and plunge them pot and all in the soil in a heavily shaded spot. Keep them growing until about October of this year at which time they should be in a slightly dormant condition

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IRVING N. WARD NURSERY
SIERRA MADRE, CALIFORNIA

from a little studied neglect. Take out of pot, get rid of some of the outer soil on the ball, repot with new enriched soil of heavy texture and pot solidly. Use a blunt stick or cudgel to ram the earth down solid. Water well, keep top clean and as moist as possible and when new growth shows feed lightly but frequently with liquid manure.

Bluegrass or Clover?

The finest bluegrass lawns I have ever seen have been grown upon the heaviest black adobe, and while more work is required than upon lighter soils the recompense will come with a rank growth of dark-green grass with tall and wide blades so rank indeed as often to lead one to ask if it really is bluegrass. The poorest grass lawns I have seen were upon sandy soil even where very heavily manured, and on such soil I would much prefer to sow white clover as it will thrive on soils too light to grow good grass. The soil for clover should be inoculated with either a commercial dose of nitrifying bacteria or by a scattering over the surface of the still damp soil taken from a lawn of strong-growing clover. In the latter case wash it in before it dries out on surface.

Use Wood Ashes

Now that our German supply of potash is cut off by war in Europe it may be necessary for all to save closely wood ashes as a means of supplying potash to the soil. All brush, weeds, etc., can be burned in one place and the ashes joined with those from the house for use in garden and orchard. There are many planing mills where shavings and sawdust are used for fuel and ashes from these places may be available in sufficient quantities for top dressings for lawns, rosebeds and all flower and vegetable crops, for wood ashes may with profit be applied to all crops or mixed with composts or potting soil. The addition of bonemeal to the soil at the same time will furnish a fair balance of plant food for garden plants in general.

The Orange Trumpet Flower

Just at present all our people, and this most particularly includes visitors, are admiring the vines of Bignonia venusta, the Orange Trumpet flower from South America now blooming everywhere in semi-tropic California. But today I was admiring a large vine of it in Pasadena where it nearly covered one end of a house, and though I have known and handled this Bignonia for more than a quarter-century, I admire it more each year.

The Best Yellow Jasmine

For long years the only species of yellow jasmine we have had is Jasminum revolutum, but of late the new J. primulinum has become fairly common for it is as far ahead of the other as is the more common one superior to the deciduous J. nudum. Find a plant of the Primrose Jasmine in bloom and you will want one or more at once.

Preserve Native Growth

When clearing land for planting preserve all native trees and shrubs, at least temporarily, unless a change of surface or grade renders their preservation impossible or at least inadvisable. At San Diego I lately stood on a height where I could observe two slopes planted with material from the nursery. One had been cleared of everything before planting and the other had all the native shrubs left and the introductions were planted among them. The latter method is by far the best for so many good reasons that I will not waste time or space in enumeration or explanation. Merely clear away the weeds and herbaceous plants and leave all living hardwood.

Moving Native Oaks

It is not too late to move native oaks from the wilds and these as a rule do much better than nursery grown trees. Do the work at once. Dig holes first, real large holes. Take up the trees with all the roots you can get. Do it quickly and do not let the roots dry out while at work. In transporting them have wet straw or similar material in bottom of wagon, cover the roots with wet sacks, and as soon as soil is filled in about roots enough to hold tree in place, fill hole with water. Every tree so treated should live. They do for me and I have so moved trees at least a score of years old.

Small Fruits Vegetables

THIS MONTH IN THE SACRAMENTO VALLEY

Written for California Cultivator
By S. S. Rogers

THE most important work in the vegetable garden during the month of January is getting the land into shape for planting. As a general rule very little planting is done during this month for the weather is generally so cold that the plants will not start well and it has been found better to wait until it is milder.

Land which is to be used for spring planting should be heavily manured during this month at the rate of between 15 and 25 tons per acre. After receiving this treatment the land should be plowed as soon as possible to a depth of from 10 to 12 inches, leaving it in this condition until just a short time before planting. If the land is left in the roughened state it will hold the rains much better than if it is smoothed down.

During the latter part of this month in some localities the growers plant such crops as beets, turnips and carrots. It is recommended that enough of each of these vegetables be planted at this time to last through the summer. If these are planted during the latter part of this month they should be ready to harvest the last of April or May. At this season the prices paid for these vegetables are higher than later in the spring.

It has been found that lettuce will not do well in this valley in the hot summer months so that a planting of lettuce should be made within the next month or six weeks large enough to supply the demand up to the first of June. Seed for this crop can be planted during this month in the cold frame and the most popular variety is the Los Angeles. It is very important to get the land in good condition during this month for the February planting for during the next two months the bulk of the seed should be sown for spring and summer vegetables.

JAPANESE KUDZU VINE

The writer has had knowledge of this vine since 1876, when it was brought to Philadelphia by the Japanese as part of their collection of exhibits at the Centennial exposition held in that year. He secured a plant of it, and it is flourishing today, now over 30 years planted. There is a good deal of nonsense written about this vine, as is the case with many things. One writer quotes from another, knowing nothing at all of the subject written on. It is said of this vine that the Japanese do this, that and the other with it in the way of profit, which very likely they do, but the little profit that would satisfy a Japanese would not satisfy one of us, while there are so many other ways of making it. In the first place the kudzu vine is not an herbaceous perennial, as is generally stated. When young it dies to the ground in the fall, but as it gets older it does not, forming long, woody stems above ground, so that unless cut off clean to the ground every fall there would soon be a tangle of shoots above ground which would prevent its being mowed when grown for forage.

The vine is a rampant grower. The old vine the writer has makes shoots from the base 50-70 feet long in one season; in the height of summer it will make a foot a day. The leaves are in size and appearance not unlike those of the lima bean. Old vines let run up a tree bear flowers not unlike small bunches of wistaria, purplish pink in color, and slightly fragrant. The first white frost kills the leaves. The leaves when growing are on stalks which bring the top of the leaves almost a foot above ground. The vine does not bear seeds in this country, so that it has to be propagated in other ways. Nurserymen layer it, not finding it to root readily from cuttings, so to set out a field of it for forage small plants would have to be purchased. The best thing to do by those interested in this vine is to get a small plant from someone who advertises it, plant it in a good position and watch how it does. A season or two of experience with it would enable anyone to judge whether of any value or not in the way of forage.—Joseph Meehan in Practical Farmer.

He who uses pump and spray may have his fruit another day; he who will not spraying try will have no fruit unless he buy.—Rural New Yorker.

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Our stock is guaranteed true to name and is grown under ideal soil and climatic conditions.

DECIDUOUS FRUIT TREES

We also carry a complete stock of apples, pears, plums, peaches, prunes, grapes, etc., as well as ornamental and evergreen trees of every kind and description.

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Economics on the Farm

WHAT IS THE FARMER'S REAL INCOME?

EXTENSIVE investigations into the profits of farming have indicated that the amount of money which the average farmer receives for his year's work is little more than that which he would be paid if he hired himself as a farm hand to one of his neighbors. In other words, though the farmer is in business for himself the average farmer gets little or no money reward for the intelligence and skill with which he has managed his affairs or the risk and responsibility he has assumed. But he must get something in return or no one would trouble to farm for himself. A recent study conducted by experts in the United States department of agriculture shows that in many cases this reward may best be found in the products with which his farm furnishes him directly. When a farm is nearly, if not quite, self-sustaining, say agricultural experts, where it supplies the family that lives upon it with most of the necessities of life, a large money income is not necessary to prosperity. A greater sum derived from a farm which yields nothing for home consumption may leave the occupants much worse off.

Under the title, "What the Farm Contributes Directly to the Farmer's Living" (Farmers' Bulletin 635) the department of agriculture is about to publish the results of a survey of conditions on a large number of farms in the 10 states of North Carolina, Georgia, Texas, Kansas, Iowa, Wisconsin, Ohio, Pennsylvania, New York and Vermont. The farms selected for study, though possibly a little more prosperous than the average, were fairly representative of their sections, which it will be noted include three corn and cotton areas, two states in the corn and wheat belt, two regions where general farming was carried on and three different dairy districts. The average value of the chief necessities of life—food, fuel, oil and shelter—used each year by the farm family, the investigators found to be $595.08. Of these necessities, estimated in money, the portion contributed directly by the farm was $421.17, leaving $173.91 to be purchased with the cash obtained from the sale of products. In considering these figures it must be remembered that if the farmer had been compelled to pay city prices for his home-grown necessities this $421.17 would have represented much less comfort.

Of the food consumed 63 per cent was furnished by the farm. This proportion varied greatly in the different sections but was greatest in the locality studied in North Carolina, where the farms supplied 82.3 per cent of the food consumed while the average in the New York locality was only 50.4. In view of the present economic crisis in the south this fact is regarded as of particular significance since it demonstrates the extent to which, with a proper system of agriculture, southern farms can be made self-sustaining. Concentration upon one cash crop, cotton, has proved disastrous, and agricultural authorities are now trying in every way to induce the people to adopt a system which will lead to conditions similar to those now prevailing in this particular area of North Carolina.

In this connection the investigation revealed some interesting facts in regard to the four items of groceries, animal products, fruits and vegetables in the average farm family's food bill. Of the value of the food consumed groceries constituted practically one-quarter, animal products more than one-half, vegetables 11.6 per cent and fruit only 6.3. Practically all of the groceries were bought; on the other hand, the quantity of fruits and vegetables used was in direct proportion to the quantity raised on the farm, and where this quantity was great the grocery bill was correspondingly low. This was also found to be true of animal products, including of course not only butcher's meat, but poultry, eggs, milk, cheese, etc. Where these were abundant on the farm fewer groceries were purchased. Since the grocery bill was found to be ordinarily two-thirds of the entire amount expended in cash for food, one very obvious and effective way of economizing appears to be to raise more vegetables, more fruit, more milk and eggs. In many cases, experts say, this can be done with no appreciable increase in trouble or expense.

Next to food shelter is probably the most important necessity of life. In considering the farmer's income, however, a common error in the past has been to ignore the question of house rent. The value of the house has usually been included in the value of the land and the whole considered as capital invested on which interest must be paid before the farmer can be regarded as receiving any pay at all. This method, however, assumes that the farm family is to have shelter for nothing, an assumption which the city worker with whom it is not unusual to pay out from one-third to one-quarter of his entire wages for rent alone would regard as most astonishing.

According to the recent investigation, if the average farmer had to pay rent, his home would cost him $125 a year. This figure represents ten per cent of the value of the average house. Including interest, depreciation and repairs, this is regarded as a fair rental charge for the class of houses usually found on the farm.

With the information at their command the investigators were also in a position to compute the average cost of board and lodging on the farm. In this they included an item very easily forgotten—the value of the housework performed by members of the family. This was reckoned on the basis of the wages that would have had to be paid for hired assistance. Including this with the more obvious charges for food, fuel, light and rent, it was found that board and lodging

Wilson's Quality Trees

Are in heavy demand this season. The selection of buds from established bearing orchards, careful selection of seed, causing healthy, vigorous growth—THE REASON. The following letter is one out of many thousands we have received in the past:

Grass Valley, Calif., Dec. 7th, 1914.

Fresno Nursery Co., Inc., Fresno, Calif.

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Very truly, (Signed) GORDON S. MORGAN.

That tells the story.—Prospective Planters, give us an opportunity of starting you right by supplying strictly first class nursery stock. Send us a list of your requirements for quotations. Our large 52 Page Book describes all varieties of Fruit Trees, Grape Vines, Ornamental Trees and Shrubs, Palms, Roses, etc. We send this book free upon request. Remember we specialize on **DECIDUOUS FRUIT TREES, CITRUS TREES, OLIVE TREES, FIG TREES, GRAPE VINES, and Hardy Ornamentals.** Write us if you want the best that money will buy. Address

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and the treatment Kirkman accords his customers. Our steadily growing patronage has demanded that we grow more stock each year, until we now have more than **five million** trees and vines growing in our nursery plants in California and Arizona. A considerable portion of the stock in our nurseries, which will be ready for delivery this coming winter and spring, is already sold to early customers, but we still have a complete stock of all varieties of fruit trees and vines, as well as a general assortment of **ORNAMENTAL** and **SHADE** trees, etc., etc. What are you going to plant? We have it, without doubt, in large or small quantities. Illustrated price catalog on application. Please mention what varieties you are expecting to use.

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for each individual averaged $14.62 a month. But of this sum it is interesting to note that the farmer paid out in cash only 22 per cent. Exclusive of lodging the board of the average hired man cost $10 a month, but here again the farmer had only to pay $3. The remaining $7 was furnished by the farm as a result presumably of the hired man's own efforts.

The averages obtained as the result of this investigaton are not of course to be taken as mathematically exact for the entire country. In the opinion of agricultural experts, however, they point with convincing emphasis to the possibilities of comfort and prosperity that may be realized by a fuller utilization of all the farm's resources. Cash crops are not the sole, and on the average they are not even the chief, source of real income. It is really what the farm furnishes directly to the farmer that enables him to support his family. To increase the quantity and quality of this direct supply is one great object of farm management studies.

AN EDUCATIONAL MEASURE

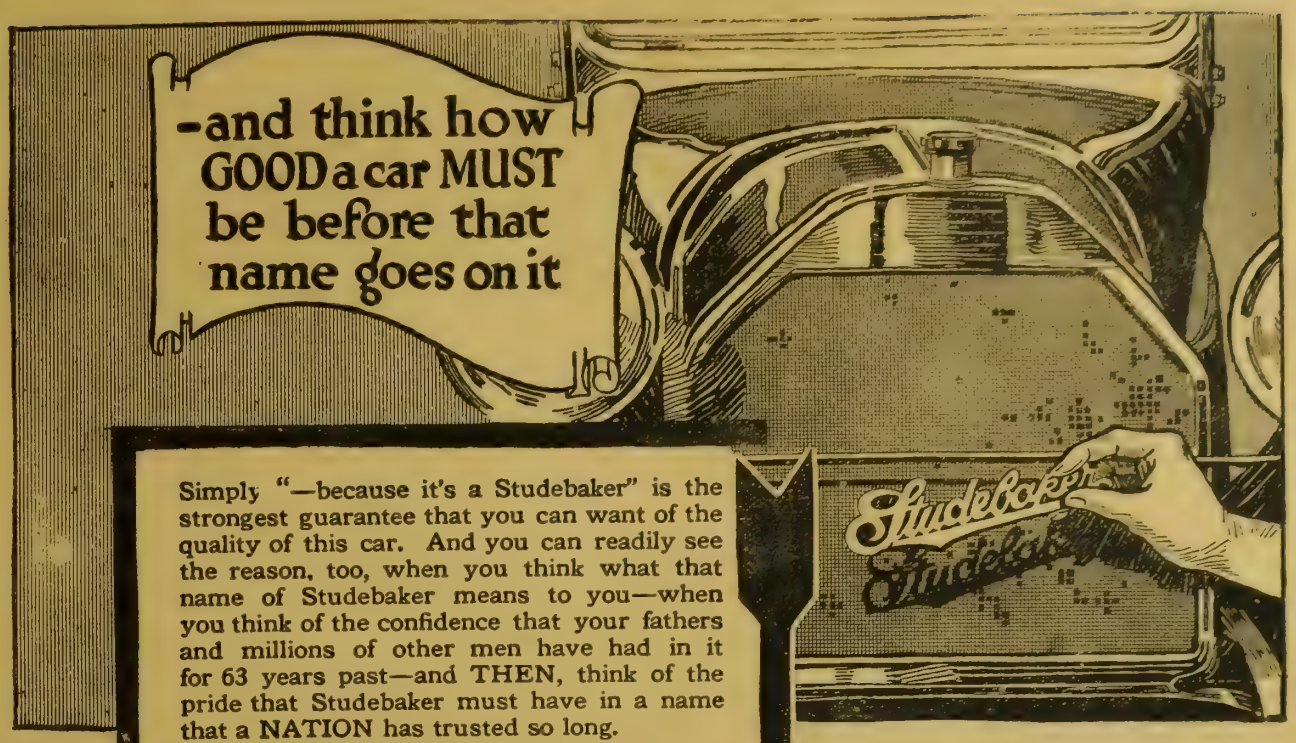
Many letters are being received by the United States department of agriculture which indicate that farm women in various sections of the country have come to believe that the government is about to assist them with grants of money to individuals. This unfortunate mistake, which, it is feared, will be the cause of considerable disappointment, appears to have arisen through a misunderstanding of the Smith-Lever act recently passed by congress. Under this act funds contributed both by the federal and state governments are made available for practical demonstration work in agriculture and home economics. Experts from the agricultural colleges and county agents, both men and women, are to show farmers and farm women the value of modern methods in agriculture and housekeeping and demonstrate the use of labor-saving devices. The purposes of the act are thus entirely educational and there are no provisions whatever for direct financial assistance.

This demonstration work which the Smith-Lever act is designed to promote has already met with considerable success in the states where it has been started, but the additional funds now available will greatly increase its efficiency. To avail themselves to the full of its possibilities the department officials recommend that farm women form local clubs and then communicate with the county agent or the state agricultural college. In this way it will often be possible to secure a visit from the county agent or from the home economics expert.

WATER STUDIES IN HAWAII

The three principal crops of the Hawaiian Islands are sugar, rice and taro, and 90 per cent of these are products of irrigation. Water is therefore the life blood of the islands, and since 1909 the United states geological survey, in cooperation with the Territory of Hawaii and assisted by private corporations and individuals, has been carrying on an exhaustive investigation of the water resources of the islands. The latest result of this work is a report by C. H. Pierce and G. K. Larrison just issued by the survey as Water Supply Paper 336.

The investigations of stream flow in the territory are not complete, nor do they include all the streams that might advantageously be studied, but they embrace as many of the streams and ditches on the four larger islands (Hawaii, Kauai, Oahu, and Maui) as the available appropriations would allow. It is essential that records of stream flow should be kept during a period of years long enough to determine within reasonable limits the range of flow from the maximum to the minimum. The length of such a period manifestly varies for different streams. Experience has shown that the records should be kept from five to 20 years.



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That is the reason, too, that Studebaker gives so much time, so much expense to the study of its steels and its design and its motor—to get *more* quality into them.

And that is the reason, too, that Studebaker, knowing the farmer's needs so well, has made this FOUR the ideal car for use on country roads—given it overabundance of power—made it EASY-riding and so EASY to drive that it answers the lightest touch of two fingers on the wheel—given it balance and alignment that cuts the UPKEEP cost to the bone.

But when you SEE this FOUR at your local Studebaker dealer's and see how much you can get for $985—and when he tells you of the National Service organization that guarantees you Studebaker Service wherever you go—you'll appreciate even more what it means to buy a car with a name you KNOW—to buy it

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Thursday, Jan. 14, 1915

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GREAT EXPOSITION

We took our fourth look-in at the Panama-Pacific exposition the first of this week. We saw it when the first timbers were rising, a year ago on the completion of the palace of machinery, again in June when the main buildings were nearing completion, and again this week. The wonder of it all is that so much has been accomplished in the few months during which the work has been in progress. It is already a wonderful exposition; if not another day's work was done and the exposition remained as at present it would be well worth a visit by every Californian. The architectural work, the landscaping, but more than all the lighting, have made a fairyland of the mud flats along San Francisco bay. Some exhibits are already completely installed, and we are glad to say that those nearest completion are of greatest interest to agriculturists. Japan alone is making an exhibit well worth a long trip to see. A bit of China has been transplanted here and is already completely installed and ready for visitors. The state buildings are completed. Last Sunday a crowd of over 50,000 people visited the grounds, taking their last look before the closing of the gates during the 40 days preceding the opening day, February 20. Let all the world take notice and be on hand to honor this great exposition of the industries of the world.

ORGANIZE

In line with centralizing the powers of agricultural bodies of our state administration is the movement started at the recent State Fruit Growers' Convention to centralize the agricultural interests of the state in one organized body. There are live stock breeders' associations, several of statewide influence; bee keepers, poultrymen, date producers, raisin and citrus men and others have their separate organizations. It is now proposed that there be one centralized body to watch after the welfare of all producing interests of the state. The movement started at Los Angeles had in view one or two plans, one which is inclusive and referred to on another page, while the other was simply an organization of fruit growers like the horticultural and pomological societies of various states. To determine as to which of the two plans should be accepted a committee of seven was appointed and this committee met in Sacramento last week. It appears to us that this is a step in the right direction, and to the end that this organization shall be launched in a way that will appeal to all classes a more general meeting has been called to be held in San Francisco, probably on the exposition grounds, on Monday, February 22. This is Washington's birthday and the second day following the opening day of the exposition. It will afford opportunity to the producers to get together and get a look-in at the great exposition and discuss this matter which is of such vital interest.

AGRICULTURAL LEGISLATION

A look-in at the 41st session of the state legislature gives an interesting view of our senators and assemblymen and the methods followed in starting legislation which concerns California. This is only the second week, so that the heaviest duties as yet performed have been the collection of mileage accounts and paying a few minor requisitions for preliminary expenses. Of course there have been many bills presented, but not as many by any means as were presented before the fortieth legislature in its early stages. It is to be hoped that this is indicative of the present session's attitude. However, there will be enough bills to keep legislators and lobbyists and citizens of the state as well reasonably busy in keeping informed as to the "needs" of our state. Of course many are going there with bills which it is not expected will ever pass, but with the hope of making a bit of capital, political or otherwise. But as a rule we think the most of our legislators gathered at Sacramento are in earnest in their effort to advance the state's interests. In addition to the legislators of course there are a few professional lobbyists. There are some producers and others of the state interested in securing better agricultural legislation. There is one committee, the greater part of whose members were appointed, we believe, by the State Fruit Growers' Convention a year and a half ago. This committee has been at work since its formation studying wherein agriculture in its larger sense could be benefited. Their efforts have resulted in the framing of a bill which will be presented soon if it has not been already in both senate and assembly.

This bill calls for the bringing of the state agricultural board, the state horticultural commission, the state veterinarian, and many others under the direct supervision of the state department of agriculture, or, more properly, under the state secretary of agriculture. It provides that "the office of secretary of agriculture is hereby created, who shall be appointed by the governor immediately after the taking effect of this act. His term of office shall be four years. He shall be paid an annual salary of $7500 and all official expenses." This department shall succeed to and be vested with the duties, purposes and powers of the following bodies: The board of agriculture, agricultural society, commissioner of horticulture, board of horticultural examiners, dairy bureau, board of examiners of veterinary medicine, veterinarian, board of sheep commissioners, stallion registration board, board of viticultural commissioners, board of forestry, forester, conservation commission, superintendent of weights and measures, Redwood Park commission, fish and game commission.

The department shall be organized into five bureaus, viz., animal industry, horticulture, forestry, fish and game and economics. Some of these bureaus again are made into smaller divisions, for example, in the bureau of economics there are three known as the divisions of land settlement, fairs and expositions, markets and statistics. The directors of these five bureaus, with the governor, shall be an advisory board to the secretary.

Civil service rules shall obtain in the appointment of all assistants, experts, clerks, inspectors, etc. In addition to the five bureaus named the secretary is empowered to create new bureaus if he finds necessity therefor, these to be with the approval of the governor.

The new bill provides that no sections of existing laws touching upon agriculture, especially upon enactments which have created the present commissions, be repealed by this act other than those sections which relate to the duties of the commissioner or chief of the commission created whose duties are now performed by the secretary of agriculture to be appointed. This officer is to be vested with the power which formerly lay in all the others.

Regarding the conduct of the state fair, the bill provides for the creation of a board of managers of six members, together with the chief of the division of fairs and expositions.

The matter of the salary which as presented to the legislature stands at $7500 caused considerable discussion in the committee; many thought it too high. The point was made by members of the committee opposed to the high salary that it was almost equal to that of the governor of the state, nearly twice as large as that of the lieutenant-governor and more than that of other state officials. The salary of the railroad commissioners is $6000 and they are amongst the highest salaried officials of the state. Others on the committee, however, appealed for a salary which would draw to the office a man of accomplishment and caliber sufficient to make this department a complete success.

On the part of the friends of the measure there is no claim for greater direct economy in handling the matters which are so vital to the farmer, but they do claim vastly greater efficiency, and efficiency means economy. We do not suppose the taxpayer will notice any difference for the first few years, but if as great success follows the change as is anticipated this state will set an example to other states of the union which will be largely followed.

It is estimated that the total loss due to the ravages of the army worm in Canada during the past summer was not less than $300,000 of which a loss of about $250,000 was experienced by the farmers in Ontario. These figures have been obtained as the result of an extensive inquiry conducted by the department of agriculture into the various aspects of the outbreak.

Agricultural Notes

Something over 80,000 acres in Sweden are planted to sugar beets.

Farmers in Sweden usually own their own farms. In 1911 only 14 per cent of the whole number of farms was rented.

A 10,000 herd of Jersey hogs is reported to have been shot and buried in Illinois because they were exposed to the foot and mouth disease.

The Canadian department of agriculture tests milk and butter fat yields of cows whose owners apply for tests under conditions prescribed by the department.

Guernsey breeders of Minnessota are planning to form a state association at a meeting called during the farmers' short course held at the university farm, St. Paul, early in February.

Two agricultural schools are to be established in Panama. One of the schools will be located near New Gorgona. The government is also contemplating the establishment of an agricultural experiment station.

Sets of lantern slides of agricultural subjects are loaned free by the office of farmers' institutes of the United States department of agriculture to speakers at agricultural meetings. A number of commercial firms are also making sets of such slides for renting to farmers' clubs.

Canada has a national records system which is jointly managed by associations of breeders and the department of agriculture. The executive committee is composed of one man representing each of the following classes: Heavy horses, light horses beef cattle, dairy cattle, sheep and swine.

The American steamship "Pathfinder" left Galveston December 25 for Bremen, with a cargo of cotton, 6,650 bales, the first cotton to go to Germany since the beginning of the war. The freight rate on this cotton, $3 per hundred pounds, is said to be the highest ever paid at the port of Galveston. A year ago the current rate was about 35 cents per 100 pounds.

The Pennsylvania railroad reports that the parcel post packages sent out in the mail cars of that road from New York and from Philadelphia in the seven days ending with December 24, numbered about nine millions. The Christmas rush was about 50 per cent heavier than a year ago. Three times the regular force of men to handle the mails had to be kept on duty at stations.

In Denmark the state has for a number of years carried out trials of root crops, for which any Danish seed breeder can enter his strains of seed. According to the results the strains are divided into three classes. The names of the breeders of the first class seeds are published. Owing to the great demand for seeds, prices rise very high and this stimulates the breeders to further exertions. Thus 10 shillings a pound is now paid for pedigree mangold seeds and 20 shillings a pound for turnip and swede seeds. The cooperation of state, breeder and seedman has already led to an increase in the yield of Danish root crops. Of late years the practice has been introduced of selling seeds of root crops with a guarantee as to their quality, as has long been done for grass seeds.

Agricultural News Notes of the Pacific Coast

Northern California

Sutter County is experimenting with Tepary beans.

The Placerville Fruit Growers' Association has just been incorporated.

Yolo County stockmen are planning a large exhibit at the Panama-Pacific.

Mt. Pleasant has organized a unit of the Placer County farm bureau.

The prune yield for the state this year is estimated at more than 100,000,000 pounds.

Nurseries of northern California report heavy call for fruit trees of all kinds for spring planting.

Citizens of Gridley, Butte County, celebrated the opening of the new rice mill the last of December.

The Humboldt County Dairymen's Association held its annual meeting and banquet at Ferndale January 5.

Stockholders of the Cloverdale Citrus Fair Association have begun discussing plans for the next citrus fair annual.

County Horticultural Commissioner Harney of Yuba County is urging all farmers to destroy Russian thistle on their property.

Many growers of Shasta County are planning to set out new acreage to walnuts this year, mostly of the Franquette variety.

Onion growers of Yolo County are rejoicing over the big advance in onion prices, which have practically doubled the last two weeks.

Sacramento County has the largest acreage of pear orchard in the state, having 2900 acres in bearing trees and 2000 in non-bearing.

State Horticultural Commissioner Cook and his deputy, George Weldon, addressed the farmers' institute at Grass Valley Saturday, January 9.

The Placerville Fruit Growers' Association has just been organized to affiliate with the California Fruit Exchange. J. A. Irving is elected president.

Humboldt County takes the banner for killing off the greatest number of mountain lions. Bounties paid in that county aggregate over 500 at $20 per scalp.

The Napa County Viticultural Protective Association met at St. Helena December 26 and passed resolutions in favor of drastic laws for regulation of the saloon busines.

It is reported that more than half of the hop crop of Mendocino and Lake Counties has been pledged to the newly formed hop growers' association for a term of years.

One of the largest olive packers in the state has stated that the 1914 pack of olives will run more to small sizes than that of last year but that quality will be about the same.

A new cow testing association is to be organized among dairymen of the river district of Sacramento and Yolo Counties. F. A. Edinger of Hood has been elected president of the new association.

The Gridley cow testing association which began work the first of October has added several new members and is finding the work most satisfactory. M. T. Machado is president of the association.

Central California

Four hundred and forty thousand bags of beans is the estimated output of the Delta region about Stockton.

The Tulare Cooperative Association during the month of November transacted a business which amounted to $3,560.

The Turlock Irrigation District will hold a general election February 3 at Turlock. Four directors are to be chosen.

A working model of the La Grange dam will be exhibited at the Panama-Pacific by the Modesto chamber of commerce.

Granges of California are arranging to keep open house at the Panama-Pacific Exposition to all visiting grangers of the United States.

A strong demand for raisins is reported from eastern jobbers. Practically all of the raisins will be shipped through the Panama Canal.

Citizens of the Alpaugh district of Tulare County have presented to the county supervisors a petition for the formation of an irrigation district.

In connection with the farmers' institute which will be held at the Hanford union high school January 15 and 16, a big exhibit has been planned.

A state produce commission bill is to be presented before the present session of the state legislature. The bill is practically the same as that presented at the 1913 session.

A herd of 26 Holstein Friesians has been added to the stock of a Tulare dairyman. The cattle were purchased in Arizona but originally came from the Nebraska state experiment station.

Beef steers to the value of $20,000 were shipped last week to San Francisco from Porterville. This brings the total shipments for the season from the Porterville Alfalfa Company up to 900 head.

The Pajaro Valley Poultry Association discussed parcel post shipment of eggs at its recent annual meeting. The following directors were elected for 1915: S. E. Elliott, M. D. McDougall, E. A. Hall, A. P. Creede, W. R. Triggs, J. E. Jamison and J. E. Trafton.

Farm Adviser Mayhew of Madera County has arranged for the coming of a department of agriculture expert in hog cholera treatment. He will be in Madera County the first of the year and will spend practically all of the month in demonstration work among the farmers.

A plan is proposed by the California Dried Fruit Association to incorporate in future contracts between growers and packers an arbitration clause. There will be a regular arbitration board appointed to serve on pay. Heretofore differences have necessarily been taken into court for settlement.

The Modesto farmers' union, at its recent annual meeting, elected the following officers: D. F. Conant, president; D. M. Hackett, vice-president; J. C. Galloway, secretary-treasurer; A. L. Rutherford, lecturer; Chas. N. Odell, conductor; Dan Grundy, doorkeeper; Rev. J. W. Webb, chaplain; J. K. Corson, Guy H. Miller and C. L. Sanders, executive committee.

Southern California

Auto bus service has been installed between Los Angeles and San Diego.

Imperial County ranks second among the butter producing counties of the state.

The Heber cotton gin is operating full blast. It is receiving carloads of Mexican cotton daily.

Sixty-five carloads of cattle from the C. M. ranch in Mexico arrived in Los Angeles last week.

The dried fruit output of the Hemet Valley is practically all sold. The sales already total 20 cars.

There are now in bearing, according to government report, 1500 date palms in Southern California.

From Imperial Valley comes assurance that a government land office will soon be located in the valley.

A bill is coming up before the present session of the legislature to compel inspection of citrus fruit for frost injury.

H. L. Carnahan of Riverside has been appointed corporation commissioner under the recently enacted blue sky law.

Most comprehensive investigations in citrus problems are planned for the citrus experiment station located at Riverside.

Rangers in the Santa Barbara national forest are planting grain along the mountain streams for government horses and mules.

The Santa Fe railroad values the 1914 output of the fruit canneries of California at between $19,000,000 and $20,000,000.

A shipment of six carloads of celery left San Francisco for New York via the Panama Canal the last day in December.

The San Luis Rey farm bureau met January 6. The principal topic of papers and discussions was the growing of lima beans.

A meeting was recently held in Thermal, Riverside County, of those interested in date culture to frame a bill calling for stringent inspection of date offshoots.

Southern California lemon growers have organized a cooperative company subsidiary to the California Fruit Growers' Exchange, to keep off the market the inferior lemons and to utilize the unmarketable part of the crop by diverting them into by-products, such as citrate of lime, oil of lemon and other similar commodities. The company will be known as the Exchange By-Products Company, and will be incorporated for $100,000.

Cotton growers of the Imperial Valley and the Salt River Valley of Arizona are fighting the proposed increase in rates on eastern shipments of cotton. The former rate of 95 cents per 100 pounds included privilege of compressing in transit. Under the present railroad ruling this privilege is denied and growers will be compelled to ship their cotton to compressors before loading, which will make the rate about $1.05 per 100 pounds.

The Coast

There is some talk of a creamery being established at Willcox, Arizona.

Sugar factories operated in half a dozen towns of Utah and Idaho have been united under one management.

Farmers of Lehi, Utah, have organized a farmers' club which will interest itself particularly in the marketing side of farming.

September 7-11 are the dates decided upon for the International Sheep Show and auction sale to be held in Salt Lake City next fall.

An Oregon sheep man was recently fined $100 for shearing sheep in midwinter. He also lost several of his sheep from exposure to cold.

The recently enacted Arizona antialien employment law has been declared unconstitutional by the federal district court at San Francisco.

Thirty-one carloads of horses, 850 in all, were shipped in one day from Walla Walla, Washington, to New Jersey to be loaded on boats for France.

The annual meeting of the Arizona Poultry Association was held at Phoenix January 9. It is planned to publish a year book with directory of members.

Prizes for dairy cattle are announced by the management of the Cascade International Stock Show to be held in North Yakima, Washington, next fall.

The Utah Wool Growers' Association met in Salt Lake City January 11. The Utah Shearers' Association also met at the same time and place.

Sugar beet contracts in Utah were 25 per cent greater during 1914 than in 1913. Next year it is estimated that they will be 25 per cent greater than this year.

Work on irrigation districts of the Yakima Valley in Washington during this winter will cost, it is estimated, some $800,000. The Indian service alone will expend some $125,000 on reservation canals.

The state board of sheep commissioners of Montana has recommended to the state legislature the creation of a contingent emergency fund to be used in case of the reappearance of the foot and mouth disease.

Several shipments of apples have gone out from the Spokane district recently bound for European ports. The apples demanded by the export trade are smaller than those called for by the home market and must be well colored.

The Washington State Dairymen's Association held its annual convention at Chehalis the middle of December. At the same time the Washington State Holstein Breeders' Association and the Washington Jersey Cattle Club held their annual sessions.

The members of the Yakima by-products committee has submitted definite plans to members of the fruit products company. They expect to establish by-products factories in various districts to take care of cull fruit belonging to members of the association.

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Sore Lungs
Rheumatism
and
all Stiff Joints

REMOVES THE SORENESS--STRENGTHENS MUSCLES

Cornhill, Tex.—"One bottle **Caustic Balsam** did my rheumatism more good than $120.00 paid in doctor's bills." OTTO A. BEYER.

Price **$1.50** per bottle. Sold by druggists, or sent by us express prepaid. Write for Booklet R.

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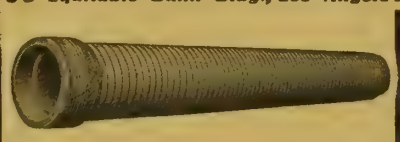

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On every 40 acres we install a pumping plant, provide trees and seed adapted to the soil, and necessary farm implements to begin your work.

This establishes you at once on good land in the early fruit district of the upper Sacramento Valley, and assures crop returns the first year. Every one who wants a farm should investigate this offer. Write to.

DUDLEY MOULTON

12th Floor 1st Nat'l Bank Bldg., San Francisco

The Idaho Wool Growers' Association met in annual session at Boise January 7-8.

Live Stock and Dairy

STUBBLE HOGS

Written for California Cultivator
By Sacramento Valley Contributor

THE hog on a California grain farm is often a byproduct. To make money from the grain that shatters out of the ripe heads or those heads which the harvester cannot get either because the straw is too short or not stiff enough to stand up is the mission of the animal. Consequently the hog gets the worst of it, speaking strictly from the standpoint of the hog business, not the grain raising industry.

In some respects the stubble hog is like the "razorback" of the southern states and the "prairie rooter" of the middle west. Ability to rustle for itself, to put up with all sorts of conditions and to withstand much grief are characteristics of all of these "not quite domesticated" animals. They have stamina and endurance that would do credit to a standard bred horse and are able to cover many square miles of territory in search of food. At market time they are able to walk miles to a shipping point without injury. Some of them are very prolific, although the general average of pigs raised per sow is not large, for a number of reasons. One is that many young sows with their first litter are always included in a bunch and the loss from exposure or accident is necessarily greater than with hogs receiving better care. And it is undoubtedly true that sows subjected to periods of short feed for several generations—perhaps during the period of gestation or at farrowing time—would have a tendency to decreased litters, as a matter of natural self-protection to the race and the survival of the species, just as undernourished trees produce fewer fruits. From nature's viewpoint a few strong ones are more apt to survive than more not so vigorous.

These half wild sows are wonderful mothers, however, and will fight for their young like demons. The baby pigs have little to fear from dogs or small wild animals while the sow is around.

Most "Stubble hogs" come of very mixed ancestry. They are literally "ringed, streaked and speckled." There is evidence of the Duroc Jersey in the red coloring, of the Poland China and Berkshire in the black hair and facial conformation of different individuals, and of the Chester White in larger areas of white than could well come from the white markings on the Poland China or Berkshire. And without question there is a considerable percentage of "just plain hog" in the almost unknown and hard to trace pedigree of these money-making members of California farmdom.

Many people coming into California from other states—hog growing districts particularly—are prone to criticise our California hogs. They object to their conformation, saying that they will not dress out as profitable carcasses as the better representatives of eastern herds, that their legs are too long, their hams too light, and that in a way they are built more for speed than meat. Some, who see only a part of our grain country in a brief, casual survey of California and who do not see our fine pure-bred herds, might go back home with the idea that California is a poor place to raise hogs and that California hogs are a poor lot, little knowing that with climatic conditions as they are in the east hogs grown as these are, in the open and with little or no protection and having pigs at any time during the year, would not survive in their country at all.

Then there are other people coming to California to make homes on small but rich irrigated farms who may get the idea that the way the old timer raises hogs is the way to do it here. They may not consider the fact that hogs are only a secondary matter with the grain farmer and that if at 18 months of age they weigh only 200 ponuds it is not a vital matter with him because they have lived almost exclusively on feed that would otherwise be waste, but that on their own intensely cultivated farms they must make the best of everything and that it is quite as essential for them to make a 200-pound hog in seven or eight months as it is in any eastern state and that it is much easier to do it here.

Now there is this suggestion to be made regarding the stubble hog. The small farmer has no use for it—as it is described above and generally grown. His hogs must have all they can eat from birth to maturity, and while stubble feed can and should form a part of the ration in season the hog must not be made to rustle after all the feed is gone and all he gets is exercise, as is the case with many "big-farm" hogs.

And on the big grain farm the hogs will certainly pay for better feed and care. By eliminating the "lean" spells of short feed much more in value can be marketed per year, certainly much more than enough to pay for the feed it would take to accomplish it.

There is something worth while for hog growers to think about along this line of more feed and better care even though conditions permit some profit without it.

CALIFORNIA DRAFT HORSE BREEDERS

Since the annual meeting of the California Draft Horse Breeders' Association at the last state fair the organization has shown considerable activity, being determined to secure more attention to this particular branch of California farming. Secretary Thompson has mailed to members copies of the constitution and by-laws, which we reprint for the benefit of all horse owners. The association should be encouraged in its efforts to advance the breeding of better horses on the Pacific Coast.

Constitution

Article 1, Name—This organization shall be known as The California Draft Horse Breeders' Association.

Article 2, Object—The object of this association shall be to promote the horse breeding industry of the state;

Nice Bossy--Father Says You're Giving an Awful Lot of Milk Now!

It is a common thing to hear cow owners express their enthusiasm for *Kow-Kure* after using it on sickly or "backward" cows; and no wonder. *Kow-Kure* has such a wonderful effect on the genital and digestive organs that many cow ailments commonly regarded as very serious can be prevented or promptly relieved by following the simple directions. If you have never used *Kow-Kure*, we want to send you our useful free treatise on cow diseases, "The Cow Doctor."

You can buy *Kow-Kure* in 50c or $1.00 packages from druggists and feed dealers.

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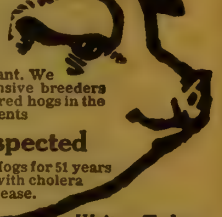
Lyndonville, Vt.

Originators of the Famous O. I. C. Swine 1863.

Two O.I.C. Hogs Weigh 2806 lbs.

Why lose profits breeding and feeding scrub hogs? Two of our O. I. C. Hogs weigh 2806 lbs. Will ship you sample pair of these famous hogs on time and give agency to first applicant. We are originators, most extensive breeders and shippers of thoroughbred hogs in the world. All foreign shipments



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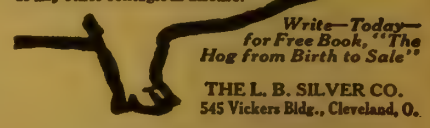
We have bred the O. I. C. Hogs for 51 years and have never lost a hog with cholera or any other contagious disease.



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The Jersey

comes into maturity early, is long-lived and is often found making records even to advanced age. She stands above all other breeds for *economic production.* Shall we mail you free a good book on the Jersey?

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TRADE MARK REG. U.S. PAT. OFF.

Removes **Bursal Enlargements, Thickened, Swollen Tissues, Curbs, Filled Tendons, Soreness from any Bruise or Strain;** Stops Spavin Lameness. Allays pain. Does not Blister, remove the hair or lay up the horse. $2.00 a bottle delivered. **Book 1 K free**

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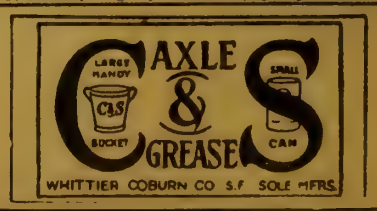

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M. BASSETT Hanford, Cal.

For Sale:- REGISTERED JERSEY CATTLE. Both Island and American Types. J. D. Huston. Farm address, Imperial, Cal. Home address 1725 W. Adams Los Angeles

1st—By holding an annual meeting for the discussion of matters of importance to the industry and adoption of measures for the furtherance of the business interest of its members.

2nd—To bring into closer relationship the farmer, breeder, seller and buyer.

3rd—To encourage the organization of township and county horse breeding associations.

4th—To advocate and introduce cooperation in horse buying, breeding and selling.

5th—To disseminate educational matter looking to a better knowledge of the principles and practices of horse breeding, rearing, feeding and management.

6th—To assist in the observation and enforcement of existing legislation relating to ownership of stallions for public service and to frame and urge the adoption of new legislation favorable to the interests of the horse breeding industry.

7th—To assist farmers and breeders in obtaining pure-bred stallions and making sales.

8th—To encourage proper classification and premium lists for horses at state and county fairs.

9th—To discourage the use of unsound stallions and mares for breeding purposes.

10th—To encourage the use of pure-bred stallions and educate against the use of grade and cross-bred sires.

Article 3, Membership—Section 1: Any horse breeder, farmer owner or importer of stallions, officers of an agricultural association, teacher of animal husbandry or agriculture, editor or publisher of livestock or agricultural newspapers, or graduate veterinarian shall be entitled to become a member of this association.

Sec. 2: Honorary membership may be conferred upon any party interested or active in advancement of the horse breeding industry by a majority vote at any annual or special meeting of the association.

Article 4, Dues—A fee of five dollars shall be collected from each member annually.

Article 5, Officers—Section 1: The officers of this association shall consist of a president, vice-president and secretary-treasurer whose terms of office shall be one year, or until the successors are elected.

Sec. 2: The executive board of three members to act with the president and secretary of the association, who shall be ex-officio members.

Sec. 3: A vice-president in each county in the state to be appointed or elected at each annual meeting, or by the executive board where a county happens not to be represented at the meeting.

Article 6, Duties—Section 1: It shall be the duty of the president to preside at all the meetings of the society and enforce the observance of such rules and regulations as will be for the best interests of the organization; to appoint all regular committees as he may deem expedient for the welfare of the association.

Sec. 2: In the absence of the president, the vice-president shall preside and perform all duties of the president.

Sec. 3: It shall be the duty of the secretary-treasurer to keep all records of the association; to report the results of all cooperative work carried on by its membership and the experiment station; plan the experimental work as far as possible for the members of the association; collect all fees, keep secure all funds of the association and pay out money upon the written order of the president; and labor for the welfare of the society in general.

Article 7, Amendments—This constitution may be amended at any annual meeting by a two-third's vote of the members of the association present.

By-Laws

Article 1: The officers of this association shall be elected at the annual meeting.

Article 2: The president and secretary shall be ex-officio members of the executive board.

Article 3: All members joining at the organization of this association shall be known as charter members.

Article 4: The annual meeting shall be held at such time and place as the board of directors shall direct, and notice of such meeting shall be given at least two weeks before the time of meeting.

A JERSEY BULL FOR THE HAWAIIAN ISLANDS

The Jersey Queen Farm of San Jose has just shipped to Mrs. P. Isenberg of Honolulu a highly bred yearling bull to head her herd of registered Jerseys. The youngster carries a good per cent of Stoke Pogis of Prospect blood, being sired by Victor Hope's Victor, who is a grand son of the above bull. His dam is Emanon's Lady Bell and a most beautiful cow with perfect udder, beautiful head and body. Her grandsire was Emanon Imp., grand champion at the Chicago Exposition. She is a 45-pound cow, testing 5.8 fat. The price paid was $250.

COW TESTING ASSOCIATIONS

California is forging ahead rapidly in the interest that many of her dairymen are showing in testing their herds through cooperative organizations. In proportion to the number of cows in the state it is doubtful whether any other state measures up to her in this respect. These organizations are now covering all parts of the state and many thousand cows are held to a systematic accounting for what they are doing for the feed they consume and the care they get from their owners. One association in Humboldt County has 3,800 cows under test and as it increases every year the dairymen who participate in it must be getting satisfactory results.

With butter selling at 29 cents in December and beef animals being in good demand it is timely that we go after the unprofitable cows, show them up and send them to the butcher. Unless we miss our guess there will have to be a readjustment of things along dairy lines in California. The high prices of recent years under which any kind of a "critter" and any

The De Laval Line

Automatic Oiling De Laval Cream Separators and Milk Clarifier

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De Laval Cream Separators

Farm and Dairy sizes ranging from 135 lbs. to 1350 lbs. capacity. Hand Power, Belt or Turbine Driven.

Creamery and Factory sizes from 2000 lbs. to 6000 lbs. capacity. Both Belt and Turbine Driven.

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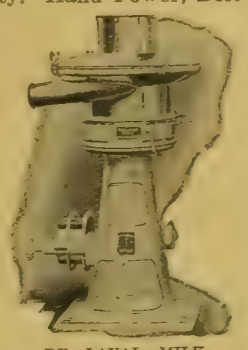
Farm, Dairy and Small Milk Plant sizes from 100 lbs. to 2000 lbs. capacity. Hand Power, Belt or Turbine Driven.

Large Factory and Milk Plant sizes from 2000 lbs. to 12,000 lbs. capacity. Both Belt and Turbine Driven.



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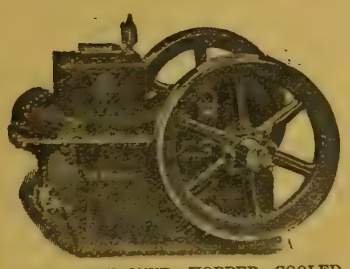

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SELF-CONTAINED CLOSED JACKET TYPE ALPHA ENGINE

Gasoline Type in sizes from 2 H. P. to 28 H. P. For use of Kerosene or Low Grade Distillate in the Horizontal Cylinder Type, from 3 to 50 H. P. Vertical Multi-cylinder Type, from 35 to 100 H. P.

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JAMES STEEL STALL WITH PATENT MANGER AND ADJUSTABLE STANCHION

JAMES ALL STEEL STALL complete with or without manger or manger divisions.
JAMES STEEL WOOD-LINED STANCHION double chain hung with alignment device and door knob type, cow proof lock.
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JAMES ALL STEEL ADJUSTABLE HOIST LITTER CARRIERS, milk can carriers, feed carriers and 3-wheel feed trucks.

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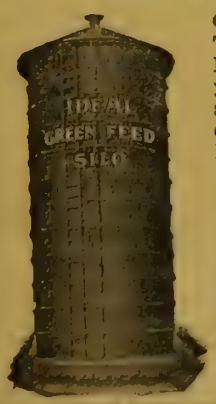

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kind of a dairymen could succeed are seemingly over. It is going to require efficiency to stay in the dairy game and all that means good cows. There is likely to be a lot of noise about low prices, but it won't be so noticeable from members of cow testing associations if they make the proper use of the light that their work throws into their paths.—Pacific Dairy Review.

PORK SAUSAGE ON THE FARM

In making sausage, only clean, fresh meat from healthy animals should be used and this meat should be thoroughly chilled after killing the animal. Meat for sausage is generally taken from the shoulders, neck, and other lean trimmings, and pork fat is taken from the neck or back. In case beef is added, it may be taken from the cheek, neck or other lean trimmings.

There are numerous ways to compound pork sausage. Lean pork trimmings, or the same with a small amount of fat added, or combinations of beef and pork trimmings may be used, with varied selections of spices. The meat is first run through a chopper with a ¼-inch plate. It is then spread out and spices sprinkled over it and thoroughly mixed. To insure a more thorough mixing it may again be run through the chopper.

Spices may be selected to suit the occasion or the taste of the sausage maker. The spices used and the amount for 100 pounds of meat are as follows: Salt 1½ to 3 pounds; saltpeter 1 to 3 ounces; sugar 5 to 10 pounds; ground white pepper 8 to 10 ounces; sage, rubbed fine, 4 to 12 ounces; mace ½ to 1 ounce; garlic 1 to 2 ounces; coriander 3 ounces; onions 4 to 8 ounces; black pepper 8 ounces; mustard seed 2 ounces; ginger 2 ounces; nutmeg ¾ ounces, etc.

From the above list any desired selection may be used. When beef is added it is generally used in proportions of 20 per cent beef and 80 per cent lean pork trimmings. Some prefer more beef and make the proportion 45 per cent beef to 55 per cent pork.

Pork sausage may be stored in earthen jars or crocks and covered with a layer of lard or it may be stripped into casings made from the small intestines of the hog. Casings can generally be purchased from the butcher shops ready for use.—H. S. Eakins, Colorado Agricultural College.

SUDDEN DEATHS IN A SILO

A recent fatal accident in Ohio calls attention to a danger to farmers which cannot be too widely circulated. Since 1875, when the first American silo was built by Dr. Manley Miles, this method of preserving forage for livestock has been generally adopted. Although the department of agriculture has frequently called attention to the danger of carbon dioxid gas accumulating in silos under certain conditions, no fatalities have been reported heretofore. On the morning of September 19 four workmen on the farm of the Athens (Ohio) state hospital ascended the ladder on the outside of a silo to an open door about 12 feet from the top and jumped down one after another onto the silage, the top of which was about six feet below the door. About five minutes after two other workmen following them found them unconscious. Although a large force of workmen were immediately summoned and the bodies of the four men removed at once through a lower door, the physicians of the hospital who were at once on the ground were unable to resuscitate any of the four men. Evidently the carbon dioxid gas had accumulated during the night, filling the silo up to the level of the door and forming a layer of carbon dioxid gas six feet deep. Such accidents, says the Journal of the American Medical Association, might easily be repeated on any modern farm. Agriculture journals should call the attention of the farmers to this danger and should urge that silos be carefully ventilated before being entered.

FACTORS IN SUCCESSFUL DAIRYING

THE MAN
- Dairy minded
- Keen to learn and attentive to details
- Active in cooperation
- Determined to win

THE FARM
- Well organized
- Well stocked
- Well tilled

THE COW
- Dairy bred
- Well grown
- Properly fed
- Profitable

THE PRODUCT
- Of superior quality
- Satisfactorily marketed

THE MARKET
- Well established
- Carefully maintained

—G. C. Humphrey, Wisconsin Ex. Sta.

OLD DOORS FOR HOG HOUSES

Written for California Cultivator
By Sacramento Valley Contributor

In every large city there are concerns that make a business of wrecking houses and other buildings that must be torn down to make way for bigger and better ones or that must be torn down for some other reason. These house wreckers generally have on hand second hand doors and sell them at low prices, frequently at 25 cents apiece. Four doors set up together, two on a side, nailed together at the top and toenailed to a frame made eight feet wide and a little longer than the width of the two doors makes a fine A-shaped hog house at a very low cost. One end may be boarded up, and if the frame on which the "wigwam" is erected is made strongly enough this house may be easily hauled to any part of the farm.

Such a house will provide a dry bed for a sow and litter or for several growing or mature hogs in the winter season, and in summer it will make good shelter from the sun.

THE IMPROPER USE OF DRUGS

Frequently drugs are administered by people without any knowledge of their action. One individual only recently asked what he should give his horse when aconite and nitre had failed to cure. It is always best for one to know the action of a drug before it is administered to livestock. A thorough study of the symptoms of the animal should be made before any drugs are given. Just because certain drugs have succeeded in some neighbor's horses, there is no reason they will cure yours. To illustrate—a horse is suffering from colic. A dose of opium would be correct to give if it is spasmodic colic, while if the patient has impaction of the bowels a dose of opium would only pack the bowels the harder. A dose of aconite should never be given when the heart is weak and slow, for the reason that aconite depresses the heart and will cause death. On the other hand, aconite would be the proper drug to give when the heart was beating full and strong and very rapid. A common mistake is to give horses sweet spirits of nitre when suffering from frequent urination, as this drug is a diuretic or increases the flow of urine. It only aggravates the trouble in this particular case.

In diseases of the respiratory tract when the high fever has caused constipation one should never use aloes on account of the danger from superpurgation. Raw linseed oil is preferable as it is much safer.—Dr. C. L. Barnes, Colorado Agricultural College.

FARM SURGERY AND THE ZODIAC

About 4000 years ago the fantastic mind of the Babylonian divided the belt of the heavens through which the ecliptic runs into 12 equal parts of 30 degrees each. To each part was given the name of an animal such as ram, bull, crab, lion, etc., and these animals were fancied to possess a magic influence over animal life on the earth. The ram influenced the head, the fishes influenced the feet and so on throughout.

Now the moon completes its journey around the earth through these twelve parts of the zodiac in about 28 days. When the moon is in that part called the ram we say "sign is in the head," when the moon is in the fishes we say "sign is in the feet," etc. Each "sign" is of about two days and eight hours duration.

These "signs" were imagined to have a mystic effect on bodily injuries and our fathers have been particularly wary not to brand or unsex animals if the "sign" should be in a vital organ.

We can hardly conceive of a purer myth, and yet the superstition lingers. How long the way from the mystic to the scientific.—S. L. MacDonald, Colorado Agricultural College.

BARLEY FOR HOG LOTS

On a great many farms there are hog lots that for one reason or another will not be used from now until the middle of next summer. It is a fine thing to plant such to barley or wheat. The soil is rich—almost too rich—and it will be "cashing" a valuable deposit of fertility that would otherwise be wasted, at least in part, by leaching if some crop is not planted. Then the growing of a crop of grain will sweeten and clean the soil so that it will be fresh and clean next fall. Then a lot of good grain to "hog off" next May will surely not come amiss and the hogs will harvest it free of charge.

DE LAVAL BUTTER
Best as usual
at the great 1914
National Dairy Show

BUTTER made from cream separated by De Laval Separators made the usual clean sweep of all highest awards at the great National Dairy Show held in Chicago in October, 1914, as it has always done at every convention of the National Buttermakers' Association or a Dairy Show since the beginning of these important annual contests in 1892.

The Sweepstakes and Gold Medal awards in the various classes were as follows:

Whole Milk Creamery Butter

The highest award in the Whole Milk Creamery Butter Class was made to Thomas Sadler, of Oelwein, Iowa, upon butter made with a De Laval Power or Factory Separator—score, 96½.

Gathered Cream Creamery Butter

The highest award in the important Gathered Cream Creamery Butter Class was made to the United Dairy Co., of Chicago, which uses both De Laval Separators and Milk Clarifiers, the prize winning butter being made from cream gathered mainly from farm users of De Laval Hand Separators—score, 96¼.

Farm Dairy Butter

The highest award in the Farm Dairy or Home-Made Butter Class was made to Austin C. Higgins, of Andover, Mass., who happily is not only a De Laval user but a De Laval Local Agent—score, 96.

De Laval Superiority Indisputable

Aside from the Sweepstakes and Gold Medal awards in all classes, the great majority of all other awards and higher scores were likewise given to De Laval users, again overwhelmingly demonstrating the superiority of De Laval dairy products, as at every important quality contest the world over for more than thirty years.

The reasons for the superiority of the De Laval on the farm and in the creamery, will be made plain by a De Laval catalog which will be mailed upon request.

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Poultry for Profit

THE GREAT MID-WINTER LOS ANGELES POULTRY SHOW

Written for California Cultivator
By Frank Ironmonger

THE Poultry Breeders' Association of Southern California held its tenth annual exhibition of poultry and pet stock January 6-12, 1915, inclusive, in the Broadway Skating Rink, 1037 South Broadway, Los Angeles. The association has a live membership of upwards of 250, all endeavoring to perfect their favorite breeds and accomplishing big results.

The officers of the association are: J. L. Harrison, president; E. E. Emmerson, 1st vice-president; Geo. W. Masterson, 2nd vice-president; H. H. Mumford, secretary and treasurer; H. D. Armstrong, auditor, with directors W. S. Macy, W. J. Stewart, W. T. Blakely, W. M. Rose, A. A. Bamford, C. G. Weaver, Dr. G. I. Royce and Geo. C. England. The judges and their classes are as follows: W. S. Russell, Ottumwa, Iowa, Plymouth Rocks and Rhode Island Reds; Chas. G. Hinds, Oakland, White Wyandottes, Asiatics, Minorcas, Andalusians, Anconas, Campines, Lakenvelders, Cornish; Geo. W. Masterson, Duarte, all Wyandottes except White, all Leghorns, Spanish, Partridge Orpingtons, Hamburgs, Houdans, Games and Bantams; A. G. Goodacre, Compton, all Orpingtons except Partridge, all Dorkings, Red Caps, Buckeyes, Sussex, Polish, Buttercups, turkeys, ducks, geese and guineas; M. A. Schofield, Gardena, breeding yards; Robt. V. Moore, Los Angeles, rabbits.

The show as a whole was a grand success and the best staged exhibit of its kind ever held in Los Angeles. The aisles were wide and roomy so that an exhibitor was able to converse with a prospective customer and still be out of the way of the visiting public. A generous supply of clean wood shavings was kept in the aisles, giving a neat appearance and easy under the feet.

One important feature adopted this year and one that should have been practiced before is the tacking of a thin strip of board to the front edge of the projecting table on which the coops are placed, which prevents the water cups from being knocked into the aisles and the soiled bedding from the coops scattered under the feet of the visitors.

Heretofore double-decking has been very awkwardly handled, the second or top tier of coops being so high that it was impossible to see the birds. This year the lower tier was placed about two feet from the floor which brought both rows in full view.

The skating rink was the largest available space near the center of business but was far from the required capacity, consequently some 400 or 500 birds had to be refused admission. The bantams were staged on a balcony and the pigeons housed in a large storeroom on Main Street.

Right here we would like to say that if anyone tells you there are only one or two men who can pull off a successful poultry show, you can justly deny the statement and tell them there are others, for Henry Mumford with his many assistants can sure do the act to the queen's taste without any fuss or confusion.

The classes were well filled with the best quality shown anywhere in the United States, and the winners should feel very highly complimented on their winnings. The loosers have no cause for disappointment for a great many of the birds not placed would have won in almost any other exhibit in California, and California has good ones.

One of the special features was a Japanese Long Tailed fowl exhibited by C. Tsuchida in a specially constructed exhibition cabinet with glass front. The tail of this male bird measured over five feet. A value of $350.00 was placed on the bird.

The Plymouth Rocks carried off the laurels for numbers, 331 being exhibited, the Rhode Island Reds second with 197. The Orpingtons and Wyandottes tied for third with 160. The Sussex were fourth with 130, the Minorcas fifth with 118. The largest variety shown was the Single Comb Rhode Island Reds, 186, the second Barred Plymouth Rocks 172, third Single Comb White Leghorns 68, fourth Spangled Sussex 62, fifth Buff Plymouth Rocks 59.

The largest display of bantams was the Games with 48, Cochins second with 24, Sebrights third, 15.

The Orpington-Sussex Poultry Yards of Sawtelle had the largest entry of poultry, numbering 126 head, 118 of which were Sussex, this being the largest display of Sussex ever shown on the coast. R. A. Rowan, Pasadena, entered the largest string of bantams, 38. Chas. D. Stearns, Los Angeles, the largest list of turkeys, 25. Caldwell Brothers, Los Angeles, the largest entry of rabbits, 31.

There were 217 exhibitors, which is a good percentage of the associations' membership, which goes to show that most all the members are breeders of fancy poultry.

The judges all spoke in high terms of the quality of the fowls exhibited and the condition they were shown in was all that could be asked.

Sixteen breeding yards, each containing eight females and male were cooped on the floor and in the middle of the room. Although these were judged according to their commercial value, quite a number of the specimens would stand a good chance in the exhibition coops.

The Los Angeles Pigeon Club being unable to obtain space in the poultry exhibition hall held their fourth annual exhibit at 1035 South Main Street. The officers, John Benton, president; J. A. Smith, vice-president; J. R. Mathews, secretary; T. S. Brown, treasurer; W. M. Ross, show superintendent, and Joseph Trieb, deserve credit on the decorative and systematic arrangement of the exhibition hall, which was artifically lighted in such a manner as to give each coop equal advantage.

The room was filled with a quality of pigeons seldom seen in a showroom. By the combined efforts of the 110 active members of the club and visiting breeders the entry list reached 700 high class birds, 102 of which were Carneaux and 60 White Kings. W. J. Head, West Berkeley, and Robt.

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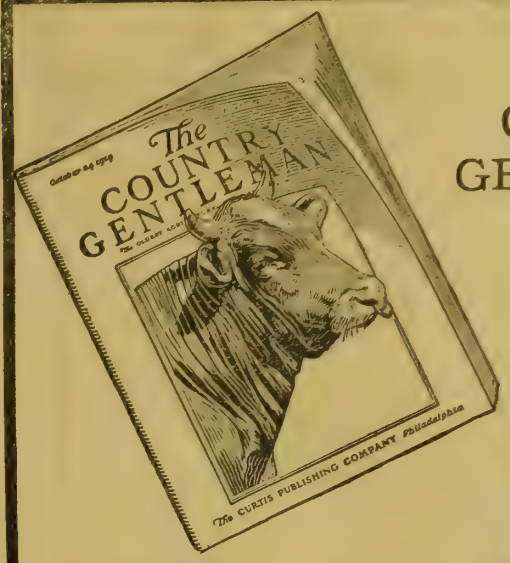

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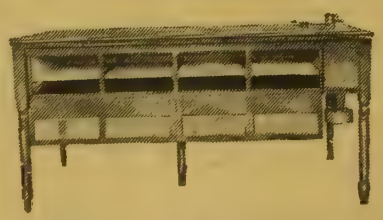

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V. Moore, Los Angeles, judged the utility varieties, and R. W. Wales, Iowa City, Iowa, and Robt. V. Moore the fancy varieties.

The attendance far exceeded expectations, which indicates the increasing popularity of the pigeon industry in California.

The largest entry was made by C. R. King of Haywards, with 125 birds. He also won the cash prize for best display of fancy and utility stock; also cup for best display of one variety pigeons. W. H. Alkire of Hollywood, furnished a fine display of rare birds besides pigeons. Among this collection was a pair of African cranes, Mandarin ducks and pheasants. Mr. Alkire also won the cash prize for the second best display of fancy and utility pigeons.

The fanciers of Oakland were down with a long string of birds and several of them came down with their favorites.

The rabbits attracted their share of attention and a fine lot of specimens were shown. The rabbit men are enjoying a good business both in the fancy and market lines. There is no reason why they should not, for the meat equals the meat of any chicken and they are easily raised and very prolific.

There were 1573 head of poultry, 133 bantams, 57 turkeys, 18 ducks, 4 geese, 700 pigeons, 5 guineas and 291 rabbits, making a grand total of 2782 specimens.

The show catalogue should be in the hands of every breeder as it contains the winnings of each exhibitor and the addresses of all the members of the association as well as the exhibitors. It can be had by sending 25 cents to Henry H. Mumford, 623 Prospect Avenue, South Pasadena.

Following is a list of the winnings taken from catalogue:

AMERICAN CLASS

Barred Plymouth Rocks—Ck—1, J. B. Roe; 2, A. D. Robinson; 3, Fred Espe; 4, J. W. Edwards; 5, G. E. Tobin. Hen—1, Fred Espe; 2, Goodacre Bros.; 3, Emerson & Mumford; 4, 5, A. D. Robinson. Ckl.—1, 3, Frank Wagner; 2, A. D. Robinson; 4, W. L. Kennedy; 5, Fred Espe. Pullet—1, 5, Frank Wagner; 2, 3, Fred Espe; 4, David Mitchell. Pen—1, Fred Espe; 2, A. D. Robinson; 3, Mrs. H. L. Barnes. Ckl. bred hen—1, 3, Frank Wagner; 2, 5, A. D. Robinson; 4, Fred Espe. Ckl. bred pullet—1, 3, A. D. Robinson; 2, Emerson & Mumford; 4, David Mitchell; 5, Fred Espe. Ckl. bred pen—1, A. D. Robinson; 2, Fred Espe; 3, Christ Wilking. Pullet bred ck.—1, Fred Espe; 2, Emerson & Mumford; 3, L. E. Leonard; 4, A. D. Robinson; 5, W. P. McPherson. Pullet bred ckl.—1, W. P. Parmentier; 2, 3, 5, A. D. Robinson; 4, Emerson & Mumford. Pullet bred pen—1, A. D. Robinson; 2, Fred Espe; 3, W. P. Parmentier; 4, L. E. Leonard; 5, David Mitchell.

White Plymouth Rocks—Ck.—1, 2, 3, 5, A. A. Bamford; 4, Mrs. F. M. Ridley. Hen—1, 2, 3, 4, A. A. Bamford; 5, Dr. E. F. Wallace. Ckl.—1, 2, 3, 4, A. A. Bamford; 5, Dr. E. F. Wallace. Pullet—1, 2, 3, A. A. Bamford; 4, A. Wallace; 5, Mrs. Geo. R. Winslow. Pen—1, Mrs. F. M. Ridley; 2, J. P. Richards.

Buff Plymouth Rocks—Ck.—1, 4, Mr. and Mrs. F. J. Morgan; 2, H. Kellenberger; 3, 5, Fredk. Sperling. Hen—1, 4, Mr. and Mrs. F. J. Morgan; 2, 3, 5, F. Sperling. Ckl.—1, F. F. Woodward; 2, 4, F. Sperling; 3, Mr. and Mrs. F. J. Morgan; 5, B. H. Burke. Pullet—1, 3, F. Sperling; 2, 4, B. H. Burke; 5, Mr. and Mrs. F. J. Morgan. Pen—1, B. H. Burke; 2, Mr. and Mrs. F. J. Morgan; 3, F. Sperling.

Partridge Plymouth Rocks—Ck.—1, C. H. Owen; 2, 3, H. D. Armstrong; 4, Dr. A. M. Duncan. Hen—C. H. Owen; 2, 3, H. D. Armstrong; 4, W. E. Lonergan; 5, Mrs. C. E. Thomas. Ckl.—1, 2, 3, H. D. Armstrong; 4, C. H. Owen; 5, J. E. Busch. Pullet—1, W. E. Lonergan; 2, Dr. A. M. Duncan; 3, J. A. Vandiver; 4, G. I. Royce; 5, H. D. Armstrong. Pen—1, 2, H. D. Armstrong; 3, 4, C. H. Owen.

Golden Barred Plymouth Rocks—Ck.—1, E. M. Moore.

Silver Wyandottes—Ck.—1, 3, R. Mitchell; 2, O. A. Ford. Hen—1, O. A. Ford; 2, 3, R. Mitchell; 4, Wm. C. Marble. Ckl.—1, 2, 4, O. A. Ford; 3, 5, R. Mitchell. Pullet—1, 3, 4, O. A. Ford; 2, R. Mitchell; 5, G. Staehle. Pen—1, R. Mitchell.

Golden Wyandottes—Ck.—1, Goodacre Bros.; 2, E. V. Davis; 3, F. S. Townsley. Ckl.—1, F. S. Townsley; 2, W. C. Marble. Pullet—1, 2, F. S. Townsley.

White Wyandottes—Ck.—1, M. D. Cartwright; 2, 3, Mrs. L. E. Berkey. Hen—1, Mrs. L. E. Berkey; 2, 3, 4, M. D. Cartwright; 5, C. S. Long. Ckl.—1, M. D. Cartwright; 2, Mrs. L. E. Berkey; 3, W. O. McCubbin; 4, A. R. Dimick; 5, J. D. Klepper. Pullet—1, M. D. Cartwright; 2, 3, Mrs. L. E. Berkey; 4, 5, J. Norton.

Buff Wyandottes—Ck.—1, R. M. Kimball; 2, Aldrich & Vivrett; 3, 4, Mrs. J. T. Norton. Hen—1, 2, Mrs. J. T. Norton; 3, M. H. Hilliker; 4, Aldrich & Vivrett; 5, R. M. Kimball. Ckl.—1, R. M. Kimball; 2, 3, Mrs. J. T. Norton. Pullet—1, Mr. and Mrs. E. C. Irvine; 2, 3, 4, Mrs. J. T. Norton; 5, Aldrich & Vivrett.

Black Wyandottes—Ck.—1, hen—1, 2, ckl.—1, pullet—1, pen—1, J. P. Middleton.

Partridge Wyandottes—Ck.—1, 3, 4, R. Mitchell; 2, G. F. Dair; 5, E. M. Moore. Hen—1, 2, 3, 4, R. Mitchell; 5, J. W. Edwards. Ckl.—1, 2, 3, 4, R. Mitchell; 5, E. E. Jones. Pullet—1, 2, 3, 4, R. Mitchell; 5, E. E. Jones. Pen—1, R. Mitchell; 4, J. B. Jannsen; 5, J. McAlevy.

Columbian Wyandottes—Ck.—1, hen—1, ckl.—1, pullet—1, J. R. Alexander.

S. C. Rhode Island Reds—Ck.—1, J. L. Harrison; 2, S. E. Coons; 3, 4, Fowler & Masterson; 5, V. R. Long. Hen—1, M. D. Cartwright; 2, J. L. Harrison; 3, V. R. Long; 4, Fowler & Masterson; 5, Wm. O'Connell. Ckl.—1, O. C. Nuld; 2, J. L. Harrison; 3, J. H. Thompson; 4, 5, Fowler & Masterson. Pullet—1, 2, J. L. Harrison; 3, V. R. Long; 4, M. D. Cartwright; 5, Fowler & Masterson. Pen—1, V. R. Long; 2, J. L. Harrison; 3, 4, Fowler & Masterson; 5, S. E. Coons.

R. C. Rhode Island Reds—Ck.—1, hen—1, H. Walthew. Ckl.—1, H. E. Gillet. Pullet—1, 5, H. Walthew; 2, C. E. Kingsburg; 3, 4, H. E. Gillet.

MEDITERRANEAN CLASS

S. C. Brown Leghorns—Ck.—1, 2, 3, 4, 5, hen—1, 2, 3, 4, 5, ckl.—1, 2, 3, 4, 5, pullet—1, 2, 3, 4, 5, pen—1, William Bros. & Brace.

S. C. White Leghorns—Ck.—1, 2, 3, Mrs. E. B. Martin; 4, S. B. Edmundson; 5, Mountain View Poultry Yards. Hen—1, 2, 4, Mrs. E. B. Martin; 3, 5, Sun Harbor Poultry Ranch. Ckl.—1, 2, 3, 4, 5, Mrs. E. B. Martin. Pullet—1, 3, 4, Mrs. E. B. Martin; 2, 5, S. B. Edmundson. Pen—1, Mrs. E. B. Martin; 3, 4, Sun Harbor Poultry Ranch.

S. C. Buff Legnorns—Ck.—1, C. D. Beauchamp. Hen—1, 3, H. E. Belcher; 2, C. D. Beauchamp. Ckl.—1, C. D. Beauchamp; 2, H. E. Belcher; 3, G. B. Schneider. Pullet—1, 2, C. D. Beauchamp; 3, G. B. Schneider.

S. C. Black Minorcas—Ck.—1, H. S. G. McCartney; 2, D. F. Hurst; 3, S. F. Kingston; 4, F. H. Green. Hen—1, H. S. G. McCartney; 2, F. H. Green; 3, 5, B. F. Hurst; 4, Druce & Co. Ckl.—1, 5, Druce & Co.; 2, S. F. Kingston; 3, G. Stinebaugh; 4, B. F. Hurst. Pullet—1, 2, Druce & Co.; 3, 5, B. F. Hurst; 4, F. H. Green. Pen—1, 3, Druce & Co.; 2, G. Stinebaugh; 4, F. H. Green.

S. C. White Minorcas—Ck.—1, 4, J. W. Strickland; 2, T. H. Bowen; 3, E. G. Ware. Hen—1, 3, E. G. Ware; 2, T. H. Bowen. Ckl.—1, 4, 5, T. H. Bowen; 2, J. W. Strickland; 3, E. G. Ware. Pullet—1, 2, J. W. Strickland; 3, 4, E. G. Ware; 5, T. H. Bowen.

S. C. Buff Minorcas—Ck.—1, W. P. Williams; 2, H. E. Williams. Hen—1, H. E. Williams; 2, W. P. Williams. Ckl.—1, 2, W. P. Williams; 3, J. O. Longstreet; 4, A. B. Marsh. Pullet—1, 5, A. B. Marsh; 2, J. O. Longstreet; 3, 4, W. P. Williams. Pen—1, 3, W. P. Williams; 2, H. E. Williams.

White Face Black Spanish—All awards R. A. Rowan.

Blue Andalusian—Ck.—1, 2, J. R. Huddleston; 3, H. H. Cole. Hen—1, 2, 3, 4, 5, J. R. Huddleston. Ckl.—1, 2, 3, J. R. Huddleston. Pullet—1, 4, 5, J. R. Huddleston; 2, 3, J. Hartnoll. Pen—1, J. R. Huddleston.

S. C. Anconas—Ck.—1, 2, 3, 4, C. H. Young. Hen—1, 2, 3, 4, C. H. Young; 5, W. S. Porter. Ckl.—1, 4, 5, C. H. Young; 2, R. J. Brimer; 3, E. Palmer. Pullet—1, C. H. Young; 2, W. S. Porter; 3, 4, R. J. Brimer; 5, E. Palmer. Pen—1, 2, C. H. Young.

R. C. Anconas—Pen—1, H. E. Gillet.

ENGLISH CLASS

Red Caps—Pen—1, M. L. McAlevy.

Buff Orpingtons—Ck.—1, 2, 3, W. S. Macy. Hen—1, 2, W. S. Macy; 3, 4, J. R. Wallace. Ckl.—1, 3, 4, W. S. Macy; 2, J. R. Wallace; 5, C. A. Lathrop. Pullet—1, 2, W. S. Macy; 3, J. R. Wallace. Pen—1, 2, W. S. Macy; 3, 4, 5, J. R. Wallace.

Black Orpingtons—Ck.—1, 4, J. W. Armstrong; 2, Mrs. L. E. Hills; 3, Frances Fletcher. Hen—1, Frances Fletcher; 2, J. W. Armstrong; 3, Mrs. L. E. Hills; 4, Orpington Sussex Poultry Yards; 5, C. S. Young. Ckl.—1, 2, J. W. Armstrong; 3, Mrs. L. E. Hills; 4, 5, C. S. Young. Pullet—1, 3, J. W. Armstrong; 2, Orpington Sussex Poultry Yards; 4, C. S. Young; 5, Mrs. L. E. Hills. Pen—1, Mrs. L. E. Hills.

White Orpingtons—Ck.—1, Dugas & Papas; 2, 3, J. H. Dickerson. Hen—1, J. H. Dickerson; 2, 3, 5, Dugas & Papas; 4, R. L. Davis. Ckl.—1, 4, J. H. Dickerson; 2, 3, Dugas & Papas; 5, R. L. Davis. Pullet—1, 2, 3, Dugas & Papas; 4, 5, J. H. Dickerson. Pen—1, Dugas & Papas; 2, J. H. Dickerson.

Partridge Orpingtons—Ck.—1, 2, Goodacre Bros.; 3, Orpington Sussex Poultry Yards. Hen—1, 2, 3, 4, 5, Ckl.—1, 2, 3, Goodacre Bros. Pullet—1, 2, 3, Goodacre Bros.; 4, 5, Orpington Sussex Poultry Yards. Pen—1, Goodacre Bros.

Blue Orpingtons—All awards C. H. Young.

Brown Sussex—All awards Orpington Sussex Poultry Yards.

Light Sussex—All awards Orpington Sussex Poultry Yards.

Speckled Sussex—Ck.—1, 2, 3, Orpington Sussex. Hen—1, J. R. Wallace; 2, 3, 4, 5, Orpington Sussex. Ckl.—1, 2, 3, 4, 5, pullet—1, 2, 3, 4, 5, Orpington Sussex. Pen—1, 2, 3, 5, Orpington Sussex; 4, C. H. Young.

Red Sussex—Ck.—1, 2, ckl.—1, 2, 3, 4, 5, pullet—1, 2, 4, 5, Orpington Sussex; 3, A. Schmoeger. Pen—1, Orpington Sussex.

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The Nebraska Farmer Lincoln, Neb. Established 1859.	50,000 Weekly
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Silver Campine—Ck.—1, Sun Harbor Poul. Yds.; 2, N. E. Luce; 3, 4, I. H. Oliver. Hen—1, B. F. Hance; 2, I. H. Oliver; 3, 4, N. E. Luce; 5, Sun Harbor Poul. Yds. Ckl.—1, I. H. Oliver; 2, 5, Sun Harbor Poul. Yds.; 3, 4, N. E. Luce. Pullet—1, 5, Sun Harbor Poul. Yds.; 2, N. E. Luce; 3, 4, B. F. Hance. Pen—1, N. E. Luce; 2, 4, I. H. Oliver; 3, C. H. Young.

Golden Campines—Ck.—1, N. E. Luce; 2, C. H. Magee; 3, D. H. Pores. Hen—1, 2, N. E. Luce; 3, D. H. Pores. Ckl.—1, C. C. Bonnell; 2, 3, N. E. Luce; 4. D. H. Pores. Pullet—1, 4, N. E. Luce; 2, C. H. Magee; 3, C. C. Bonnell; 5, D. H. Pores. Pen—1, C. H. Magee; 2, N. E. Luce; 3, 4, D. H. Pores.

Golden Sierras—All awards, Goodacre Bros.

Sicilian Buttercups—Ck.—1, 2, Occidental Poultry Farm; 3, C. Wood. Hen—1, C. Wood; 2, Occidental Poultry Farm. Pullet—1, C. Wood; 2, 3, Occidental Poultry Farm; 4, 5, F. F. Green. Pen—1, Occidental Poultry Farm.

Barbus D'Anvers—Ck.—1, pullet—1, J. Hartnoll.

ORIENTAL CLASS

Dark Cornish—Ck.—1, 2, J. D. Mercer; 3, P. E. Edouart. Hen—1, J. P. Richards; 2, 3, 4, 5, J. D. Mercer. Ckl.—1, Pullet—1, 2, 3, 4, 5, J. D. Mercer. Pen—1, 3, A. E. Larson; 2, J. D. Mercer.

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Bearded Silver Polish—All awards, R. A. Rowan.

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Silver Spangled Hamburg—Ck.—1, 3, R. A. Rowan; 2, C. D. C. Strifler. Hen—1, 3, 5, R. A. Rowan; 2, 4, C. D. C. Strifler. Ckl.—1, 2, 3, R. A. Rowan. Pullet—1, 3, 5, R. A. Rowan; 2, 4. C. D. C. Strifler. Pen—1, C. D. C. Strifler.

Black Hamburg—Pen—1, Dundas & Huxtable.

Lackenvelders—Pen—1, W. I. Castanien.

FRENCH CLASS

Houdans—Ck.—1, Mrs. H. I. Johnson; 2, Mrs. R. K. Bond. Hen—1, Mrs. R. K. Bond; 2, 3, Mrs. H. I. Johnson. Ckl.—1, Mrs. H. I. Johnson. Pullet—1, 3, Mrs. H. I. Johnson; 2, Mrs. R. K. Bond. Pen—1, Mrs. R. K. Bond.

ASIATIC CLASS

White Langshans—All awards, John Norton.

GAME CLASS

Pit Games—Ck.—1, 3, E. E. Hodgson; 2, T. Lowe. Hen—1, E. E. Hodgson; 2, T. Lowe. Ckl.—1, E. E. Hodgson; 2, T. Lowe. Pullet—1, T. Lowe. Pen—1, Fancier's Exchange; 2, E. E. Hodgson.

BANTAM CLASS

Black Breasted Red Game—Ck.—1, Mrs. A. J. Savory. Hen—1, 2, R. A. Rowan. Ckl.—1, 2, 3, Mrs. A. J. Savory; 4, 5, R. A. Rowan. Pullet—1, 2, R. A. Rowan; 3, Mrs. A. J. Savory. Pen—1, D. D. Davenport.

Silver Duckwing Game—Ck.—1, hen—2, 4, ckl.—1, pullet—1, R. A. Rowan; ck.—2, 3, hen—1, 3, 5, ckl.—1, 2, 4, pullet—2, 3, 4, pen—1, W. J. Chedzey.

Golden Duckwing Game—Ckl.—3, 4, W. J. Chedzey.

Red Pyle Games—All awards, R. A. Rowan.

Golden Sebright Bantams—Ck.—1, hen—1, 2, ckl.—1, 2, pullet—1, 3, M. E. Dillingham; ck.—2, Fred Bunk; ck.—3, hen—3, ckl.—3, pullet—2, Mrs. Cora Bamford.

Silver Sebright—All awards, R. A. Rowan.

Rose Comb Black—All awards, M. E. Dillingham.

Buff Cochin—Pen—1, Fred Bunke.

White Cochin—All awards, Fred Bunke.

Black Cochin—Ck.—1, hen—2, ckl.—1, 2, pullet—1, 2, pen—1, Thott & Andrews; ck.—2, hen—2, Fred Bunke; pen—2, C. S. Young.

Black Tailed Japanese—Ck.—1, 2, A. S. Campbell.

White Polish—All awards, R. A. Rowan.

Silver Spangled Hamburgs—All awards, John Hartnoll.

Golden Pencilled Hamburgs—All awards, John Hartnoll.

Cornish—All awards, R. A. Rowan.

Japanese Silkies—All awards, C. B. Brown.

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S. C. Black Minorcas—1, Druce & Co.

S. C. White Minorcas—1, J. W. Strickland.

Blue Andalusian—1, J. R. Huddleston; 2, J. Hartnoll.

S. C. Anconas—1, Goodacre Bros.

S. C. Buff Orpingtons—1, C. D. Stearns.

Silver Spangled Hamburgs—1, C. D. C. Strifler.

TURKEYS

Bronze—Old tom—1, R. N. Dodge; 2, 3, C. G. Weaver; 4, J. C. Pike. Hen—1, 3, C. G. Weaver; 2, R. N. Dodge. Yearling tom—1, R. N. Dodge; 2, 3, C. G. Weaver; 4, M. M. Stearns. Young tom—1, 2, 3, C. G. Weaver; 4, Mrs. C. W. Tilden. Pullet—1, 2, 3, C. G. Weaver.

Narragansett—All awards, M. M. Stearns.

White Holland—Old tom—1, hen—1, 3, young tom—1, pullet—1, Mrs. B. Hocking; yearling hen—2, young tom—2, pullet—2, M. M. Stearns.

Black—Old tom—1, hen—1, young tom—1, pullet—2, Mrs. B. Hocking; pullet—1, M. M. Stearns.

Slate—Old tom—1, hen—2, Mrs. B. Hocking; hen—1, yearling tom—1, young tom—1, pullet—1, M. M. Stearns.

Bourbon Red—Old tom—1, Mrs. B. Hocking; hen—1, M. M. Stearns; 2 Mrs. B. Hocking. Yearling hen—1, M. M. Stearns; 2, Ferris Poultry Ranch; yearling tom—1, M. M. Stearns; young tom—1, Ferris Poultry Ranch.

DUCKS

Fawn Indian Runner—Adult drake—1, adult duck—1, 2, pen—1, Miss L. E. Anderson; young drake—1, young duck—1, Mrs. W. B. Allison.

Buff Orpingtons—Pen—1, Ferris Poultry Ranch.

Annandale—All awards, M. F. Petrowsky.

GEESE

Toulouse—All awards, E. F. Spence.

CARE OF EGGS FOR HATCHING

Eggs are often spoiled by careless handling. This is particularly true of eggs which have been shipped. A thoughtless person will unpack the eggs at once and place them in the nest or incubator. Some will even go so far as to shake the eggs, "just to see if they will rattle." As a matter of fact, when the air is excluded for a certain length of time, an egg that is perfectly good will rattle a little, but we would not advise this method of testing. It is too expensive.

When the package arrives see that the covering is secure; then invert the basket carefully and let remain undisturbed for several hours where the temperature is say from 50 to 60 degrees.

When saving eggs from your own flock, be careful not to let them get chilled, and never allow any one with soiled hands to gather the eggs. A very little grease or oil on the shell of an egg will render it worthless so far as hatching is concerned. If an egg has become soiled in the nest, it may be washed in clear tepid water. Never use soap or alkali of any description for such purpose.

We like to set eggs the same day they are laid, but sometimes it is not convenient to do so. If eggs are to be kept for a week or over, they should be given special care in order to insure a good hatch. We wrap the eggs in paper, with the date written on the wrapper. Then they are placed in boxes and turned carefully every day until placed for hatching.

The temperature should be neither too high nor too low, although the wrapping helps to overcome difficulties along this line. A damp cellar is a poor place to keep eggs. They should never be kept near a fire.

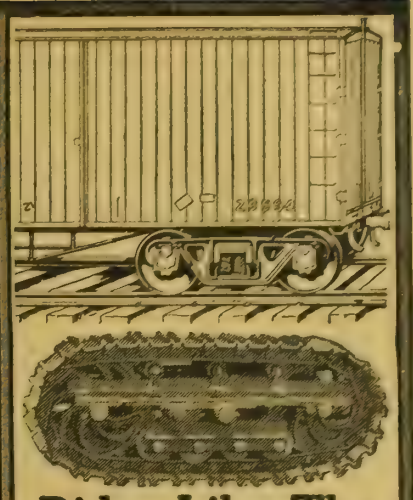
If eggs are properly cared for they will hatch almost as well when several weeks old as fresh eggs, that is, if they are good for hatching purposes in the start.

We find that the eggs of some fowls will keep in hatchable condition longer than others. Hen's eggs will not hatch well, as a rule, when they are over two weeks old. We have kept them 21 days with good results, but it is hardly safe to take chances.

Turkey eggs and goose eggs will keep perfectly for 21 days and even a little longer. They should not be allowed to become chilled in the nest, however.

Both turkeys and geese begin laying very early in the season and unless they are closely watched their eggs will get chilled, owing to the fact that they nearly always make their nests on the ground.

It is the same with ducks, also. But duck eggs should not be over a week old when placed for hatching. After a Pekin duck egg is ten days old it will not hatch, no matter how well it has been cared for. Duck eggs should never be shipped during very warm weather. In fact, it is not a good plan to ship any kind of eggs in warm weather, but duck eggs suffer more from the effects of rough handling than other eggs, because the albumen is so much thinner. It is best to procure duck eggs for hatching near home.—Indiana Farmer.



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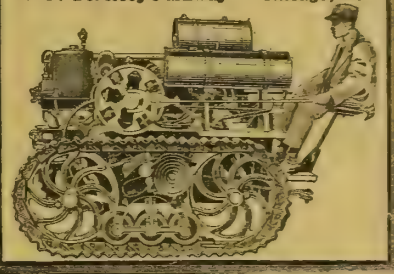

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FERRETS

In an eastern exchange we note the following regarding an aid to the poultryman which is not often used in California:

In a pigeon loft a rat very deftly passed over a battery of steel traps, under a figure four and killed a setting Fantail pigeon within a few inches of a piece of poisoned meat. Poison, at best is dangerous, and must be used with skill to get the rat to eat it. More frequently he will completely ignore it.

With traps and poison relegated to the background there seems little left with which to combat this profit-destroyer. Let us look to his natural enemy, the ferret. Did you ever see a rat clear out when he became aware that a ferret was near him? It strikes him with the most profound terror; he will flee into the very face of a dog or a man, totally oblivious of all dangers except the alert little animal in pursuit. This is an enemy against whose onslaught he feels himself entirely helpless. A well-trained ferret will follow a rat until he either kills it or runs it out to where it can be otherwise dispatched.

The extermination of the rat does not end the usefulness of the ferret. The author for several seasons losing many chickens, bantams and ducks as a result of the nightly visits of minks, weasels, etc., conceived the idea of placing the ferret's cage near the roosting place of the poultry, hoping this would aid to keep away the marauders. The ferret emits a peculiar penetrating musk-like odor, which may be detected, under favorable circumstances, at quite a distance. The plan proved eminently successful. For the past three years I have had no trouble whatever from these pests. I am assured they are on the farm because I frequently find their tracks in the snow in winter, but they constantly maintain a respectful distance and my chicks are safe.

CHICKEN POX IN POULTRY

The following advice is given to an inquirer by Dr. R. H. Williams, animal husbandman of the university agricultural experiment station: Chicken pox or sore head affects various kinds of poultry, but is most noticeable in chickens and pigeons. It appears to be a form of roup, or at least closely related to this disease as they often go together. The general appearance of chicken pox will be noted in the growth of nodules on the skin of any part that is not covered by feathers. The comb, wattles, ear lobes and edges of the eyelids are the usual seats of infection. Single or large multiple nodules, somewhat greasy in appearance and of a dirty gray, yellowish brown or reddish brown color are the usual indications of the disease. The birds are often very sick and sometimes apparently not much affected. Incubation varies from a few days to three weeks.

Treatment

Sometimes recovery will take place without treatment, but about two-thirds of the birds will die if not cared for. The diseased birds should be isolated and the house disinfected thoroughly. Remove the crust or nodules and treat the sore part with a 2 per cent solution of creolin or corrosive sublimate solution 1 to 1000. After treating with these germicides iodoform should be dusted over the injured parts or even into the eyes, and finally an antiseptic healing ointment should be spread over the injured parts. Careful treatment will reduce the mortality to as low as 10 to 20 per cent.

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The Walnut Nursery has a fine lot of grafted walnut trees again this season, Chase, Eureka, Mayette and Placentia Perfection. Order now and get the best. W. A. Litten, Prop., R. F. D. No. 2, Whittier, Cal. Home phone 7863.

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For Sale—2000 Late Valencia Orange trees, two years from bud. 1800 Washington Navel, one year from bud. A1 stock. Address, H. H. Eshelman, Soldiers' Home, Cal.

Buy Fruit Trees direct from the grower. Finest Apricots and Pears, 12½c, 10c and 8c. Apples, 5c; Oranges, 25c. Let me quote you on everything you need. Julius Mayr, Tree Grower, Hemet, Cal.

Walnut Trees, Wilson Wonder, Franquette—Budded on Northern Black Walnut root. Eucalyptus trees in large quantities. Prices right. Ekstein Nurseries, Modesto, Cal.

For Sale—Excellent citrus trees, Valencia 1600, Navel 1500, Eureka lemons 2400, ⅝ up. Price loose, 15c; baled, 23c F.O.B. Budded with fruit buds after freeze. Address B. C. Dodson, Glendora, Cal.

For Sale—Seedbed stock. Grapefruit and Florida Sour Seedlings, two-year old, 18 inches to 3 ft. and up in height. Strong, vigorous stock. JAMES MILLS ORCHARD CO., Willows, Cal.

For Sale—Grafted walnuts on black and soft root, oranges, lemons, apricots, peaches, everything in the nursery line. Get my prices. A. R. Marshall's Nurseries, Box 64, Santa Ana, Cal.

Franquette and Mayette grafted on Northern California Black, 3 to 10 feet. Prices right. Special discount on large orders. Sunset Nursery, 525 W. San Carlos St., San Jose, Cal.

Budded Citrus Trees and seedlings at fair prices. Will take auto or land. Butler's Morning Side Nursery, P. O. Box 15, Lamanda Park, Cal.

Have Some Fine Valencia and Eureka Lemon trees, ⅝ inch and up. Will sell or exchange for land, automobile, cows, chickens. C. W. Bouldin, Azusa, Cal.

Walnuts—Choice seedlings, 10c up; also grafted Chase and Placentias. Now contracting citrus and avocados for spring planting. Magnolia Nursery, Whittier, Cal.

The 1200-Acre Nursery, growers of 1500 varieties of trees and plants. OREGON NURSERY CO., Orenco, Oregon. Sales office, 522 Chamber Commerce, Los Angeles, Cal.

Fig Trees—2000 Calimyrna (Smyrna) and Capring trees for sale. Make offer for one or all. Strong, well grown stock. W. F. Lowe, Roberts P. O., Cal.

Mission Olive and Eureka Lemon trees for immediate planting. Write for special prices. A. C. Wisegarver, San Fernando, Cal.

For Sale—Eureka Walnut Trees, budded on Native Black Walnuts. Choice stock. Order immediately. Don't delay. Wm. Holve, Fullerton, Cal.

Grafted Walnut Trees on northern black root. Eurekas and Placentia Perfection. Also Satsuma Plum trees. J. M. Koller, Puente, Cal.

You Future Nurserymen—Write for prices on special stocks of plants to start business with. Ballou's Nursery, Pasadena, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

Before Planting Olives, Avocados, Feijoas, Rhubarb or Cactus, get my free booklet. Bishop's Nursery, Highland, Cal.

TREES

Peach Seedlings—Twenty thousand, all sizes and prices. Must be ordered before January 20th, 1915. Pay on delivery. A thousand pounds of Pollock's strain of Rocky Ford Canteloupe seed. If you want profits, try it. A few of Burbank's latest creations, Beauty and Formosa Plum. Standard prune trees and scions for grafting. Grafted walnuts and ten thousand black walnuts. All guaranteed to be as good as any at any price. A. P. Henning, Clements, Cal.

Grafted Walnut and Paper-Shell Pecans—Exclusive propagators of Tribble Mayette, Kerr Parisienne, and Improved Franquette. All walnut grafts taken from our bearing trees. Finest trees in the State. Eureka, Wiltz, San Jose Mayette, Concord and other varieties. Bartlett Pear on Blight Proof Root. Olives, fruit trees, etc. Reduced prices. New list ready. Tribble Nurseries, Elk Grove, Cal.

Seedless Grapefruit—I have for sale for the coming season a limited number of fine, clean trees propagated from a tree brought from Florida. I believe that this is a type of Marsh's Seedless superior to anything on the market. Send for circular. Inspection invited. G. W. Sherwood, Fullerton, Cal.

Avocado Trees—We have extra fine "HARMAN" budded Avocado trees now ready for delivery, and are booking orders for Spring planting. Special prices on application. Write for our new literature just issued. STEARNS & HARMAN, 317 Consolidated Realty Bldg., Los Angeles, Cal.

Apricots, Royal and Newcastle Pears, Apples, Peaches, Cling and Freestone guaranteed, large trees. Don't buy until you get our prices, which are cheap. Newton & Cavanah, Nurserymen, Hemet, Cal.

Orange Trees—2½-year-old buds from select stock, average ¾ inch; 500 Navels, 40c, and 500 Late Valencias, 50c, F. O. B. nursery at San Dimas, Box 108, Pomona, Cal.

For Acacias, Avocados, Budded Loquats, Citrus trees, Evergreens, Feijoas, Palms, Roses and all kinds of trees, shrubs, vines, etc. Write for our new catalogue. Robertson Nurseries, Fullerton, Cal.

Royal Apricots—Healthy, clean trees, 5 to 8 feet, $15 per 100; $135 per 1000. K. B. Utigaard, Hemet, Cal.

MACHINERY

USED WINDMILLS, TANKS, PUMPS, ENGINES, RANCH MACHINERY
ENGINES! ENGINES!
3 h. p. Fairbanks, $45; 5 h. p., $95; 15 h. p. Fairbanks; 12 h. p. Columbus; 18 Union, $195; 20 Lambert, $195; 28 Lambert, $295; many others guaranteed first class.

SPECIAL SNAP
Complete Pumping Plant, 18 h. p. Union Engine, complete with No. 4 vertical, centrifugal pump, all pipe and fittings, belt, etc., $295. Cost $1500.

SPECIAL SALE ALL KINDS PUMPS

Aeromotor windmill with steel tower.	$35.00
Brand new 2000-gal. galv. tank.....	29.50
7,000 gallon redwood tank.....	39.50
12,000 gallon redwood tank.....	55.00
15,000 gallon redwood tank.....	68.00
25,000 gallon redwood tank.....	85.00
50,000 gallon redwood tank.....	95.00

RANCH MACHINERY
Two Holt Tractors, pull 36 plows, $750, F. O. B. Also engine plows, mowers, rakes, scrapers, plows, harrows, cultivators, potato and beet machinery, sprayers. WANT TO BUY IRRIGATION PIPE AND RANCH TOOLS OF ALL KINDS. ODDS, ENDS.
Heavy drill, $25.00; shovels, picks, 20c; pipe fittings, gates, stocks, dies, sundries. Material guaranteed; save half.
Pioneers in our line. DEMMITT CO., UPSTAIRS, 120 N. Main, Los Angeles.

Gas engines, centrifugal and deep well pumps, motors, and everything pertaining to irrigation, for sale and exchange. If you want a complete plant or any part write us; we are experts in irrigation; advice and estimates cheerfully given. Will buy, sell or exchange. Reliable and responsible, everything guaranteed as represented. Machinery & Motor Exchange, Inc., 733-735 San Fernando St., Los Angeles. Main 6382, F-3433.

For Sale—Used and new gas engines, 2 H.P. up, rebuilt and fitted with modern equipment. 22 years' experience enables us to repair and rebuild gas engines correctly. Get our prices. Lloyd, 306 N. Main, Los Angeles.

TURKEYS

For Sale—Mammoth White Holland Turkeys. Mature hens and toms. ALSO young stock from five distinct pens headed by toms from yards of leading breeders of this breed in the state. EGGS IN SEASON. Orders given prompt attention. Prices on application. Address H. McKusick, Box 733, Calexico Imperial Co., Cal.

Thoroughbred Mamomth White Holland Turkeys from strong, vigorous prize winning birds, thoroughly domesticated; the stay at home kind. Eggs in season. Orders given prompt attention. Prices on application. Mrs. E. H. Broadwell, Crows Landing, Cal.

Sharp's White Holland Turkeys made a clean sweep at California State Fair, including sweepstakes. And also at Fresno County Fair. Also snow white Leghorns; stock for sale. Henry Sharp, R. 2, Box 70, Selma, Fresno Co., Cal.

Giant Bronze Turkey Toms from prize winning stock; weigh over 20 lbs. at 8 months. Write for prices. Mrs. Nellie Hart, Holtville, Cal.

Mammoth Bronze Turkeys. Largest and best flock in the world. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

March Hatch Mammoth Bronze Toms—Big bone, large frame, 25 lbs., $7.50. Prize winning stock. Mrs. Jessie W. Kimball, Farmington, Cal.

POULTRY

The Cultivator Poultry Book. By Jean A. Koethen. Published by Cultivator Publishing Co. after repeated calls for a thorough treatise on poultry. A book for every western poultry raiser, whether experienced poultryman or beginner. Over 200 pages, 50 illustrations. Contains simple methods of avoiding and overcoming difficulties. Nicely bound in cloth. Price $1.00, postpaid. Send orders to Cultivator Publishing Co., 115-117 N. Broadway, Los Angeles, Cal.

For Sale—Eggs for hatching. White Leghorns 60c to 75c per setting, $4 to $5 per hundred. Buff Orpingtons, 75c to $1.50 per setting (15). All well bred stock and good layers. In ordering eggs sent by Parcel Post or Express add cost of mailing or express. Also have two fine Orpington cockerels ten months old, 8 to 9 pounds weight each, to exchange for others as good of a different strain for mating. Address J. A. Sawyer, Box 64, Gardena, Cal.

Macfarland Strain White Leghorn eggs $5 per 100, chicks, Jan., Feb., $12, afterward $10, order now, any quantity. Cockerels $2. White Rock eggs, chicks, cockerels; write for prices. Big plant, best stock, lowest prices. Newton Poultry Farm, Dept. 3, Los Gatos, Cal. N. B.—See article about us by Prof. Adams, U. C., in October Poultrycraft.

White Leghorn baby chicks from McFarland Strain, from two years old hens; there is no better laying strain than this. You cannot succeed in the poultry business with poor stock. I guarantee safe arrival by express. My specialty is pleasing my customers. Chicks $10.00 per 100. Book your order for Spring delivery now. $2.00 per hundred with the order. J. W. Lyon, Gardena, Los Angeles Co., Cal.

S. C. White Leghorn Baby Chicks—From my pure-bred flocks S. C. White Leghorns, carefully selected for laying and Standard qualities, $9.00 per 100, $85.00 per 1000. A first class chick at a reasonable price. Eggs for hatching, $5.00 per 100, $45.00 per 1000. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

Incubator Chicks—White Rock, Rhode Island Red, Black Minorca, White, Brown and Buff Leghorn, and Indian Runner Ducks, high class stock—Standard bred and Hoganized. Send for booklet of prices and make your contracts now. Mahajo Farm, P. O. Box 597, Sacramento, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. National Poultry Co., successors to Allaway & Layton Co., 607 E. Third St., Los Angeles, Cal.

White and Brown Leghorns—Day-old chicks from healthy vigorous breeders. "Chicks well hatched are half raised." We will be pleased to send you circular and prices. San Jose Hatchery, 371 Meridian Road, San Jose, Cal.

Baby Chicks—Eggs for Hatching—Pure Bred—Booking orders for February and later hatches. R. I. Reds, Buff and White Leghorns, Black and White Minorcas, White Wyandottes, Buff Orpingtons. Gem City Yards, Los Gatos, Cal.

Rhode Island Reds and S. C. W. Leghorns; greatest laying strains in California. Baby chicks: Reds, $15.00 per hundred; Leghorns, $12.50. Rainescourt Poultry Ranch, Zelza, Cal.

Pullets—Thoroughbred stock—Golden Buff Leghorns—Sheppard's strain Ancona—White Leghorn—White Minorca hens—baby chicks and eggs. Prices reasonable. Sand Ridge Hatchery, Kerman, Cal.

Stirling Farm—Incubator chicks and hatching eggs from fully matured S. C. White Leghorns. Wykoff's strain; also S. C. Brown Leghorns. Route 2, Box 1416, Sacramento, Cal.

S. C. White Leghorn Baby Chicks and Hatching Eggs that are Top Notch. Write for particulars. Prices reasonable. Ten years in business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

Booking Orders for Hatching Eggs from S. C. White Leghorns, utility birds; selected stock, $6.00 per 100; $50.00 per 1000. No baby chicks. Pine Tree Poultry Farm, Los Gatos, Cal.

Barred Rock Cockerels—(Hawkins Royal Blue Strain) ready for mating, also Barred Rock, R. I. Red, Buff and White Orpington day-old chicks every week. Enoch Crews, Santa Cruz, Cal.

Baby Chicks (White Leghorns)—Shipped on approval. Examine at your home before remitting. No weak ones charged for. Schellville Hatchery, Sonoma, Cal.

Silver Spangled Hamburg—Silver Laced Wyandottes, White Wyandottes and Light Bramah cockerels, beautiful large birds. Tribble Nurseries, Elk Grove, Cal.

Barred Plymouth Rocks—Winners at New York, Kansas and California shows. Eggs and choice stock for sale. C. H. Vodden, Los Gatos, Cal.

Petaluma Hatchery—Now booking orders for December and January. Early chicks bring big money. Send for circular. L. W. Clark, Petaluma, Cal.

Hatching Eggs—Hoganized S. C. White Leghorns four dollars per hundred. Thirty-five per thousand. D. Clayton, R. D. 2, Modesto, Cal.

Pit Games—A few choice specimens for sale. Write for prices. Delivered your station. O. L. Crane, R. D. 3, Santa Rosa, Cal.

Barred Rocks—Only a few fine breeding cockerels for $3.00 each. G. L. Hawley, Madera, Cal.

For Sale—Buff and S. C. Black Minorca cockerels. Also eggs for hatching. Mrs. N. Schilling, Ripaugh, Cal.

LIVE STOCK

Ohio Improved Chester White (O. I. C.) Entire herd immunized against hog cholera. Nothing but immunized stock sent out. Extra fine lot of fall pigs, both sexes, ready for shipment during December and January. Three herd boars used. All stock crated and registered. Make reservations now. C. B. Cunningham, Mills, Sacramento Co., Cal.

Grape Wild Farm Thoroughbreds—Guernsey Bulls of A. R. Breeding. BERKSHIRE HOGS. Finest herd in the state All ages for sale. A. B. Humphrey, proprietor. Mayhews, Sacramento Co., California

For Sale—Young registered Berkshire boars and sows; fine, strong stock. Boars ready for service—January. Stanislaus Ranch Co., Crows Landing, Cal.

Thoroughbred Berkshire Boars of all ages; two grade Holstein Bull Calves from seven gallon cows and registered bull; born Aug. 11, 1914, Jan. 10, 1915. $45, $20. Riccomi Bros., Mountain View, Cal.

Milch Goats for Sale—(1) Pure bred Anglo Nubian doe, $75. (2) Pure bred Anglo Nubian buck, worth $150. (3) High grade Swiss does bred to the Anglo Nubian buck, $20 up. R. M. Cartwright, Foster, Cal.

For Sale—A few fine good Toggenberg Milch Goats; write for description and tell me what you want. C. H. Brown, Box 444, Chandler, Ariz.

For Sale—90 head of mixed cattle, steers, heifers and young milk cows. For particulars write J. A. McNulty, San Jacinto, Cal.

Glenview Poland China—Stock for sale Chas. R. Hanna, R. F. D. No. 3, Riverside, Cal.

M. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale.

FARM LANDS FOR SALE

VICTORIA, AUSTRALIA, WANTS SETTLERS

Special inducements; government land, railways, free schools; cheap irrigation; 31 years to pay for farms adapted to alfalfa, corn, grains, fruit, etc.; climate like California; ample markets; reduced passages; special excursion being arranged. Free particulars from F. T. A. Fricke, Government Representative from Victoria, 687 Market St., San Francisco, Cal., Box X.

A Double Your Money Land Buy—312 acres near Watsonville, all first class fruit soil. Fine dairy or stock ranch, splendid buildings, well watered. 7 acre family orchard. Adjoining land, same class, held at $200 an acre. $95 an acre buys this, part cash, part city property, balance easy terms. If you're looking for a giltedge investment, write for full description and photos. E. STEINHAUSER, WATSONVILLE, CAL.

For Sale—A few 40-acre tracts in good 2-year stand alfalfa; interest in pumping plant, abundance of water, ditches, reservoir, in popular Tipton-Tulare dairy district. $1000 down—$1000 per year, including 7 per cent interest. Price $175 per acre. Porterville Ranch Co., Owners, 610 Title Insurance Bldg., Los Angeles, Cal.

For Sale—A splendid opportunity for dairying and hogs. 100 acres, 80 acres leveled and checked for alfalfa, 40 seeded; large reservoir and pumping plant, good soil, small house, good barn. Price reasonable. Terms. Will take some exchange. Six miles southeast of Merced. J. D. Harp, R. D. No. 3, Box 71-A.

For Sale—Half mile from Exeter 40 acres, 10 acres four-year-old oranges, balance alfalfa, good 10 H. P. electric pumping plant. One-third cash, good terms on balance. Address Box 236, Exeter, Cal.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

MISCELLANEOUS

St. Joseph's Agricultural Institute, Rutherford, Napa Co., Cal. An Agricultural High School for boarding students. A thorough training given in the theory and practice of diversified farming. The school is located on a thousand acre farm. The students assist in all the branches of work conducted on the farm, plowing, seeding, cultivating, orchard and vineyard work, dairying, hog raising, poultry raising, etc., thereby acquiring a practical knowledge of agriculture which is of equal importance to the theory. The Eighth grade is also conducted, as a preparatory class. The fee for board and tuition is very reasonable. Classes reopen on January 4th, 1915. For further information apply to the President, Bro. Thomas H. Claffy, S. M.

Owner of established Rice Selling Agency Company with broad charter for general export and import business, desires to exchange same for ranch valued at $3000 and upwards. Fine opportunity for city man on ranch to re-enter commercial activity or for a farmer's son to acquire a city business. Present owner wants to go on a ranch. No agents—principals only. Box R, Cultivator.

Free for Six Months—My special offer to introduce my magazine "INVESTING FOR PROFIT." It is worth $10 a copy to anyone who has been getting poorer while the rich, richer. It demonstrates the REAL earning power of money, and shows how anyone, no matter how poor, CAN acquire riches. INVESTING FOR PROFIT is the only progressive financial journal published. It shows how $100 grows to $2200. Write NOW and I'll send it six months free. H. L. Barber, 430, 28 W. Jackson Blvd., Chicago.

"Smith's Pay the Freight"—To reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St., San Francisco.

HORTICULTURAL PRINTING

Catalogues for the seed and nursery trade. The live stock and poultry industries are a specialty with us. Two thousand illustrations to select from. Write for prices and samples. The Kruckeberg Press, 237 Franklin St., Los Angeles

GEESE

Thoroughbred Toulouse Geese—Large stock. One, two and three-year-old. Breeders for sale. $7.00 per pair, $10.00 per trio. Snapshot photo on request. A. E. Nelson, El Monte, Cal.

SEEDS AND PLANTS

For Sale—Gooseberry Bushes. Downing, Houghton, Red Jacket, Oregon Champion, Monterey; a few of an English sort. Each 15c, one of each 75c, $1.20 doz. Write for prices in larger quantities, p. p. paid. E. C. Hall, Gooseberry Specialist, Greenfield, Cal.

Strawberry Plants — Gold Dollar, Clark Seedlings, Magoons, Wm. Belt, Marshalls, Goodells, Early Ozark, and new Oregons, $2.50 per thousand. Thoroughbred plants. Mr. John Christiansen, R. F. D. 2, Canby, Oregon.

Sudan Grass Seed—We have a limited quantity of inspected seed that we are closing out at prices that will interest you. Write for our prices; it will pay you. Kimbro & Parks, Lubbock, Texas.

Sudan Grass—Government inspected, 50 cts. per lb. If you pay more you are throwing away your money. Amarillo Seed Co., Amarillo, Texas.

Berry Plants, Rhubarb, Cacti—It will be worth your while to send me a postal right now if you are interested. Louis F. Scribner, P. 2, Pasadena, Cal.

Sudan Grass, Kudzu, Imp. Alfalfa, Spineless Cactus—The big four forage plants. Prices O. K. Write, J. L. Lawson, San Jose, Cal.

Rhubarb—Crimson Winter, $3.00 per hundred; Wagner's Giant, $5.00 per hundred. Good, strong, one-year plants. Currier Bulb Co., Seabright, Cal.

For Sale—Avocado Seed, also fine budded "Taft" Avocado trees. C. P. Taft, Orange, Cal.

For Sale—Beldi Barley, clean for seed. H. Pile, Ramona, Cal.

Brandywine Strawberry Plants — Fine large plants. J. H. Shirk, Tulare, Cal.

Himalaya Berry Tips—$2.50 per 100; $15 per 1000. A Cooley, Sunnyvale, Cal.

RABBITS

Richey's Reds won again at Los Angeles famous show. Fine Bucks ready for service. Does bred to first prize winners, $3.00 to $5.00. Three months, $1.50 each. C. A. Richey, R. No. 8, Box 557, Los Angeles. Some prize winners for sale.

New Zealand Reds—Scored and sold on merit. Investigate. Our Catalogue is free. Caldwell Bros., Los Angeles, Cal., Box 613.

BEES

Beekeeping Pays Big—Price list, bees, instruction books, etc., free. Spencer Apiaries Co., Box 14, Nordhoff, Cal.

IMPORTANCE OF ORGANIC MATTER IN SOILS

The following item on soil fertility is taken from the annual report of the bureau of soils:

Organic matter is essential to make a soil of what would otherwise be pulverized and more or less hydrolyzed rock, and while there are some soils capable of growing crops that contain small quantities of organic matter, on the whole the quantity of this material in average soils is considerable. The average organic content of soils amounts to approximately 50 tons per acre and yet the nature of this material has been but little understood. It has been believed for many years that it consisted chiefly of some such body as humic acid, differing perhaps in different soils, but having the same general properties. One prominent service which these investigations have rendered agriculture has been to show the nonexistence of humic acid and its hypothetical relatives and to show instead the existence of many compounds with many relationships.

This line of research has been especially profitable during the year just past, and the number of compounds isolated and identified has been increased to more than 40. Some of these compounds contain only carbon and hydrogen; some carbon, hydrogen and oxygen; some carbon, hydrogen, oxygen and nitrogen; others contain phosphorus or sulphur. Isolation in a pure condition of these organic constituents of soils has made possible the correct interpretation of the changes that organic matter undergoes in soils. The compounds found are recognized as representing decomposition products of fats, carbohydrates, proteins and other classes of natural compounds, and a great deal of light is shed thereby on the processes of humus formation and transformation in the soil. These researches into the nature and properties of soil organic matter have shown conclusively that the soil investigator must take into consideration the presence of organic compounds in the soil.

LEMONS FOR GRASSHOPPERS

Last summer Kansas had an unusual outbreak of grasshoppers. In places hundreds of hoppers to the square foot devastated every vestige of green, leaving the ground bare of plant growth as they passed. In fighting this invading army poisoned bran flavored with lemons and oranges was found most successful and was used to the extent of two millions of pounds. This practical test of a remedy of which a single application destroyed three-fourths of the grasshoppers showed it to be more beneficial than anything heretofore devised. The Kansas formula prescribes the following:

A. 1 pound of Paris green
   20 pounds of bran

Mix thoroughly in a wash tub while dry. Then stir in the following (B) well mixed.

B. 2 or three lemons or oranges, chopped fiine
   3 pints cheap syrup
   3½ gallons of water

The fruit juice may be squeezed in the water and the rind and pulp run through an ordinary meat chopper.

While the usual poisoned bran mash is eaten by grasshoppers the lemon bait greatly increased its attractiveness. Grasshoppers would leave succulent green corn or alfalfa for the bait and would be attracted from a distance of 50 feet. It is claimed that lemons are more efficient than oranges. In a test where 4000 grasshoppers were actually counted as they visited a series of different baits it was found that lemons attracted over 50 per cent more than where oranges, vinegar, stale beer or anise oil were used. In fact in this instance plain bran or plain syrup proved to be slightly better than when flavored with the latter substances.

The poisoned bran serves best when sown broadcast very early in the morning as the grasshoppers are then more eager for food and the mash then retains its moisture longer. When dried it no longer attracts the grasshoppers. From five to ten pounds of the wet mash is sufficient to the acre but it is best to apply it here and there to the worst infested areas. After a few days the poison may be again distributed if deemed necessary. Grasshoppers are slow to die but after once feeding on the poisoned bran will be almost sure to succumb in three or four days.

In this campaign against the grasshopper the county commissioners of western Kansas distributed at county expense nearly 700 tons of poisoned bran, allotting 200 pounds to each farmer. In two days after the treatment made on "Grasshopper Day" the ground was covered with dead grasshoppers, and at the end of what was considered to be the worst grasshopper year in Kansas history there were fewer living grasshoppers than there had been for many years. Such wholesale destruction of insects gives not only immediate benefit but its effects will be apparent for several years to come.—A. L. Melander, Entomologist, Washington State Experiment Station.

PAINT AND PRESERVATION

The value of paint in beautifying and preserving woodwork cannot be overestimated. It is to a large extent the visible index of a farmer's prosperity, progressiveness and intelligence. Rightly or wrongly, the farmer is often judged by the appearance of his buildings and farm equipment. Unpainted, ramshackle surroundings tell their own story. But the modern farm that deserves the name of up-to-date exposes very little lumber in an unpainted condition. The residence, barns, sheds, granaries and even the poultry houses, are painted. Decay is powerless to work much harm to the buildings belonging to such a farm.

Few expenditures that the farmer can make pay better than a judicious investment in paint, while the process of painting itself is not complicated. If one takes note of the character of the woodwork the maximum in benefit may be obtained. The kind of wood should be carefully studied and the painting regulated accordingly. It should be determined whether the timber is hard open-grain or hard close-grain; soft close-grain or very soft open-grain; soft and spongy; compact or solid, and also whether it is kiln or air-dried timber. If it is kiln-dried, and the drying process has been carried on too rapidly, the wood may have become case hardened, leaving it brittle and lifeless. The timber having thus lost part of its vitality, the paint must be mixed to a consistency which will penetrate to a depth that will insure satisfactory results. If the paint is of a heavy consistency and lies on the surface, the fibers of the wood will break away through contraction and expansion, bringing the paint with it. This trouble is always laid to the paint, while the real cause is that the primary coat was not properly reduced to penetrate a sufficient depth to insure proper binding. Wood that has been air-seasoned has had little or no opportunity to lose any of its strength, and it will hold paint well.

A little common sense reasoning will insure good results with this farmer's friend. There was a time when wood was cheap and paint dear, and it was a rare sight to see a painted building in a rural district. But let us not forget that times have changed and wood is dear with paint cheap. We hope that advantage will be taken of this fact by an increasing number of farmers during this year.—Farm, Stock and Home.

SAVE YOUR WOOD ASHES

Don't waste wood ashes. Apply them, as produced, to acid soils.

This is the advice of A. R. Whitson, head of the state soils laboratory. It is of particular value to settlers in upper Wisconsin, who actually have waste wood to burn.

Wood ashes contain a large proportion of lime which makes them of value in correcting acid soils. Oftentimes land intended for clover or alfalfa can be better prepared for the crop by a top dressing of fresh wood ashes, either hard or soft wood being equally satisfactory. Such a treatment will be of especial value on marshy and sandy soils.

If not allowed to leach out wood ashes are also rich in potash and so form a home source for a much needed element. Practically all of our potash supply has been imported into this country from certain of the countries in Europe now at war, which fact has caused considerable concern with many here who purchase in large quantities.

Mr. Whitson sees no reason for alarm over the potash situation. He does not think that the war will absolutely prohibit the importation of potash from German mines for any great period and, as he points out, the American supply is already being diluted in order to make it last.

Whether or not it will pay to use ashes for agricultural purposes depends upon the distance they have to be hauled. When buying ashes the purchaser should satisfy himself that the material is neither adulterated nor full of coal residue.

Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Vines Not Bearing

A subscriber at Selma inquires as to his Muscat grapes not bearing. The vines are thrifty but bear light crops. With this meager information Prof. Frederick T. Bioletti answers: "If your subscriber at Selma by 'thrifty' means vigorous, it is possible that he prunes his vines too short. It is a good general rule in the pruning of vines and of most trees that when the plant is perfectly vigorous and unfruitful more fruit buds should be left. In other words the pruning should not be so short. However, it may be that the frost spoils the blossoms in the spring. This would destroy the crop and incidentally invigorate the vine because all its energies would go into the vegetative growth instead of into the crop. In this case I should advise him to prune his vines very late, that is to say, after the buds at the ends of the canes have started to grow. This will defer blossoming a week or ten days and may save the crop from frost."

Treating Grain for Smut

I notice in the last issue of the Cultivator in an answer to a query regarding treating potatoes and seed grain for scab and smut the statement that seed grain should be dipped longer than potatoes. This is entirely wrong. A sack of seed grain need not be dipped over two minutes in formaldehyde. I speak from personal experience while a grain farmer in the middle west.—O. S. Lokka. We may add that grain is often treated by shoveling it over in a pile and sprinkling the formaldehyde solution through it as it is being shoveled. Where sprinkling of the grain is practiced oats and barley require more thorough wetting than does wheat.

Morning Glory

No question comes oftener than how to eradicate morning glory. A subscriber at Compton writes: "Will you please tell us if you know of any way to get rid of morning glory which has begun to show up in our orchard and is spreading rapidly?"

There is no royal road to the eradication of morning glory. Thorough cultivation is the best answer we can give. Occasional cultivation only aids in spreading if for the cultivator dragged through a patch of morning glory carries on its teeth broken roots to all parts of the orchard. These in turn start to grow and but two or three cultivations during the summer will be sufficient to cover the entire orchard within a year. If however, the infestation is in one or two small patches the cultivator may be put upon those patches regularly once a week and if not dragged through the orchard so as to carry roots to other sections eradication is comparatively simple. As to chemical treatment, as we have said many times, there is nothing which will eradicate morning glory without injuring the soil for the production of crops.

Root Knot

I have seven year-old Muir peach trees with black knot on the roots. Can I remove these and plant young peaches in the same places successfully?—Subscriber, Parlier.

This is probably the common crown gall and if other peach trees are planted in the same ground they might become infected. Often the old trees will bear and do fairly well for years after the infestation is apparent, and if such is the case with this particular orchard it might be more satisfactory to allow them to remain. Unless the gall surrounds the entire trunk of the tree it may be saved by chiseling away to clean, healthy wood and coating with Bordeaux paste, or if the knots appear on the roots they could be cut and removed. This trouble is not exclusively on peaches for many other varieties of fruits are affected.

Gophers

I wish to set prune trees in newly plowed ground, formerly in alfalfa, where pocket gophers were plentiful. What can I do to keep the gophers from eating the roots of the trees?—Subscriber, Parlier.

The only safe way to set trees in such ground is to give the gophers constant attention both before and after planting. There is no safety for the trees if the gophers are allowed to remain. Use traps and poison, which, with irrigation, should give reasonably quick control. We have heard of the roots of trees being surrounded when newly planted with close-meshed wire but this is expensive and impracticable. There is only one way of treating gophers and that is extermination.

Windbreak

What will make the best windbreak for apricot and peach orchard? Have heavy winds and sand storms. Must stand some frost and be of dense growth close to ground. Am considering Monterey cypress or possibly cypress interplanted with eucalyptus, either rudis, rostrata or tereticornis, or would different varieties of eucalyptus be better? Would like to have windbreak of use in supplying fence posts if possible. What is the best distance apart to plant?—Subscriber, Higley, Arizona.

The trees referred to are probably the best which can be recommended for your use. For a solid wall near the ground, of course the cypress is the best, but it must be remembered that a solid wall is not as effective as many imagine. If a tight board fence could be built on the windward side of the orchard it would not be as effective as a row of trees, this for the reason that the wind blowing over its top causes a partial vacuum on the lee side and seems to deflect or turn the force of the wind toward the ground and does more injury than where there is no such obstruction. A row of trees which restrains or stops the force of the wind serves the best purpose. In California the eucalyptus is most generally used, though eucalyptus and cypress interset is common. We have seen windbreaks of three rows of trees, two of eucalyptus and one of cypress, which were very effective. If desired for occasional cutting out of posts would recommend planting four feet apart, then cutting alternate trees would leave them practically eight feet apart. If more than the one row is set they can be alternated in the row, which will make a rather more solid break. Would prefer the rostrata, though conditions in your own section will give you a better idea as to their value, rapidity of growth and value of the posts being of course a determining factor.

Fertilizer for Alfalfa

What is the best commercial fertilizer to use on alfalfa planted on red land?—Subscriber, Reedley.

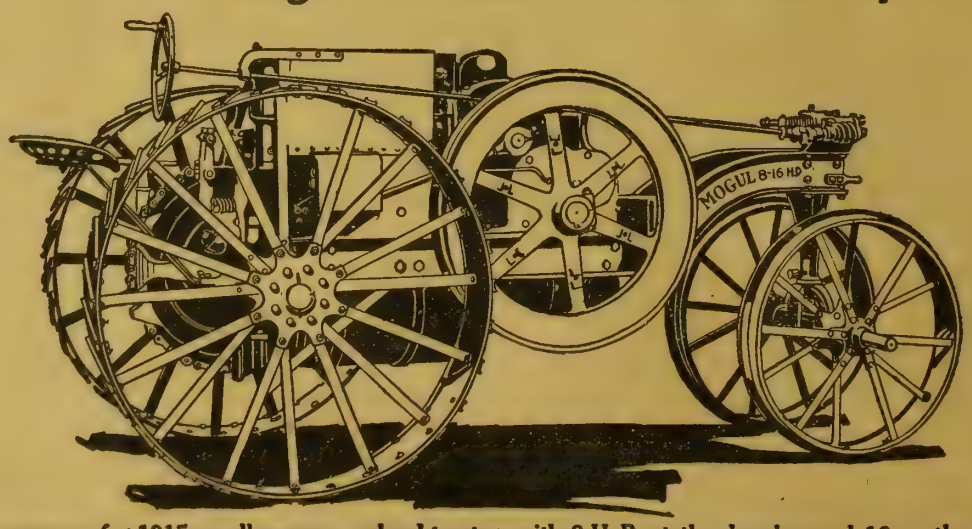
Probably the very best would be stable manure, also the most expensive and perhaps the most impossible to secure. It is said that alfalfa, if the ground is properly inoculated, secures its own nitrogen from the air. Many advise not to spend money on the most expensive of all fertilizing elements, but the application of nitrates still gives marked results on alfalfa. If one proceeded on the basis of allowing the alfalfa to secure its own nitrogen the application of fertilizer rich in phosphorus and potash, especially the former, would give good results. However, we would suggest, in a case of this kind, the making of very practical tests. Measure accurately several strips across the field, applying on one stable manure, on another rock phosphate finely ground, on another potash, and perhaps on another complete fertilizer, and in every case be sure to leave one check without fertilizer. Do not trust to the eye in making determinations as to results. Careful weighing of the production of each plant will, however, give definite information as to fertilizer required for that particular soil.

To Destroy Fertility

Will you kindly advise as to the process of fixing fertile eggs so they will not hatch?—Subscriber, Stratford.

The best way to destroy fertility is to prevent it, that is, to keep male birds out of the pen when eggs are to be sold in the market. When the male is not a stranger the eggs will usually be found to be fertile four or five days after he is returned to the pen.

Our New Year's Announcement
A Mogul Orchard Tractor for $675



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Poultrymen have various ways of preventing the eggs from hatching when fertile eggs must be sold for the table. One is to puncture the large end of the egg which contains the air cell with a sharp needle or pin. Another is to rub the shell with a soft cloth on which a little olive oil or lard has been placed. The oil closes the pores and the embryo cannot develop. Dipping the eggs in hot water for a few seconds is a third way and affects the appearance of the egg rather less than the other methods.—J. A. K.

Barley on Shares

What is a fair proportion of the crop where barley is put in on shares? Does owner of land or renter buy the seed?—Subscriber, Los Angeles.

The proportion of crop to each of the interested parties is always a matter of contract, depending on what each party furnishes, the quality of the land, the cost of getting to market and various other matters. When the renter furnishes feed, seed, teams, labor, sacks and all other things necessary to produce the crop the land owner usually gets one-fourth of the crop delivered at the nearest market place. This varies until under other conditions the land owner gets two-thirds of the crop, depending on what each furnishes.—J. B. N.

Fertilizing Cantaloupes

We recently had inquiry as to fertilizer to use on cantaloupe lands near Brawley, Imperial County. The inquirer desired to use some fertilizer which would advance the season if possible. Mr. J. B. Neff of Anaheim writes that in all probability any fertilizer which will stimulate plant growth will retard the season rather than advance it. The question was referred to Prof. C. B. Lipman of the state university, and he answers:

"It is a little difficult to say what a man needs in the way of commercial fertilizers without knowing what his soil is like with regard to depth, chemical composition, and particularly physical nature. Knowing what I do of the cantaloupe lands in that vicinity, however, I beg to inform you that the only commercial fertilizer which could do the land any good would be nitrogen fertilizer. Moreover, it is our experience on soils of that type that the nitrogen fertilizer which will yield the best results is one not necessarily of a high nitrogen content, but of a ready availability for that particular soil type. I should, therefore, advise the use of sulphate of ammonia at the rate of 400 to 500 pounds to the acre, or of cottonseed meal at the rate of about 800 to 1000 pounds to the acre. I can see no reason for the use of other material so far as the fertilizer end of the problem is concerned at all. You understand, of course, that alkali and bad physical condition of the soil will interfere with the crops, regardless of what other conditions may be maintained. So far as the earliness of crops is concerned, we are not justified in saying that there is a direct relationship between fertilizer application and earliness."

Old Mr. Blank, who was the guest of a gay grandniece at Newport, had watched her on her social round for a month.

One day, unexpectedly, she said to him, "Well, Uncle Dan, what do you think of it all?"

"My dear," he said, after a delicate pause, "I am constantly reminded of the sage saying of a clever Frenchman: 'Life would be quite bearable if it were not for its pleasures.'"

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Urinary Trouble

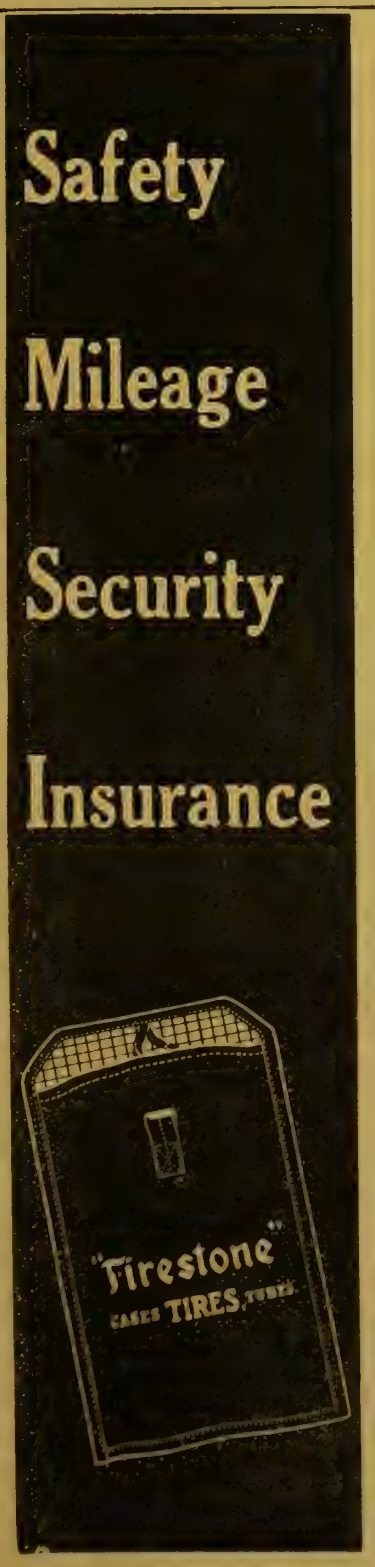
Would like to have the Cultivator tell me what is the matter with my hogs. They seem to have kidney trouble. About three years ago I started with a mixed breed of hogs and have improved them by breeding to full blood Chester White boars. My trouble is losing some of the boars. The sows are not affected. At times the boars show signs of distress in urinating. Most of them get over it but occasionally one dies. So far I have lost nine and my neighbors have lost one or two from the same trouble. The season of the year seems to have nothing to do with it as they are as liable to die at one time as another. I cut a few of them open and found around the kidneys a large sack full of water. I could not detect anything much wrong with the kidneys; they had a dark blue color and did not seem to be swollen. When dead they lie on the stomach with the feet stretched out front and back. Those that died weighed between 75 and 200 pounds and while on alfalfa pasture, except one that died in the fattening pen. They have well settled drinking water from the Colorado River.—Subscriber, Brawley.

While we have not seen much of this trouble it is evident that it is caused by the lime and other elements that are in the drinking water. We have asked the state experiment station about it and they are of this opinion also. The reason for the sows not being affected is because their anatomy is different; it allows them to discharge the lime more freely. Had you examined them more carefully you would probably have found calculi (gravel) in the bladder or kidneys or in some of the passages leading from the kidneys to the bladder. The trouble might be still farther down in the urethra or sheath. When you see them having any distress in urinating examine the sheath and squeeze out anything that may be clogged there and syringe it out with warm water with a little borax in it. By giving them each a teaspoon of bicarbonate of soda in the feed or drinking water occasionally it will keep the lime that is in the system in solution and it will pass off without clogging the passages and distressing them.

Blood Poison

In August a lump about the size of one's first came on the right side of heifer's face about half way between the eye and nostril. In a few days the swelling extended to the lower jaw, lip and tongue until all were swollen hard. It also continued down the neck to the front legs and the swelling was three or four inches thick. Thinking it might be due to a foxtail I waited developments. At last I found a soft place on her face and one on the neck about ten inches from the front leg and opened them. They contained a very thick, offensive smelling matter. She was in fine condition when the lump first appeared but lost flesh until quite thin. The swelling all disappeared and she seemed much improved, but then more lumps commenced to come on the lower jaw and neck where it is joined to the head. I have opened these and they contain sometimes as much as a quart of thin, black, offensive, watery substance. By the time one heals another comes. She has a good appetite and is due to be fresh in about three months. What is the trouble? Is it contagious? Can it be cured? Is it advisable to keep her with the rest of the cattle or by herself?—Subscriber, Earlimart.

It is a form of blood poison that seems to be local. It might have been caused by the puncture of a nail or anything that would break the skin and introduce the poison. It probably is not contagious but might be infectious if some of the discharge from one of the lumps was introduced into a wound on another animal. Do not know whether it can be cured or not. Try putting on a poultice made of coarse bran and hot vinegar or soak cloths with hot vinegar and bind them on for 24 hours. When an abscess appears open it and wash out the cavity with warm water contain-



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ing a little carbolic caid. Then wet the inside of the cavity with a solution of permanganate of potash, one dram to the quart of water. Repeat this once a day until healed.

Wire Cut

Two-year-old Percheron mare was cut by pawing over the lower barb wire of a fence and dragging her foot along the wire about 100 feet. This cut was between the ankle and foot on the inside. Two pieces of bone worked out. A veterinarian prescribed and treated her. The wound healed, leaving a large stiff joint and a tender spot which is easily irritated by anything, and a poor hoof. This happened three years ago. In the last few months screw worms have made frequent attacks on the tender spot and the treatment has been sheep dip and crude oil. The hoof has been cracked on the inner side for at least a year and she has been shod with a brace shoe. Recently she was trotted pretty hard on the road a few times and became lame. Then the parts above the hoof softened and broke. This was treated by dusting it with sulphate of zinc and keeping it clean. The swelling extends entirely around the hoof and reaches above the ankle. Small lumps can be felt on the bone and white gristle shows in the lower part of the abscess.—Subscriber, Laveen, Arizona.

The wire cut off the nerve that went to that side of the foot and that half of the foot is practically dead. The tender spot that seems to be so easily irritated is where the end of the nerve comes to the surface and is only partly covered by the new growth of flesh. The bone being injured so badly has probably caused anchylosis of the joint. The abscess or quittor that has recently formed will be hard to heal on account of the nerve being cut. The foot will never get right and she will not be fit for hard work but you may be able to make her pay for the keeping by using her for a brood mare. Treat the screw worms by wetting a cloth with gasoline or distillate and binding it on loosely for a short time.

Paralysis

I have a yearling colt that was playing in the pasture when something happened to him. I found him down and unable to rise. He was perspiring freely and seemed to have no control of his limbs. Have him in a sling but the sling is not tight. He eats and drinks well and seems to feel fine, but once in a while he loses his balance. What is the malady and will he get well?—Subscriber, Visalia.

Probably the colt got a hard fall and strained his back. Possibly he partially dislocated some joint in the spine. You are doing right with him. Keep him in the sling for a while and make him as comfortable as possible. When you think best give him a box stall with plenty of bedding in it and let him lie down. You may need to help him up a few times. If you can find just where the trouble is by feeling along the spine with the fingers it would be good to apply a good liniment. He will probably recover all right and be as good as ever.

Grease Heel

Have a seven-year-old mare that has been cut by wire on the hind leg between the hoof and fetlock. It has never healed properly. The leg is swollen about twice its size up to the hock. There is a continual dropping of a watery fluid from above the fetlock and the water has a peculiar odor. She is in fair condition and there is no lameness or fever. Appetite is good and she has plenty of life. Can the swelling be reduced and the leg cured?—Subscriber, Visalia.

We think it can be cured. Give internally sulphate of iron two ounces, nux vomica two ounces, powdered gentian six ounces and nitrate of potash six ounces. Mix and divide into 16 powders. Give one in the feed every night.

Observe the following directions carefully for the external treatment. Wash the leg but once, using hot water with enough lye in it to smart the hands a little. Rub dry and wrap the leg with cotton batten and put on a bandage over the cotton. Leave it on 24 hours. Then use the following lotion: Chloride of zinc two ounces and water one gallon. Every evening warm about a pint of the lotion and use it to bathe the leg, then put on the cotton and bandage; not too tight. Next morning remove the bandage and rub and brush the limb for 15 minutes. Repeat this every day as long as you think it needs it. Warm the lotion in an earthen or granite dish but not in metal.

Rheumatism

One of my mares seems to be stiff all over. When she starts to walk she humps up and seems to try to get all four feet on the same spot. Only takes a few steps at a time but after driving her a short distance she is all right. After stopping a few minutes she starts again the same way. When she walks she has her head down almost to the ground and spreads her back feet apart about 24 inches. She is in good condition. She is fed oat hay but no grain. Have not worked her in the field on account of the stiffness. There is no soreness in her feet.—Subscriber, Creston.

It must be rheumatism of the muscles of the shoulders and front legs. It may also affect the muscles of the back and loins. Keep her dry and warm and give the following powders: Salicylate of soda, bicarbonate of soda, nitrate of potash and farina, of each four ounces. Mix and divide into 20 powders. Give two powders a day for five days, then one a day while they last. Rubbing and bathing the muscles with a mild liniment will also help. This is a good liniment for such cases. Spirits of turpentine, spirits of camphor, tincture of capsicum, oil origanum, aqua ammonia and alcohol; of each two ounces and add enough water to make one quart. Shake and apply once or twice a day.

Pig With Cough

Will you kindly tell me what to do for a pig four months old which has a cold and cough? Has had it for a month or more.—Subscriber, Santa Rosa.

It is an uncommon thing for a hog to have a cold. A cough is usually a symptom of some other trouble. It may be a light case of cholera. Give him the following tonic: Four ounces of charcoal, one ounce of sulphate of iron and two ounces of powdered gentian. Mix and give a tablespoon in the feed once a day.

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.
Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Contract

Is a contract for sale of land voidable if not signed before a notary? Would changes made in a contract, if mutually agreed upon, render the contract invalid?—Subscriber, Salida.

The requirement for execution before a notary is merely to render the instrument better evidence and entitle it to be recorded. Any contract may be changed by mutual consent of parties thereto.

Water Right

I am furnishing water to a pasture adjoining mine. After how many years could I be held to the water right? Water comes from flowing well. I have had place about one year. Party owning place before me let him have water one or two years at the time the well was flowing; it didn't flow all the year round.—Subscriber.

The period under which a person may acquire title by adverse possession in this state is five years, but it does not appear from the statement that anyone would acquire any rights whatever the length of time.

Division of Property

A dies leaving his property, mostly real, by will to be divided equally among his widow and children. Several of the children are minors. Can the real property be divided by mutual consent before the minors become of age?—Subscriber, Fresno.

In case of a will probate is necessary and the court would make the division of the property in accordance with the provisions of the will. Upon good cause being shown and there being guardians appointed for the minors, the court might be able to divide the property. It would, however, depend entirely upon the provisions of the will.

Mineral Claim

If A has made a desert land entry on a piece of government land, can B afterwards locate a mineral claim on the same and drill a well for purpose of discovering mineral when the mineral deposit is supposed to be below the surface?—Subscriber, Muroc.

The desert land laws expressly except mineral lands from entry. Up to the time of patent issued by the government a mineral application for any land taken under desert act may be made, in which case upon protest filed with the land department a hearing is ordered to determine the true character of the land by the United States land office. Until such decision is made as to the mineral character of the land the mineral claimant would not be entitled to enter upon the land to bore any well in order to make a discovery of petroleum beneath the surface. In order to establish a mineral location there must be an actual discovery. There must be under the laws of this state in order to hold a mineral location a discovery of oil within the limits of the claim and it is necessary to make a showing that oil is actually upon the land before the mineral claimant can be considered as other than a trespasser as against the agricultural claimant unless the mineral land claimant has obtained the decision of the land office by establishing the character of the land as mineral. In order to obtain this decision, it is usually necessary to prove that the land is more valuable for mineral than for agricultural purposes.

NO WONDER

The jack of all trades during all ages has been the butt of the satirist. The following story illustrates the fatal propensity to cover too much ground at the same time:

Little Willie's father presented him upon occasion with a pet chameleon—one of those diplomatic little animals that change their color as the occasion may require. Willie was very much interested in his pet for several days until one evening his father noticed that he was sitting alone with a faraway look in his eyes.

"Well, Willie," said his father, "what did you do with the chameleon?"

"He is gone, father—forever."

"Gone?"

"Yes, I tried to play a new game with him."

"What kind of a game, Willie?"

"Well, I put him on a blue and he turned blue. I put him on a green and he turned green. I put him on a red and he turned red, and then—"

"What happened then, Willie?"

"I put him on a plaid and he busted himself trying to make good."

In shipping live poultry crates should be used that are not too small, so the stock will not be received in a cramped and bad condition.

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The Household Department

FATHER COYOTE

By George Sterling

At twilight time, when the lamps are lit,
Father coyote comes to sit
At the chapparal's edge, on the mountain side—
Comes to listen and to deride
The rancher's hound and the rancher's son,
The passer-by and everyone.
And we pause at milking time to hear
His reckless carolling, shrill and clear—
His terse and swift and valorous troll,
Ribald, rollicking, scornful, droll.
As one might sing in coyotedom:
"Yo ho ho and a bottle of rum!"

Yet well I wot there is little ease
Where the turkeys roost in the almond trees,
But mute forebodings, canny and grim,
As they shift and shiver along the limb.
And the dog flings back an answer brief
(Curse o' the honest man on the thief),
And the cat, till now intent to rove,
Stalks to her lair by the kitchen stove;
Not that she fears the rogue on the hill;
But—no mice remain, and—the night is chill.
And now, like a watchman of the skies,
Whose glance to a thousand valleys flies,
The moon glares over the granite ledge—
Pared a slice on its upper edge.
And father coyote waits no more,
Knowing that down on the valley floor,
In a sandy nook, all cool and white,
The rabbits play and the rabbits fight,
Flopping, nimble, skurrying,
Careless now with the surge of spring . . .
Furry lover, alack! alas!
Skims your fate o'er the moonlit grass!

FAIRY TALES OF CALIFORNIA INDIANS

WHY not American fairy tales for American children?

German children read in Grimm's Fairy Tales of water nixies in their own Rhine, of gnomes and wood folk in their own Black Forest; English children, of their own English Puck and Robin Hood; Italian children encounter in the pages of the Pentamerone the ogres of Calabria and the fairy princesses of Sicily. Why should not American children read about Coyote and Grizzly Bear, those famous heroes of native California myth?

A new world of fantastic native legend and miraculous adventure is being revealed by the University of California in the myths it is rescuing among the fast vanishing Indian tribes of California. These are being given to the world as one feature of a monumental series, "The University of California Publications in American Archaeology and Ethnology," of which 10 bulky volumes have been published during the past dozen years.

Some day these sands of native story will be sifted and the magic touch of genius will turn into pure gold, for the delight of all the children of men, California's own rich gift to the world store of myth and legend.

Here are some bits of primitive California folklore, paraphrased from Professor Pliny Earle Goddard's texts. (He took them down in phonetic writing from the lips of Old Tom Hill, an aged Chilula Indian of the Bald Hills of Northern California, or from the wife of Molasses, a very old woman who spoke the Hupa dialect of upper Redwood Creek. These tales and "medicine" rigamaroles—used for love-charms, healing, or for luck in hunting—have just been published by the University of California in the original language, and also in translation, in a volume by Professor Goddard of New York, who is now of the staff of the American Museum of Natural History, entitled "Chilula Texts."

The Monster With Two Heads

The oldest and wisest of four brothers went down the creek. As he walked along he heard something making a noise on the hillside and he saw small branches dropping from the redwood trees. Then a two-headed monster appeared. It gave chase. He ran until he was almost dead for want of breath. Finally his breath was gone—he died. The monster which had killed him carried the body across the creek and up the hill to the house of Those Who Eat People—a house so covered with moss no one would noticed it.

A day passed, and another. Worried, another of the four brothers set out. When he came to the place where the village used to be he heard something making a noise. It was the two-headed monster going along, and he made a noise in the forest like the blowing of the wind. The monster killed the second brother and carried him up the hill. Now two of them were gone.

Worried because those who had gone forth did not return, still another brother set out toward the north.

Now three were gone, and there was only one left. He was the youngest brother, and only so high. He said to his grandfather:

"Today I'm going visiting."

"My grandchild, why do you say that! They'll eat us all up!"

Then she put a belt on the youngest brother. It was this wide!

"When you're about to lose your breath, point with this belt," she told him.

Then the youngest started out.

Across the stream, up on the hillside, the redwoods were moving back and forth. It was the two-headed monster, and the monster chased him until his breath was nearly gone. He was about to be killed. But he pointed the belt. The monster fell in pieces—dead.

Then the youngest brother followed a track up the hillside. Near the head of the canyon stood a house on which ferns were growing. He went in. There sat an old woman and a boy.

"What made that noise?" said the boy. (Beside him lay a net made to catch people, for they lived on human beings, and the hillside was white with bones.)

The boy took up his net. But the youngest brother pointed his belt at him and the boy fell into two parts.

The old woman seized the net. The youngest brother pointed the belt at her. She died.

"People shan't do this way!" said the youngest brother. "They must live right! They shan't eat people!"

So he burned down the house and went home to his grandmother, and after that they lived well.

The Old Made Young

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Man Tomorrow

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the wife of Molasses—an old, old Hupa woman—and from her withered lips it had an added wistfulness:

"He-who-came-down-for-the-world came walking from the north. He came to the Middle of the World. He came where the hill stands which point toward the sky. He made hills stand up on either side. There used to be one that stood up.

"People used to go up this hill and become young again. When one who is old like me went up this hill toward the east he became young again. It used to be that way.

"Then one who lives in the south said, 'This hill shall be mine only!' for he didn't like it that those who climbed the hill should be young again.

"But it used to be that way!"

Invulnerable Grizzly Bear

Panther lived with his brothers. He used to spend all his time hunting, but every time before he set out he used to say to his brothers, "You must not go to the top of the west ridge!"

One day the brothers said to each other, "Why does he always tell us that!"

Up on the ridge they saw, away off at the end of the timber, an old man lying with his legs crossed and his wife sitting beside him.

"Old man!" they shouted, "Come over and help us pound!"

"What did you say?" asked the old man.

"Come help us pound!"

"All right," he said. And he put on his grizzly-bear-skin blanket.

The two boys ran home and slid to the door of the house. They heard him coming.

"Boys, open the door for me!" he called. When they didn't open, he climbed up on the roof and came down the smokehole. The boys gave him some venison and he ate it. When he had finished it they gave him another helping, and he ate that—he ate all the meat in the house—he ate the untanned hides. When he had finished everything he said, "Well, I'll go home!"

The boys opened the door but he was so filled he couldn't get through, so he climbed out the smokehole.

When Panther, the oldest brother, came home he carried two deer.

"Didn't I tell you not to go up on the west ridge?" he said to his brothers, and he slapped them and pinched their faces.

All that night Panther was busy flaking arrow points. In the morning he set out, carrying five quivers full of arrows. He came where the old man was lying and he shot him twice.

"Alo!" the old man cried; "what did you put in the fire that snaps so?"

"It's not the fire snapping this time," said the old woman. "He's shooting at you!"

Then the old man jumped up and took down the grizzly-bear blanket and put it on. The young man kept shooting back at him as he ran. Finally Panther had only one arrow left from his five quivers full.

"Between his toes!" called the old woman.

Panther shot him there between his toes, and the old man rolled over dead.

The Bewitched Maiden

Two men lived with their sister across the creek from Littcuwhwinnauwdin. Once upon a time an old man came from the west and said, "You'd better bring some acorns across the mountains to me." They loved their sister very much, but they concluded they would go and carry loads of acorns across to the coast. However, they warned their sister not to leave any acorns outside the house.

They set out toward the west with their loads. They went into the forest, they went up the ridge, they crossed the creek, they came to the ocean, and then they reached the house of the man who had asked them to bring acorns. There they sat down by his door.

"Come in!" someone called. When they had finished eating supper the old man said, "Well, let's go to the sweathouse." They went into the sweathouse and lay down close to each other. The old man got up. "Are you asleep?" he asked. They made no answer. When he kept on asking they knew what he was about to do—at dawn he was going to kill them by magic. So the strangers moved the old man's sons and lay in their places. The old man felt about and rubbed something in the mouths of those he supposed to be his visitors. About dawn there was a noise in the sons' throats. It was the black fluuid in their throats that made the noise. Then the old man found what he had done.

"You had no good intentions when you asked us to bring you loads of acorns," said the wise brother to the old man.

The old man replied that if he would not tell what he had done, he would give him a woman and a gift of red obsidians. The brothers refused, but made up the loads of surf fish and seaweed which had been given them in return for the acorns, with mortars in the middle of the pack.

"Well, let's go back," said one of the brothers. They started back, but as they were going up the ridge they heard that the old man's sons had died from the magic he had intended for the brothers.

The brothers went along until the sun was in the west and they had come to the place where they had intended to camp, but fearing that their sister might leave acorns outside the house, they went on.

The old man was walking after them, vainly trying to overtake them. They heard him coming. One of the brothers told the other to sit down below the trail. He himself crouched above the trail with a knife in his hand. When the old man came to a log over which he had to climb one of the brothers jumped up and stabbed him. The other caught hold of the old man and stabbed him repeatedly. Then they cut him to pieces.

So they came back from the west, and it was warm weather as they passed along. As they came along the ridge on their way home, nearly overcome with the heat, they heard a noise in the direction of their village. Their sister, for whom they had hurried back, lay dead—she had been killed by magic poison the night before, as she was bringing in acorns.

But they did not feel so badly, for they had already cut in pieces the old man who had caused her death.

A RELAPSE

Into a general store of a town in Arkansas there recently came a darkey complaining that a ham which he had purchased there was not good.

"The ham is all right, Zeph," insisted the storekeeper.

"No, it ain't, boss," insisted the negro. "Dat ham's shore bad!"

"How can that be," continued the storekeeper, "when it was cured only last week?"

The darkey scratched his head reflectively and finally suggested:

"Den mebbe it's had a relapse."

IDEAS FOR THE COOK

Written for California Cultivator
By Isabel Cottle

Breakfast

Porridge with Dates Cream
Hot Bacon Sandwich Fried Bananas
Crullers Coffee

Lunch or Supper

Cream of Spinach Soup
Escalloped Macaroni and Minced Clams
Asparagus Salad Warm Rolls
Cookies Tea

Dinner

Hamburger Steak, Seasoned with Paprika and Caraway Seeds
Rice Cheese Dressing
Creamed Turnips Chopped Pickle
Baked Indian Pudding, Cream
Coffee

Bacon Sandwich

Toast thin slices of bread. Butter and place between them crisp slices of bacon. Serve piping hot.

Fried Bananas

Slice bananas crosswise and sprinkle lightly with flour. Place a lump of butter in skillet over a moderate fire. Put in bananas and stir as little as possible to keep from burning. When thoroughly heated through remove to hot dish, sprinkling over a few drops of lemon juice, dust with powdered sugar, and serve.

Escalloped Maraconi

Boil macaroni until tender, drain and rinse in cold water. When well drained season with salt, place in baking pan and pour over part or all of the contents of a can of minced clams, according to quantity of macaroni. Cover top with cracker crumbs, dot with butter, and cook in oven until nicely browned.

Hamburger Steak

Grind two pounds of round steak and a generous piece of suet, using medium grinder and discarding gristle and stringy portions. Season with salt, two-thirds of a teaspoon of paprica and half a teaspoon of caraway seeds. Then add one-half cup sweet milk. Form into cakes, flour and fry.

BIRD SANCTUARY AT SEA

Mrs. Ada Cambridge, the English novelist, describes in the following beautiful verses the sad destruction of birds lured, during the dark nights of the migratory season, to the lighthouse lamps:

Confused, dismayed, they flutter in the gale,
Those little pinions that have lost their track;
The gallant hearts that sped them reel and fail
Like ships aback.

Sucked in a magic current, like a leaf
Torn from autumnal trees, they drift abroad,
But ever nearer to the siren reef,
The ruthless sword.

On, on, transfixt and swooning, without check,
To the lee shore of that bedazzling wall,
Until they strike, and break in utter wreck,
And founder all.

Brave little wings, that sailed the storm so well,
Trimmed to the set of every wayward blast!
Brave little hearts, that never storm could quell,
Beaten at last!

The great sea swallows them, and they are gone,
Forever gone, like bubbles of the foam;
And the bright star that lured them, shining on,
Still points to home.

It is a pathetic fact, broad in its appeal, that the beacon which guides the storm-tossed sailor safely to the haven where he would be, should be the cause of the merciless death, each year, of thousands of helpless birds, bound upon long, mysterious journeys under darkened skies.

For years it has been thought that the birds, hypnotized by the light, dashed themselves against it, to their death. Mr. Thijsse, however (a Dutch naturalist), has learned from three years' experimenting, that the birds are seeking a resting place, as they fly round and round the baffling light, and those who fall to die within the lighthouse gallery, or the sea below, have fallen from sheer exhaustion.

Working under the supervision of Mr. Thijsse, and by permission of the authorities of Trinity House, the Royal Society for the Protection of Birds, less than two years ago erected perches for birds on the lighthouses of St. Catherine's in the Isle of Wight and the Casquets off Alderney.

Mr. Thijsse's experiments at the Great Terschelling Light showed that the loss of bird life there had thus been reduced from thousands in a night to something like a hundred during the entire migration season. The reports of the English lighthouse keepers to the Council are, practically, to the same effect.

"Thousands of birds," say these reports, "instead of fluttering on weary wing around the baffling light, discovered the long line upon line of perches, and crowded upon them. . . thousands of little birds, huddled together thickly, birds of many species and varying sizes, but all alike in their strange passion to reach their native place." "It was," said one witness, "the most wonderful sight I have ever seen in my life."

The installation of bird perches at a lighthouse, according to the report of the English Society, costs from $300 to $500, running expenses averaging about $50 to $75 per year.

The Royal Society for the Protection of Birds is planning to make bird sanctuaries at all lighthouses where the destruction of birds has been most noted, thus changing these death-luring lights into havens of safety and rest.—Our Dumb Animals.

ON LETTER WRITING

Most of us, in time, answer business letters and invitations to dinner, but to our friends, unless we want something, we seldom write. If, when the inspiration seizes us, we do not at once "take our pen in hand," we are likely to put off writing every time the thought of it occurs to us.

Sometimes we cannot think of a happy way of phrasing what we have to say; and we are afraid we may say the wrong or the awkward thing. It may be selfishness that holds us back from expressing our thanks, or our congratulations, or our condolence to our friends, and so the letter remains unwritten. Sometimes it is ignorance or inexperience; we do not realize that the conventions of society require that we should make some acknowledgement to our friends of favors and kindnesses received, just as we are expected to call after we have been to a dinner party.

Nothing brings more pleasure than an unexpected personal letter, or a gracious note of thanks; a pleasant greeting on a friend's birthday, a comforting word in time of sorrow, a line of congratulation when one has met with happiness or good fortune, a graceful note of appreciation of little courtesies—any one of these takes but a few moments, and there is no reason why we should not all write such letters oftener.

Letters should be timely. Christmas letters should not be delayed until nearly Easter; nor letters of congratulation until the memory of the pleasant event has grown dim. Everyone likes to feel that his friends have thought of him at the time of his success, or his joy, or his sorrow. Besides, if you do not write when the thought is fresh, the letter may perhaps never be written.

Even from a purely selfish point of view, it would be a good thing to learn and parctice the art of the graceful note. There are few things that bring one surer favor, or that give one better standing with one's friends than a reputation for thoughtfulness in letter writing. It is an art one can cultivate, and a habit one can acquire. It is well to begin practicing early.—Youths Companion.

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Signed_____

Address_____

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, Jan. 13, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Butter remains at last weeks quotations.

Prices to trade 4 cents above following quotations:

Creamery Extras 26
First 24
Country 20
Ladle 19

CHEESE

Prices to trade, 1 and 2 cents higher:

California Fresh ....15½@16
Domestic Swiss ....20@21
Eastern Daisy 18½
Longhorn ....18½@19
Imported Swiss ....34@35
Oregon Triplets 18

EGGS AND POULTRY

The usual spring decline is carrying eggs lower every week, while the European war is carrying all kinds of feedstuffs higher.

Prices to trade, 3 cents higher than following quotations:

Fresh ranch, case counts 32
Candled ....34@36
Northern case counts 33½
Petaluma-Santa Rosa 34½

Prices to producers:

Hens, lb. ....15@18
Roosters, old 9
Broilers, lb. 26
Fryers 20
Roasters, lb. 15
Turkeys ....18@20
Ducks 17
Geese 16
Squabs, doz. 2.00

LIVE STOCK

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs., per cwt 7.85
Prime Steers ....7¼@7½
Heifers ....6¼@6½
Calves, lb. ....8½@9
Sheep—
Ewes, head 4.50
Wethers ....4.50@5.00
Lambs, head ....4.50@4.75

POTATOES

Wholesale selling price:

Idaho ....1.50@1.55
Sweets, lug ....75@80
Northern Burbanks, cwt ....1.40@1.50
Salinas ....1.90@2.00
Shimas ....1.50@1.60
Lompocs ....1.90@2.00

ONIONS

Australian Brown, cwt ....1.50@1.65
White Globe ....4.50@4.75
Yellow Danvers ....1.50@1.65
Spanish Red Globes ....1.25@1.60
Garlic ....15@17

VEGETABLES

Wholesale selling price:

Artichokes, Northern, doz ....1.00@1.15
Beets, doz. ....30@35
Beans, String ....13@14
Lima ....5@6
Cabbage ....70@80
Carrots, doz. ....30@35
Cauliflower, doz. ....70@80
Celery, crate, northern ....2.25@2.50
Local ....1.75@2.00
Cucumbers, hothouse ....75@2.00
Egg Plant ....12@14
Escarole, doz. 40
Horseradish, lb. ....9@11
Leeks, doz. ....35@40
Lettuce, crate ....85@1.00
Mint, doz. ....35@40
Mushrooms, Outdoors 25
Okra, lb. ....9@10
Onions, Green, doz. bunches ....15@20
Oyster Plant ....35@40
Peas, lb. ....13@15
Parsnips, doz. ....30@35
Peppers—
Bell, lb. ....13@15
Chili, lb. ....6@8
Pimientos ....14@15
Pumpkins, lb. ....1@1½
Radish, doz. ....20@30
Rhubarb, box ....80@1.00
Spinach, doz. ....20@25
Squash—
Summer, lug ....1.25@1.40
Chayote, lug 75
Crookneck ....50@60
Hubbard, lb. ....1¼@1½
Turnips ....30@35
Tomatoes, lug ....1.10@1.25

FRESH FRUIT

Wholesale selling price:

Apples—
Bellflowers ....75@1.00
Jonathans ....1.35@1.60
Spitzenbergs ....1.35@1.75
Guavas, bsk ....5@7
Rome Beauties ....1.25@1.35
Pearmains ....75@90
Bananas ....3½@4
Berries—
Strawberries, basket ....5@10
Blackberries ....13@15
Casabas, doz. 1.25
Cranberries, bbl. ....9.00@9.50
Figs, box ....1.50@1.75
Grapes ....1.10@1.35
Pears, Winter Nells, lug 1.50
Persimmons, lb. ....5@8
Pineapples, lb. ....5@6
Pomegranates, box ....1.50@1.75
Quinces ....75@85

CITRUS FRUIT

Wholesale selling price:

Lemons ....1.000@2.00
Grapefruit, Seedless ....2.15@2.35
Navels ....1.50@1.75
Tangerines ....1.75@2.00
Limes, basket ....75@1.00

DRIED FRUITS

Wholesale prices to retailers are:

Evaporated Apples, Fancy, lb. boxes ....6¼@8
Apricots ....8¾@11½
Nectarines 12½
Peaches ....5¾@6¾
Pears ....10@11
Prunes ....5¾@11
Plums 10

HONEY

Wholesale selling price:

Comb, Fancy, Water White 14
White 6½
Light Amber 11
Extr. Water White 7
White 6
Light Amber 5½
Beeswax 32

NUTS

Prices named by California Walnut Growers' Association are:

No. 1 ....16½
Budded Walnuts 20
Jumbos 19
No. 2 12
Culls 9

Prices fixed by California Almond Growers' Exchange, f. o. b. California.

Almonds—
Nonpareil 21
I X L 20
N P U 19
Drake's Thinshell 15
Pecans 17
Peanuts—
California, Raw 6
Japan 7½
Eastern 7½
Rice Corn ....5.00@5.25

RICE

Wholesale selling price:

California ....4.75@5.00
Broken 3.75

BEANS

Wholesale selling price:

Producer's price not far from one dollar under these quotations:

Limas ....5.75@6.00
Bayous 6.00
Lady Washington ....5.15@5.25
Pinks ....4.15@4.25
Black Eyes ....4.50@4.75
Lentils ....8.00@9.00
Navy ....5.25@5.35
Small White ....4.90@5.00
Garbanzos ....6.00@7.50

HAY

Buying prices f. o. b. cars Los Angeles:

Barley ....10.00@11.00
Wheat Hay ....10.00@11.00
Tame Oat ....11.00@13.00
Alfalfa ....9.00@11.00

GRAIN

Grains and feeds have taken a phenomenal advance, dictated by the general grain advance of the east, caused by war conditions. It is now plain that grain will now advance to prices never before known. Speculators are buying wheat everywhere.

Wholesale selling prices f. o. b. Los Angeles:

Corn, Yellow 2.10
Corn, White 2.20
Wheat ....2.70@2.85
Oats, Red 2.45
Oats, White 2.00
Millet 3.75
Popcorn ....4.75@5.00
Egyptian Corn 2.05
Barley Seed 1.80
Milo Maize 1.85
Cal. Seed Oats 2.05
Texas Seed Oats 2.45
Rye 2.20
Sunflower Seed 6.50

FEED STUFF

Wholesale selling prices f. o. b. Los Angeles:

Bran, Heavy 1.80
Alfalfa Meal 1.15
Alfalfa Molasses, per cwt 1.20
Beef Scraps 3.00
Beet Pulp 1.25
Cracked Corn, cwt 2.15
Crack Wheat, cwt 2.85
Cotton Seed Meal 1.80
Bloodmeal 3.60
Bone Meal 1.95
Meat Meal 3.00
Bone, Green 1.85
Charcoal 1.90
Oil Cake Meal 2.20
Fish Meal ....3.15@3.25
Rolled Oats 2.05
Rolled Barley 1.75
Middlings 2.10
Feed Meal 2.20
Oat and Wheat Middlings 1.70

San Francisco Market

SAN FRANCISCO, Jan. 12, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade, 4 cents above following quotations:

Extras 26½
Prime First 24
Firsts 23½
Fancy Creamery 29½
Seconds 23

CHEESE

Wholesaler to retailer.

Oregon Y. Am 16
Young America ....12½@13
California Flats ....10@13
Cheddar 20
Oregon Twins 14½

EGGS AND POULTRY

Eggs are declining rapidly and large quantities of Chinese stuff are coming in.

Prices to trade 3 cents higher than following quotations:

Extras 33½
Select Pullets 30
Storage Extras 31
Select Pullets 35½
Storage Select Pullets 27

Price to producer:

Hens, lb. ....15@17
Eastern ....16@19
Fryers ....17@18
Roosters, old 11
Roosters, young ....16@17
Broilers ....17@18
Ducks ....15@17
Geese, pr. ....2.00@3.00
Squabs ....2.50@3.50
Belgian Hares, lb ....9@10
Turkeys, live ....16@19
Dressed ....20@24

LIVE STOCK

San Francisco prices, gross weight:

Steers ....4@7¼
Cows and Heifers ....3@6¼
Calves, lb., live weight ....6@8½
Hogs ....5@7½
Wethers ....6@6½
Ewes ....5¼@5¾
Milk Lambs ....7@7½

POTATOES

Wholesale selling price:

Delta Burbanks ....1.00@1.10
Salinas Burbanks ....1.50@1.70
Oregons ....1.25@1.40
Idaho ....1.20@1.25
Sweets, cwt ....1.65@1.75

ONIONS

Wholesale selling price:

Yellow ....90@1.00
Bermudas, crate ....90@1.25
Garlic, new ....12½@15

VEGETABLES

Wholesale selling price:

Beans—
Wax ....6@8
Strings ....10@15
Limas ....8@10
Brussels Sprouts, lb. ....2@4
Cabbage, cwt ....1.00@1.25
Carrots, sack ....30@40
Celery, doz. ....10@15
Cucumbers, lug ....1.25@1.50
Egg Plant, lb. ....3@6
Lettuce—
Southern ....50@75
Delta ....1.00@1.50
Peas, lb. ....8@15
Peppers—
Bell, lb. ....6@8
Chili, lb. ....3@4
Squash, sack ....25@35
Summer, crate ....75@1.00
Tomatoes, crate ....50@1.25
Southern, crate ....40@75

FRESH FRUIT

Apples—
Newtown Pippins ....50@90
Bananas, Hawaiian, bunch ....1.25@1.75
Cranberries, bbl. ....12.00@13.00
Grapes lug ....80@1.00
Pears, Winter Nelis, wrapped, box ....1.00@1.50
Pomegranates, box ....50@1.00
Pineapples, doz. ....2.75@3.25
Persimmons ....50@1.00
Quinces, box ....25@40
Strawberries, chest ....3.50@5.00

CITRUS FRUIT

Wholesale selling price:

Grapefruit, Seedless, new crop ....1.50@2.25
Lemons ....1.50@2.50
Lemonettes ....1.00@1.50
Limes, case ....3.00@5.00
Navels ....1.20@1.85
Tangerines, halves ....75@1.40

DRIED FRUITS

Wholesale prices are:

PRUNES—1914 crop, bulk basis: 30-40s, 7c; 40-90s, 6½c; 90-100s, 6c. The above are for both Santa Clara prunes and stock from outside sections.

Other Fruits. 50-lb. boxes—	Standard	Choice	Extra Choice	Fncy
Evapt'd apples	....	5½c	5¾c	6 c
Apricots	9 c	9½c	10 c	11 c
Peaches	4 c	4¼c	4½c	5¾c
Pears	7 c	8 c	9 c	10 c

RAISINS

RAISINS—The following prices are f. o. b. Fresno, as given out by the Associated Raisin Company, for immediate shipment, and are guaranteed against a decline till April 1st: Fancy seeded, 16-oz., 7¼c; 12-oz., 5⅞c; bulks, 6c; choice seeded, 16-oz., 6⅞c; 12-oz., 5⅝c; bulk, 5½c; Thompson seedless, No. 1, 16-oz. pkgs., 7⅝c; 12-oz., 6¼c; 50-lb. cs., 6½c; loose, Muscatels, 1-crown, 5½c; 2-crown, 5½c; 3-crown, 5⅞c; 4-crown, 6c; Sultanas, 50-lb. cs., 5¾c; bulk, layers, 50-lb. bxs., $2.75; in 20-lb. bxs., 6-crown, $2.75; 5-crown, $2.25; 4-crown, $160; 3-crown, 5-lb. bxs., $1.50; on all bulk stock, 50c additional. Cartons—Clusters, 20 to cs., No. 1, $1.70; No. 2, $2.10; No. 5, 4 to cs., $2.25. Local representatives of the association are asking about ¼c higher, while several of the largest independent packers are quoting ½c under these figures.

NUTS

ALMONDS—Prices fixed by Almond Growers' Exchange to the trade, f. o. b. California:

Nonpareil 21
I X L 20
Ne Plus Ultra 19
Drakes 16

Wholesale selling price:

Peanuts—
Unpolished ....5@8
Polished ....6@6½
Shelled, Jap ....6¼@6¾
Italian Chestnuts ....6½@7

BEANS

Wholesale selling price:

Limas ....5.45@5.55
Lady Washington ....3.60@3.75
Pink ....3.60@3.70
Black Eyes ....4.50@4.60
Cranberry ....4.70@4.80
Small White ....4.70@4.80
Garbanzos ....5.75@6.00
Large White ....4.50@4.60
Bayou ....5.45@5.60
Manchurian Speckled Bayous ....3.60@3.70
Manchurian Butters ....3.90@4.10
Manchurian Cranberry ....4.15@4.25
Red Mexican ....5.50@5.60
Red Kidney ....5.50@5.75
Horse Beans ....3.00@4.00
Bayou ....5.35@5.50

HONEY

Comb, Water White ....14@16
Comb, Water White ....14@16
Amber ....10@12
Dark ....7@10
Extracted White ....7@9
Light Amber 5½
Dark ....4@5½
Beeswax ....27@32

HOPS

1914

Sacramento Valley ....7@9½
Sonoma-Mendocino ....9½@11½
Oregon Clusters ....9½@11½

HAY

Under date of January 9, Scott, Magner & Miller says:

Receipts of hay for the past week were 2379 tons. Arrivals of alfalfa have been light. A few carloads of straw arrived during the week. Prices remain the same.

Fancy Wheat Hay, lt. bales ....11.00@12.00
No. 1 Wheat or Wheat and Oat ....9.00@10.50
Oat ....9.00@10.00
No. 2 Wheat or Wheat and Oat ....6.00@8.50
Choice Tame Oat ....10.50@12.00
Other Tame Oat ....6.00@9.00
Barley ....5.00@8.50
Wild Oat ....6.00@8.00
Alfalfa ....6.00@9.00
Stock Hay ....4.50@5.00
Straw ....30@45

GRAIN

Wholesale prices.

Alfalfa Seed ....14@16
Wheat, Cal. Club ....2.22½@2.25
Wheat, Cal. Club ....2.05@2.07½
Corn, Eastern Yellow, blk ....1.55@1.57¼
Corn, Egyptian White ....1.75@1.80
Barley, Feed ....1.42½@1.47½
Shipping and Brewing ....1.26¾@1.27½

WEATHER CONDITIONS

For Week Ending January 9, 1915

Report from the various stations of the U. S. Weather Bureau, by Geo. H. Wilson, director, San Francisco:

	Rainfall Data: Past Week.	Rainfall Data: Seasonal to Date	Rainfall Data: Normal to Date.	Temperature Data: Maximum.	Temperature Data: Minimum.
Eureka	5.70	21.23	18.64	58	36
Red Bluff	2.84	10.94	11.09	54	34
Sacramento	1.54	6.27	7.89	56	38
San Francisco	2.02	8.52	9.29	58	44
San Jose	1.63	7.22	6.85	58	34
Fresno	1.00	3.35	4.05	58	34
Independence	0.00	0.52	4.01	50	24
San Luis Obispo	1.14	7.35	7.25	60	40
Los Angeles	0.34	4.58	5.87	68	46
San Diego	0.06	4.18	3.64	66	46

T means trace.

Oats, White	1.55@1.60
Oats, Red, Seed	1.35@1.45
Oats, Red, Feed	1.30@1.40
Millet	3@3¼
Flax	6@6½
Rye	1.50@1.60
Sunflower	5@5½

FEED STUFF

Wholesale prices.

Alfalfa Meal, car lots	15.00@15.50
Bran, ton	29.50@30.00
Feed Cornmeal, ton	38.00@38.50
Cracked Corn	38.00@38.50
Rolled Barley, ton	29.50@30.50
Rolled Oats, ton	37.00@37.50
Middlings	32.00@33.00
Shorts	30.00@32.00
Oilcake Meal	36.00@37.50
Cocoanut Oilcake Meal	23.00@24.00

Citrus Fruit Market

LOS ANGELES, Jan. 13, 1915.

From present indications shrewdest observers have decided that the coming season offers no promise of exceptionally large returns. California stock was never finer and the quantity is not excessive, but general trade conditions do not offer opportunity for ready sales except at comparatively low prices. The frozen stock caught in the eastern blizzards has been nearly all cleaned up. The southern end of the state is beginning shipping and this is being well received.

Lemons were some of them caught in the freeze and these have sold at almost any price which could be secured. Shipments are again going forward and these are commanding only fair prices.

Shipments

Shipments or oranges to date from Southern California since Nov. 1, 1914, 1351 cars, lemons 563, total 1914. To same date last season, oranges 2051, lemons 289, total 2340. From Tulare County, oranges 4913 cars, lemons 88, total 5001. Last season, oranges 3937, lemons 23, total 3960. From northern counties, oranges 470, last year, same date, 365.

NEW YORK, Jan. 11.—Twenty-three cars navels, one Arizona navels, two cars California lemons sold. Market is unchanged on both oranges and lemons. Cloudy.

NAVELS—	Avg.
Maljan Blue	$1.35
Maljan Red	1.10
Heart, Merryman F. L. & L. Co.	2.15
Washington, Merryman	1.90
H. & M., Merryman	2.05
Washington, Merryman	1.95
Mt. of Olives, imp., Growers Ft. Co.	1.70
Olive Hgts., imp., Growers Ft. Co.	1.60
Diamond Mtn., Randolph Ft. Co.	2.05
Heart, Merryman	2.10
Washington, Merryman	1.85
ARIZONA NAVELS—	
Desert	$3.10
Tonto	1.75
ARIZONAS—HALVES—	
Desert	$1.35
Tonto	1.05
CALIFORNIA TANGERINES—	
Diamond Mtn., halves	$1.30
LEMONS—	
Lotus	$1.15
Monogram	.95
Oriole	1.30
Airship	1.40

NAVELS—	Avge.
Blue Moon, A. F. D. Covina	$1.20
Royal and Valley, J. McInnes	1.05
Mutual, M. O. D. Redlands	1.15

BOSTON, Jan. 11.—Fifteen cars oranges, one car lemons sold. Cloudy, cold. Market is unchanged.

NAVELS—	Avge.
Gold of Ophir, B.C. Ther	$1.80
Oakleaf, T.C. Porterville	1.75
Full Value, T. C. Porterville	1.55
Mid-Cal., T.C. Porterville	1.85
Forget-me-not, T.C. Porterville	2.00
Sansegal, C.C. Lindsay	2.50
LEMONS—	
Whittier, S.T. Whittier	$2.90
Pico	2.80

PHILADELPHIA, Jan. 11.—Four cars navels, one car lemons sold. Cold. Market is steady. Forty-five cars Florida selling here today.

NAVELS—	Avge.
Gateway, C.C. L. Cove	$1.65
Forget-me-not, T.C. Porterville	1.80
H. & M., Merryman F.L. & L. Co.	1.85
Washington, Merryman	1.60
Washington, Merryman	1.75
LEMONS—	
Victor, O.K. Etiwanda	$2.75
Crest	2.55

PITTSBURGH, Jan. 11.—Seven cars navels, one car lemons sold. Cool.

NAVELS—	Avge.
Cleghorn, Cleghorn Bros.	$1.65
Prospector	1.50
Oakleaf, T.C. Porterville	1.60
Full Value, T.C. Porterville	1.55
Gold of Ophir, B.C. Thermolito	1.65
Sphynx, C.C. Lindsay	1.75
Oroflora, C.C. Lindsay	1.60
King Campbell, C.C. Wahtoke	1.85
LEMONS—	
Log Cabin, L.F. Escondido	$2.20
Hillside Gem	1.80

CLEVELAND, Jan. 11.—Four cars navels, one car lemons sold. Market is advancing on navels. Prices low on lemons account quality and condition. Cool.

NAVELS—	Avge.
Oakleaf, T.C. Porterville	$1.90
Strathmore, T.C. Strath	2.10
A One, American Ft. Dis.	2.25
Golden Trout, Randolph Ft. Co.	2.05
LEMONS—	
Basket, C.C. Lindsay	$2.55
Gateway	1.65
Buckeye	1.70
Hetch Hetchy	1.60

ST. LOUIS, Jan. 11.—Cold, raining. Market is strong on lemons, steady on oranges; five cars navels, one car lemons sold.

NAVELS—	Avge.
Gold of Ophir, B.C. Thermalito	$1.75
Table Mtn., B.C. Ther.	1.65
Prairie Chicken, A.H. Arl.	1.85
Spanish Girl, A.H. Arl.	1.65
Domino, C.C. Lindsay	1.90
LEMONS—	
Pico, S.T. Whittier	$3.05

, CINCINNATI, Jan. 11.—Cool. Prices low account condition of fruit. Good demand for navels. Market declining on Floridas. Three cars navels, seven cars Floridas sold. Floridas sold $1.20 to $2.05, average $1.60.

NAVELS—	Avge.
Blue Label, C.C. Lindsay	$1.65
Vista del Robles, Stewart Ft. Co.	1.50
Orchid, Altland Ft. Co.	1.55
Defender, Altland Ft. Co.	1.45

Jan. 11.—Lemons, box, $1.00@3.00. Apples, barrel, $1.75@4.25. Oranges, box, $1.50@2.75. Grapefruit, box, $1.75@2.25. Cranberries, barrel, $4.00@7.00. Pineapples, cases, $1.50@2.25.

If your woodwork is finished in the natural wood and needs varnishing to brighten it up, it must be thoroughly cleaned before applying the varnish. Remember, varnish does not cover spots or soiled places like paint, but mirrors everything through, making it more noticeable than before. There is no objection to using soap for this purpose, providing it is carefully washed off with pure water and dried before applying the varnish. To get the best results the old varnish should be lightly sandpapered after it is cleaned and dried, before applying the new coat. About No. 1 sandpaper is right for this purpose. The work of the sanding.

In painting implements it is usually more convenient to take them apart and hang the separate parts where it is easy to get all around them. If there are several wagons to be painted it will save a good deal of labor to set an old axle or spindle so that they can be placed on it, allowing the painter to stand erect and turn the wheel instead of climbing around it.

For most of the farm buildings, whitewash may be used and made to serve a double purpose. The disinfectant may be mixed with the wash and it will not only give the interior a clean, sparkling appearance, but will also destroy any infection which might remain.

The uses for paint on the farm are many and varied. Not only does the timely use of paint keep the farm buildings in good condition, but at the same time it adds to the appearance of the buildings at least 50 per cent.

Direct selling by parcels post will make slow progress unless the farmers are willing to divide the middleman's profits with the consumers. City people will not buy direct unless they can save money by so doing.

A careful man will use only the best seed that is adapted to his locality. Good seed is a necessity, but no seed can give satisfactory results unless it receives good cultivation.

HOW OLD IS ANN?

They tell the story of a Florida grower who allowed a commission handler to sell his grapefruit. The commission man reported that the car sold at $14 less than the cost of handling, and asked that this amount be remitted. Said the grower to a friend of his: "I suppose I will have to send him a check to cover?" "No," said the friend, "why not send him $14 worth of grapefruit?"

The question is, and it parallels the one of "How old is Ann?" How much grapefruit would be $14 worth if one car was worth $14 less than nothing? Figure it out.

Books

This list of helpful, instructive and interesting books is prepared by us with the purpose of enabling the Cultivator readers to supply themselves at the lowest possible cost. The great value of many of these is so well known as to need no comment from us. Some of the new books which we have added to the list this year deserve special mention. "Co-Operation in Agriculture," by G. Harold Powell, should be in the hands of every producer of farm products. "Farm Sewage," by Santee, will aid many in solving a perplexing problem. "Farm Manures," by Thorne, is decidedly valuable. We state sincerely that no orchardist can afford to get along without "The Pruning Book," by Bailey. We have had much inquiry for a book on keeping farm accounts—we can supply a good one now. The imported book, "Insecticides, Fungicides and Weedkillers," by Bourcart, is a marvel of completeness. The rapidly increasing use of gasoline engines, automobiles and tractors by the farmers has demanded reliable treatises on these subjects. "The Gasoline Engine on the Farm," by Putnam, "The Modern Gasoline Automobile," by Page, and "Traction Farming and Traction Engineering" are exceptionally complete, well illustrated and easily understood. Don't overlook the "Cement Workers' Handbook"—it's "worth its weight in gold." Every book on this list has the endorsement of the California Cultivator.

	Book Alone.	With Cultivator.	Free for the following number of new Subscribers.
American Grape Growing, by Hussman	$ 1.50	$ 2.25	3
Arid Agriculture, by Buffum	1.50	2.35	3
Book of Alfalfa, by Coburn	2.00	2.75	4
California Soils, by Prof. Gilbert E. Bailey	1.50	2.20	3
Cyclopedia of Agriculture, by Bailey	20.00	20.00	40
Cement Worker's Handbook	.50	1.30	1
Citrus Fruits and Their Culture, by Hume	2.50	3.25	5
Co-operation in Agriculture, by Powell	1.50	2.40	3
Domestic Water Supplies on the Farm, Fuller	1.50	2.30	3
Date Growing, by Popenoe	2.16	2.85	4
Feeds and Feeding, by Henry	2.25	3.00	5
Farm and Garden Rule Book, by Bailey	2.17	2.90	4
Farm Sewage, by Santee	.50	1.40	1
Field Manual for Beet Sugar Growers, Adams	1.00	1.85	2
Fruit Growing in Arid Regions, by Paddock	1.50	2.40	3
Farm Manures, by Thorne	1.50	2.25	3
Farm Friends and Farm Foes	.90	1.85	2
Farmers of Forty Centuries, by King	2.15	2.95	4
Fertilizers, Source, Purchase and Use (Smith)	1.00	1.90	2
Garden Helps, by Hall	.75	1.65	2
Gasoline Engine on the Farm, by Putnam	2.00	2.60	4
Garden Book of California (Ornamental) by Angier	2.00	2.85	4
How to Keep Farm Accounts	1.00	1.75	2
Hand Book for Farmers and Dairymen, by Woll	1.50	2.30	3
Irrigation and Drainage, by King	1.50	2.40	3
Insecticides, Fungicides and Weed-killers	4.50	4.75	9
Modern Gasoline Automobile, by Page	2.50	3.10	5
Milk and Its Products, by Wing	1.50	2.40	3
Making the Farm Pay, by Bowsfield	1.15	1.95	2
Nursery Book, by Bailey	1.50	2.40	3
Practical Garden Book, by Bailey and Hunn	1.00	1.90	2
Primer of Irrigation, by Anderson (paper cover)	1.00	1.85	2
Pruning Book, by Bailey	1.50	2.40	3
Story of the Soil, by Hopkins	1.50	2.35	3
Soils, by Hilgard	4.00	4.75	8
Swine in America, by Coburn	2.50	3.25	5
Traction Farming and Traction Engineering	1.65	2.25	3
Science and Practice of Cheese Making	1.75	2.50	4
Soil Fertility and Permanent Agriculture, Hopkins	2.70	3.50	6
POULTRY, ETC.			
Built and Used by Poultrymen (excellent)	.50	1.25	1
Belgian Hare Guide	.25	1.20	1
Ducks and Geese	.75	1.65	2
Leghorns, All Varieties	1.00	1.85	2
Minorcas—Every Comb and Color	.50	1.45	1
Practical Rabbit Keeping	1.25	2.10	2
Perfected Poultry of America	2.50	3.00	5
Poultry Houses and Fixtures	.50	1.40	1
Pigeons—All About Them	1.00	1.90	2
Reliable Poultry Remedies	.25	1.20	1
Rhode Island Reds	.75	1.65	2
Turkeys	.75	1.65	2
Western Poultry Book, by Mrs. Basley	1.00	1.75	2
BEES			
A B C and X Y Z of Bee Culture	$ 1.50	$ 2.35	3
Beekeeper's Guide, by Prof. Cook	1.20	2.00	3

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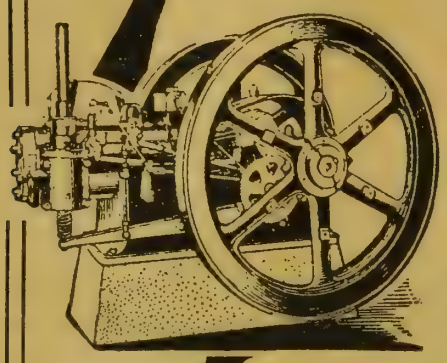

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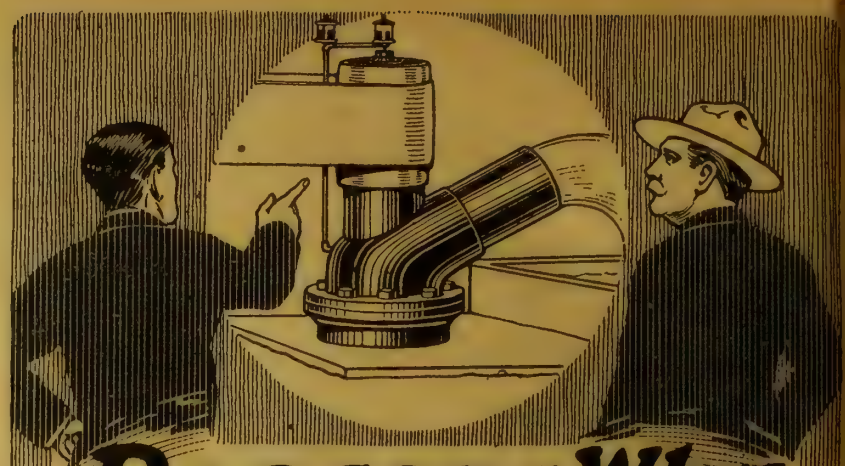

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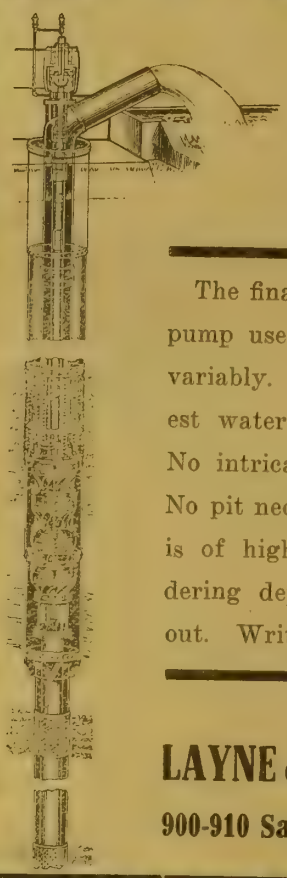

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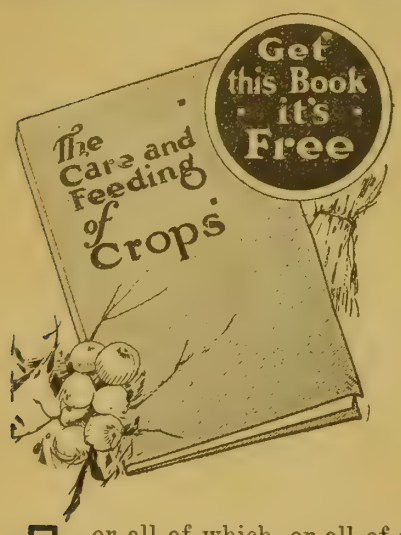

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Your crop yield will be limited by one particular plant food element which may be deficient in the soil. You may know that such conditions as temperature, lack of moisture, excess of moisture, poor drainage, alkali or acid conditions and soil texture, as well as poor cultural methods such as lack or excess of pruning and imperfect cultivation, any or all of which, or all of them, will limit your crop.

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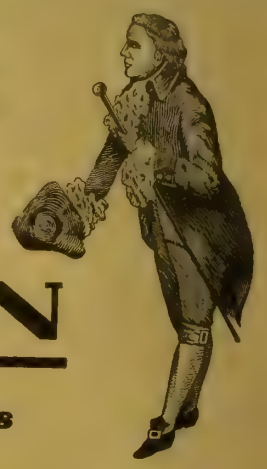

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Vol. XLIV No. 3 LOS ANGELES: THURSDAY, JANUARY 21, 1915 One Dollar Yearly

Pumpkins and Pie Melons

Analysis of Food Values Shows Real Value of These Foods and Comment Thereon is Made for Cultivator Readers by Dr. Leroy Anderson

BULLETIN No. 132 of the California agricultural experiment station contains, among other good things, the analyses of various foods for various animals. I will quote a few to show the comparison in food value between pumpkins and other well known and used feeds, especially for the dairy:

Feed Stuffs	Pounds Dry Matter in 100 lbs.	Pounds of Digestible —Nutrients in 100 lbs.— Protein	Carbo-hydrates	Fat	Nutritive Ratio
Green alfalfa	20.0	3.7	7.3	0.6	1:2.3
Green sorghum	20.6	0.6	12.2	0.4	1:21.8
Corn silage	24.6	1.3	13.5	0.6	1:11.7
Beets, mangels	9.1	1.1	5.4	0.1	1:5.1
Pumpkins, Connecticut field	9.1	1.0	5.8	0.3	1:6.6
Pie melons	5.5	0.7	3.3	0.2	1:5.4

Of the above foods, pie melons are of least value, pound for pound of green weight. I take it that this is the melon that is sometimes called citron melon. But the dry matter contained therein is equal to the same amount of dry matter in beets or corn silage. The chief difference is that the cow must eat more water in pie melons than in corn silage to get the same nourishment. In feeding trials with pumpkins (which I presume were the yellow Connecticut field pumpkin) the Vermont agricultural experiment station in 1908 found that two and one-half tons of pumpkins are equal to one ton of corn silage for producing milk. The cows eating pumpkins produced 5 per cent more to the unit of dry matter than the cows eating corn silage. The quality of the milk was not changed by feeding pumpkins.

Turning to the table at the head of this article, the reader will notice that the amount of dry matter in corn silage is 2.7 times that in pumpkins. If we then take the amount of dry matter in the feeds as a basis of judgment we find pumpkins doing a little better in the Vermont trial than they would be expected to do according to dry matter content. But approximately they show up in actual tests as good, pound for pound of dry matter, as corn silage. This is my basis for the statement above that pie melons may be considered on the same basis. They may be better than sorghum according to dry matter, because sorghum is much lower proportionately in protein and high in carbohydrates (sugar). They may not be so good as alfalfa according to dry matter, because alfalfa is very high in protein and relatively low in carbohydrates.

As to the seeds, feed them also. The Vermont trials were with seeds fed. Professor Henry says, "There is a tradition among farmers that pumpkin seeds increase the kidney excretions and should be removed before feeding. The United States Dispensatory states that the pumpkin seed is a vermifuge, with no reference to any other property. The seeds contain much nutriment and should not be wasted."

On the basis of dry matter one pound of pumpkin is equal to nearly two pounds of pie melons. The latter must therefore produce twice the tonnage per acre to be as profitable to grow as pumpkins. This may be said, however: that the melons seem to thrive better on light sandy soil than pumpkins. This is the strong point with melons and renders them available on soil where other crops may not be profitable. If any dairyman has such land that nothing seems to thrive on, plant pie melons. Give them a little care and they will pay for it. In this state of California too many dairymen are prone to rely on one food—alfalfa, for instance—and the cows need variety. On any land where it is possible plant and grow something else to give those poor cows a change of diet.

Besides furnishing actual food material, melons, pumpkins and beets have a beneficial action upon the digestion. For this reason, when the cows' ration of all hay is supplemented with one of them the increased milk yield is out of proportion to the real food content of the melon or beet. Moreover, the cow will eat more on a varied diet than on hay alone, which is what we want her to do, for then she is able to make more milk.

It is possible to overfeed with pumpkins or melons, but as to the number of pounds per day to make trouble, I am not sure. Sugar-beet pulp has about the same amount of dry matter as pumpkins—i. e., ten pounds in 100. In a feeding trial at Cornell University I fed as high as 90 pounds per day per cow and had no bad effects. I noticed that the cows eating so much beet pulp did not drink so much water as cows on silage or on hay. They naturally would not, for in 90 pounds of beet pulp there would be 81 pounds of water. In 100 pounds of pie melon there are 94.5 pounds of water and 80 to 90 pounds of water in 10 to 11 gallons—a pretty good drink for bossy to take at a sitting. Compare alfalfa hay with melons for a moment. The hay has 89.1 pounds of dry matter in 100 and melons 5.5 pounds. In other words, the cow must eat 16 pounds of melons to get as much dry matter as is in one pound of hay. I expect a large cow would stow away 100 pounds of melons in a day in two feeds and not mind it in the least. And besides that she should have from 20 to 25 pounds of alfalfa hay in order to get anywhere near a full ration. But the chances are that half as many melons would do equally well in modifying the ration, and make the bulk of it of alfalfa and other feeds. Fifty to 60 pounds per day makes a good ration of these fresh green things and if the supply is short, half the quantity will be found worth while feeding. As to relative feeding value, I would place corn silage first, pumpkins second, melons third, and grow any one or any two that my land and my purse would allow. I would not grow beets if I could possibily avoid it because they are so expensive to handle.

Notes on Unfermented Lemon Juice

Prof. W. V. Cruess Writes for Cultivator Readers of Recent Investigations Made by Him and Other University of California Investigators

A GREAT deal of work has been done by the department of agriculture and various chemists on the production of a satisfactory lemon juice, while tests have been made in the enology laboratory on clarification and sterilization of the juice. The problems presented are; preservation against mold and fermentation, production of a clear juice, and retention of flavor. We have succeeded in preventing spoilage and in getting the juice permanently bright, but the retention of all the original flavor and aroma is not satisfactorily solved so far as we are aware. However, a workable method for clearing the juice may be of interest; hence the following notes on experiments made at Berkeley this season.

Extraction of Juice

In all tests the juice was extracted by slicing the lemons thin and pressing out the juice. In this way some oil and flavoring matter from the skins are taken up by the juice. By pressing through heavy cloths most of the pulp is gotten rid of.

Addition of Finings

Spanish clay has been found to be the only clarifying agent to give consistent results. It is used most effectively at the rate of approximately 1000 grams per hectolitre or, approximately 8¼ pounds per 100 gallons, or roughly two pounds per 25 gallons, or 6¼ ounces per five gallons of juice. Different lemon juices may not require the same amount of Spanish clay, hence the desirability of making tests on small lots first.

The clay must be prepared at least a week before starting operations. It is made up by mixing the desired amount of water and letting it soak four of five days. It must then be ground to a fine mud or suspension in the water. No coarse particles should remain. A convenient concentration is to make a suspension of two pounds Spanish clay to one gallon of water. Then each pint of this suspension contains four ounces of clay or each quart contains eight ounces or one-half pound.

After adding the clay two methods of procedure are open. The cold juice may be allowed to stand 24 hours to settle; the clear juice drawn off and filtered if necessary, and the "mud" or settlings filtered separately. Suitable filtering machines may be had from any of the winery or brewery supply firms in San Francisco or Los Angeles. The filtered juice may then be bottled, corked or capped and sterilized as indicated below. Or the freshly mixed clay and juice may be heated to 140 degrees Fahrenheit left to stand 24 hours, filtered and bottled. This method seems to give more satisfactory clearing, but is more troublesome.

Capping

Information on suitable bottles and caps for same may be had from any fruit juice, brewery or soda water factory supply house. The caps must be impervious to both the juice and to air and must stand heating to 155 degrees Fahrenheit.

Sterilizing

The filled and capped bottles should

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then be sterilized. In sterilizing the bottles should be placed in water horizontally and completely covered. The water should be heated slowly until the juice in one of the bottles registers 155 degrees Fahrenheit. A suitable observation bottle may be arranged by inserting a thermometer through a plain cork and fitting it into a bottle of the juice. The juice should then be taken from the sterilizer and allowed to cool.

The above method gives a clear juice that will not mold or ferment as long as the bottle is kept closed. The principal defects of such juice are development of a "lime" flavor and darkening in color on standing, that is to say the strong fresh lemon flavor does not persist, although considerable of the lemon oil flavor does remain. The darkening takes place slowly, although it is noticeable in juice that has been kept in the laboratory six weeks, this juice having turned to a yellow color. (Professor Steubenrauch states that the color becomes more or less brown when kept a year.)

What is claimed for the method as it has so far been developed is that it gives a permanently clear juice; that it will keep against mold and yeast growth. The finished product will resemble more in flavor the commercial "lime juices" than it will fresh lemon juice. More work will be done with the object of getting a juice of more permanent flavor.

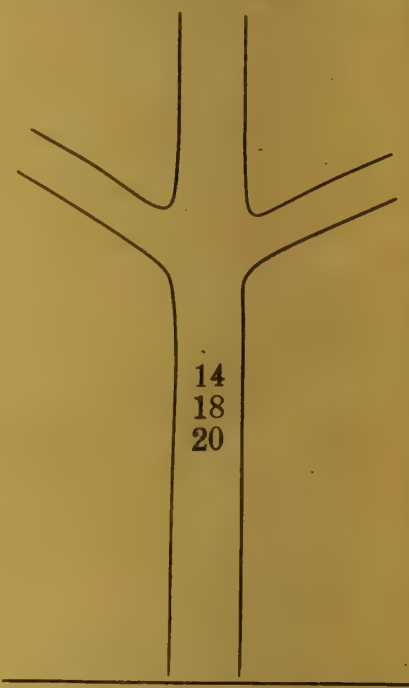
IMPROVEMENT OF FRUITS THROUGH BUD SELECTION
(Concluded)

Deciduous Investigations

Shortly after the beginning of the citrus work Mr. Shamel started some preliminary observations with peaches at South Glastonbury, Connecticut. Our plots include Carman, Elberta, J. H. Hale and Belle of Georgia. Similar variations were found as in the citrus trees, varying from absolute barrenness to very great productiveness. These differences were consistent from year to year.

Work also was started in the J. H. Hale apple orchards near Seymour, Connecticut. Because of limited time these trees were not picked, but the self-evident fact that there was a marked variation among trees of the same variety in deciduous fruits to secure more detailed information on this point. Accordingly after a survey of a number of apple orchards in Michigan by Professor H. J. Eustace of the Michigan agricultural college, and the writer this last summer, two apple bud selection study plots were located, one of Northern Spy and one of Baldwins. The same general plan was followed as in the California citrus work.

Each tree had its individual number painted on the tree trunk or large main limb with white lead paint. This number includes the plot number, row number and number of the tree in the row. Thus, No. 14-18-20 instantly located that tree as being in plot 14, row 18 and the twentieth tree from the end of the row, always numbering from a certain given point.



The fruit from each tree is picked separately and the fruit assembled at the base of the tree. The fruit is graded into first, second and third grades, and each of these grades can be further subdivided into large, medium and small. The fruit in each grade is counted and weighed and the notes recorded in special blanks.

Individual Apple Tree Record Blank

Orchard.....Plot 1 Row 17 Tree 3
Year, 1914 Variety, Northern Spy Type, Productive

GRADES	FIRST		SECOND		THIRD		TOTAL	
	Number	Weight	Number	Weight	Number	Weight	Number	Weight
Date First Pick Oct. 22.....	2136	1018-4	1315	423-4	1410	392-2	4861	1833-10

The notes are then transferred to the six-year blanks.

APPLE PERFORMANCE RECORD

Date, 1914 Variety, Northern Spy
Location, Michigan Grower..... Type, Productive
Orchard.....Plot 1 Row 17 Tree 3

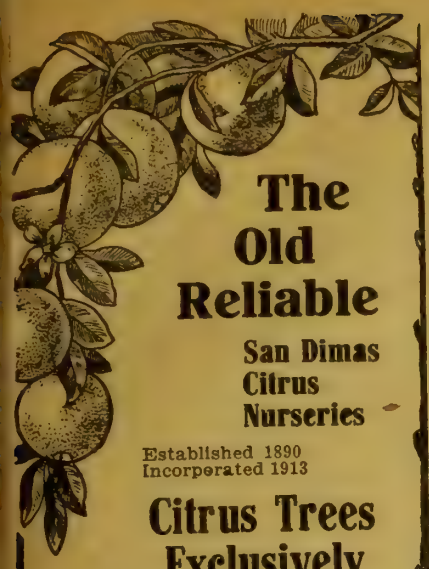
		Date 1914	Date 1915	Date 1916	Date 1917	Date 1918	Date 1919	Total	Average
Number Grades	First	2136							
	Second	1315							
	Third	1410							
	Total	4861							
Number Sizes	Large								
	Medium								
	Small								
	Total								
Weight Grades	First	1018- 4							
	Second	423- 4							
	Third	392- 2							
	Total	1833-10							
Weight Sizes	Large								
	Medium								
	Small								
	Total								

Number Picks 1
Date First Pick.....Oct. 22
Date Last Pick.....
No. of Bushels..... 38

NOTES—Off Type Fruits: 1914—1 sunken section; 1 red section; 1 yellow section; 1 lipped.

crop from each tree was estimated each year. Certain trees were found that were consistently heavy producers each year, others that bore a large crop in alternate years, and still others that were consistently poor producers each year.

It seemed worth while because of Our deciduous fruit work naturally divides itself into three parts as in the citrus work: A study of the differences as they occur among trees under the same conditions; Can these differences be propagated? Will these differences be consistent in the budded trees?



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We can already distinguish six types of Spy and six types of Baldwin trees. In most cases a difference in the habit of the tree growth is correlated with a difference in fruit.

These types in the case of the Spy are: The open productive type; the alternate bearing type; the upright unproductive type; the light foliaged type; the deeply ridged fruit productive type; the McIntosh Red type.

The open productive type of tree corresponds to our open productive lemon tree, all the branches are loaded with fruit and they bear a uniformly heavy crop each year. You may ask, "How can you tell that by one year's observation?" Partly by the old fruit scars, but more by the owner's testimony. The owner of the orchard where our plot is located knows his trees and can tell what a number of them have done in the past.

There are a number of trees on the alternate bearing type which bear a large crop every other year. While these are profitable trees they do not represent as great a financial return to the owner as the trees which bear a large crop every year.

A very common type of Spy tree in all orchards we have visited is the upright unproductive. This type of tree is a large upright one, a very light cropper and in some cases absolutely barren. Associated with this distinct habit in tree growth is a markedly ridged flattened fruit. The poorest tree of this type in our plot this year bore one bushel of these poor quality flattened ridged fruits, as compared with 38½ bushels as borne by the best tree of the productive type. (These trees I am referring to are 22 years old.) Just think what that difference means in dollars and cents—one bushel compared with 38½ bushels!

The light foliaged unproductive type shows a distinct variation in foliage, has a spreading habit of growth and bears a fruit somewhat flattened and ridged at the calyx and blossom ends.

Another type, for want of a better name, we have called the deeply ridged productive. The trees are productive and the fruits resemble a standard Spy, with the exception that they are a deep red in color and markedly ridged.

The sixth type we have called the McIntosh Red type. Probably some other name would be more appropriate. The fruits are flattened, but they have a color resembling a McIntosh.

We have found these types in other orchards; in orchards that were in sod, in orchards that were cultivated, in low-headed orchards and in high-headed orchards.

In the Baldwins we have found at least six types. Some are characterized by differences in production and others by differences in the fruits. These are:

A standard yearly productive type.

There appears to be a marked variation in the color of fruits borne by different trees of this type, varying from a brown on some trees to a deep red on others.

An alternate bearing type.

An upright barren type.

A type which bears distinctly flattened fruits.

The "York Imperial" type, bearing a fruit shaped like a York Imperial instead of a standard Baldwin.

The "Roman Stem" type, which type of fruit has a distinct protruding segment or lip in the cavity.

These types we have found occurring as limb sports, individual fruit sports and as whole trees. These are

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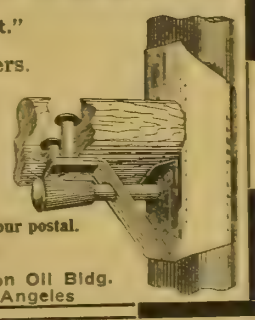
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Our Mission Olives are worked on Picholine root. The Picholine is a stronger growing and a deeper feeding root system than one grown from cuttings. Plant Olives only on Picholine root.

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Prunes are a staple money maker. Our parent trees of French, Imperial, Sugar and Robe de Sargeant have been selected for quality, productiveness, and size of fruit.

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the types we are familiar with now. No doubt others will be found, possibly by ourselves, and without question by others in their own orchards.

In addition to the variation in types there is a great variation in production within each type. In the Spy orchard in which we were working this year the average tree production was about four barrels per tree, while some of the best trees in our plot bore over ten barrels.

We have not had time as yet to show experimentally that these variations in deciduous fruits can be propagated. However, as we have found just as great, if not greater, variations in deciduous as in citrus fruits and as we have been able to successfully propagate these variations in types and differences in production in citrus fruits, it certainly seems a safe assumption that these differences can be propagated in deciduous fruits as well.

The J. H. Hale peach which occurs with great frequency as a limb sport on standard Elberta trees has been successfully propagated.

In the North Yakima section a sporting tree of Rome Beauty has been found. This tree bears a deep red fruit which at maturity shows none of the characteristic Rome Beauty markings. Buds have been taken from this tree and show the same characteristics in the budded trees as in the original tree.

A prominent Texas fruit grower has recognized this principle of variation in his trees and has successfully worked over unproductive types of apples, persimmons and pecans to productive types. A number of prominent nurserymen in West Virginia, New York and many other sections are propagating their nursery stock from select bearing trees and are securing uniformly productive trees, as compared with many unproductive orchards propagated by the old method of securing buds from other young trees in the nursery row.

We mention these few instances out of the many we might give of the propagation of these variations in widely scattered sections simply to show the large number of these variations and also that they have been successfully propagated. And so while we have not had time as yet for our own experimental deciduous buds to come into bearing we have already accumulated such a mass of commercial or practical evidence as will convince any sensible man not only that these variations exist in marked numbers, but also that they can be successfully propagated.

Performance Records

Now we come to that phase of the subject which probably is of most interest to the fruit grower: How may the fruit grower secure his own performance record? By performance record we mean a record of the tree's production and behavior. A very efficient and quick way of securing such records is the tree census.

At the top of the page we have a place for the variety name, source from which the trees come, date tree census was made, location, owner and orchard name.

The page is ruled into nine columns, which in this case were headed Standard, Barren, Light Crop, Northwestern Greening, Tolman Sweet, Replant, Missing, Dead or Diseased, and Half and Half (by that we meant half of the tree productive and half barren).

The tree census serves a double purpose in that it affords an accurate way of not only checking up the variations in types within a variety but also of checking up on whether the trees are true to the variety name.

An analysis of the trees in Row 1 will show the value of this record. These trees were 20 years old and were purchased from a supposedly reputable firm as guaranteed Northern Spys. Tree 1 was a Tolman Sweet, tree 2 a light crop Spy, tree 3 a Barren type Spy, trees 4 and 5 Northwestern Greenings, tree 6 a productive Spy, tree 7 a Northwestern Greening, trees 8 and 9 light crop Spys, tree 10 productive, trees 11 and 12 light crop Spys, 13 and 14 productive, 15 and 16 light crops, and 17 and 18 productive.

Out of a total of 90 trees in the first five rows as shown on this sheet, 35, or only about one-third, of the trees could be listed as productive and 21 of the trees were some other variety.

A second form is the Individual Tree Performance Record blank as used by the National Orange Company and a number of other citrus growers in California.

As a result of the fruit improvement investigations the National Orange Company has numbered every tree on their 1500 acres of citrus fruits near Riverside and Corona. They use the same system of tree numbering that we use in our experimental work, painting the plot number, row number and number of the tree in the row on the tree trunk in white lead paint. Thus they have not a duplicate tree number on all their holdings. Their trees averaged about 76 to the acre and the numbering was done by unskilled labor at a cost of less than 50 cents per acre.

Each tree is picked separately and the fruit assembled at the base of the tree. A large gang of 20 or 30 men require two extra men to secure these records. One man scatters the boxes under the tree, then after the tree has been picked the "secretary" (second man) comes along and marks down the number of full boxes in the column marked "Boxes" (see blank). The weight of the fractional box remaining, if there be one, is secured by means of a pair of scales which hook over the ends of the box, and is marked down in the column "Part Boxes in Pounds." Then by allowing a fixed tare for each full box the actual

Tree Census Record

Variety, Northern Spy Age, 20 years Source Nursery Co. Date, Oct. 19, 1914
Location, Michigan Grower, John Doe Orchard.....

Type	Standard Productive	Barren	Light Crop	Northwestern Greening	Tolman Sweet	Replant	Missing	Dead or Diseased	"Half and Half"	Total
Row 1	6-10-13 14-17-18	3	2-8-9-11 12-15-16	4-5-7	1					18
Row 2	2-5-7-8 16-18	3-9-17	4-6-12 13-14-15		1-11	10				18
Row 3	3-10-12 13-14-15 17-18	8	11-16	4-5-6 7-9	1	2				18
Row 4	2-6-7-8 10-13-14 16-17	11	3-4-15 18	9-12	1					18
Row 5	2-4-5-6 11-12	18	16-17	9-10-13 14-15	1		3		7-8	18 18
Total	35	7	21	15	6	2	1			90

NOTES—"Half and Half" means half productive and half barren.

number of pounds of fruit borne by each tree is secured. The fruit is hurriedly graded A, B, C or D as to quality, and if any distinctly off-type fruits are noticed a note is made of it. As the navels are picked twice each season space is left in the book for the two pickings.

That man's experience can be duplicated thousands of times in both citrus and deciduous orchards.

Conclusion

These differences are not confined to any one variety, to any one locality or to any one section. We have never been in an orchard, either citrus or deciduous, propagated in the old way by securing buds from slightly older trees in the nursery rows that we have not found marked variations in type and production.

We do not expect you to take our word alone for these things; we do not want to ask you to do that; and we do not have to ask you; all we need to say to you is, "Study your own trees; go out into your own orchard and see these variations for yourself, then ask yourself this question: 'Is not an individual tree study worth while?' You will find the answer in your own orchard."

Individual Tree Performance Record

Date.....191..... Date.....191.....

Block No..... Row No..... Variety.....

Tree No.	Boxes	Part Boxes in Pounds	Quality	Boxes	Part Boxes in Pounds	Quality	Total
1							
2							
3							
4							
5							
6							

These notes are transferred to six-year record blanks.

After a series of two or three years if they find a tree which is not up to standard they will rebud it, securing their buds from good productive trees on which they have actual performance records. If the tree is diseased it will be removed and another put in its place taken from their performance record nursery. Eventually they hope to make every one of their trees a high producing tree.

You will probably say that is a most interesting operation but it must prove very expensive. A surprising thing is that these records have been secured practically at no expense to the owners.

Under the old system of picking there was a box row through which the wagons drove with the empty boxes and through which the full boxes were hauled to the packing house. The pickers picked four rows each side of the box row. After they had picked a sack of fruit it was necessary for them to walk over to the box row and empty it. Under the new system the box row is still used. One man scatters the boxes under the trees, the "secretary" secures his record, and the two men carry the full boxes to the box row and load the wagons. The pickers, however, pick enough more fruit each day, over the old system when they walked to the box row to empty each sack of fruit, to more than pay for the two extra men's time.

Thus the only added expense involved is the time consumed in copying the records in the office onto the six-year record blanks.

It would seem that some modification of this method would be applicable to any orchard and the owner could then find out just what his trees were doing.

About the time the citrus improvement work was started one grower went on record as saying: "Well, that might be all right for some sections, but my trees are bearing all the fruit they can possibly hold." To prove his point he numbered all his trees and secured records on his tree yields. At the end of three years' time he found that 14 per cent of his trees were carried at an actual profit to himself, 38 per cent were neutral—that is, they were just paying expenses but not bringing in any return to the owner. He decided to carry them along a couple of years longer but thought they would eventually have to be rebudded. The remaining 48 per cent of his trees were carried at an actual loss to himself. These trees have since been budded over, the buds being taken from the productive trees in the 14 per cent column. Look at those figures! Only 14 per cent of his trees were carried at an actual profit, and that in a grove in which the owner thought his trees were bearing all the fruit they could possibly hold.

ARBITRATION OF DIFFERENCES

In a recent Fresno Republican we note in an account of proceedings of the chamber of commerce of that city the following regarding the action of certain raisin packers:

A big trade evil long existing between the dried fruit packers and growers is about to be remedied. A plan has been placed on foot by the California Dried Fruit Association to incorporate in future contracts between growers and packers an arbitration clause, according to E. L. Chaddock, who appeared before the directors of the chamber of commerce last night and outlined the new proposition.

The proposed contract has been thoroughly tried out by the Associated and has proven satisfactory to the grower. In fact, the Associated is the first packers' organization to give this privilege to the grower. The directors expressed favorable views on the movement and declared that as soon as the system is completed the president will be instructed to name a part of the members of the arbitrating board for Fresno. This will save growers considerable trouble, or at least it has done so for the raisin growers. The only raisin packers not using the new contract providing for arbitration of differences are those not affiliated with the Associated.

For a long time there have been differences between packers and growers that could not be amicably settled because there was no medium of settlement other than the court. The court proceedings over rejected fruit and the breaking of contracts have proven very unsatisfactory to all parties concerned and at the same time expensive. It will be up to the disputing parties to have the services of the arbitration commission if they so desire. It is the present plan to have the board paid for its work, and it is expected that payment will fall to the lot of the losing man. Of course no one can be forced to arbitrate, but it is the plan of the growers and packers interested in the new proposition to do away with court litigation so far as possible, at least on trivial matters.

The movement is statewide. Wherever there is a commercial organization it will be asked to appoint two members of the board who are not interested in fruit. The packers will appoint two and the growers one, or the four will select the fifth, according to the present plan. Should there be any objections to members of the board it will probably be arranged so that the board may be reduced to three active members, thus eliminating the possibility of any unfairness in decisions. The directors expressed themselves favorable to the plan and President Phillips said that the chamber of commerce members of the arbitration body will be named as soon as the final plans are perfected.

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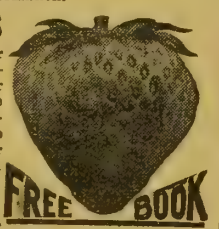

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STABLE MANURE

UNTIL recent years comparatively little knowledge of plant foods has reached the grower and even today the functions of the various food elements in the plant are not known. The scientist is even ignorant of the specific part that some play in the life history of a plant. It is not surprising then that the vegetable grower, and particularly the market gardener, should stick to the old standby and to a quite larger extent he should.

Stable manure is a very variable material. Its value is influenced by the method of feeding, the age and work of the horses fed, the care of the manure in the stable and out, the kind of bedding and whether the urine goes into the sewer or is largely absorbed and retained in the manure.

Chemists only get at a very small part of the value of stable manure when they tell us how much ammonia, phosphoric acid and potash it contains. These facts are very important but when we can purchase one 200-pound bag of chemical fertilizer that would cost us less than $3.00 and get as much plant food as one ton of manure would supply, we need to know why it is better to buy manure for at least part of our materials for soil improvement.

It is for soil improvement in a sense different from that of supplying plant food that stable manure is particularly beneficial. One of the most successful growers of fruit and vegetables in the United States remarked to the writer that if it were not for the manure he applied annually his soil would be so crusty and lumpy that he could not crop it successfully. Doubtless this is a fact. And this same soil will analyze as high in plant food as manure itself. It is for the indirect, or mechanical, effect that is brought about by the use of the manure that this grower finds stable manure particularly valuable.

Students of fertilizers and crops make a classification of benefits to soils through the application of fertilizers as "direct" and "indirect," and, as we usually think of the addition of plant food, particularly nitrogen, phosphoric acid and potash, as the direct benefits, it is fair to class the mechanical effect of stable manure as indirect. But just because this benefit is called indirect it must not be considered unimportant. Good mechanical condition of soils is essential to maximum crop production. Organic matter from manure is more valuable than organic matter from most other sources for it is in just that condition which causes most rapid decay. It is being learned at the present day that bacterial life is a most powerful factor in influencing almost every industry and all life. This is more particularly true with the business of farming It is the bacterial life present in manure, and for the growth of which stable manure in the soil seems to furnish an ideal place, that causes the organic matter to so quickly change to humus and the plant food in the manure to become quickly available.

The average amount of plant food elements contained in one ton of fresh complete stable manure are ten pounds of nitrogen, five pounds of phosphoric acid and ten pounds of potash. This includes the average amount of bedding used and it is expected that the large proportion of the liquid manure has been absorbed by the solid and the bedding. The plant food contents of various lots of stable manure will vary between eight and 16 pounds of nitrogen, four and eight pounds of phosphoric acid and eight and 16 pounds of potash. These variations are mostly caused by method of handling manure in the stable and the method of storing. Valuing the nitrogen in the manure at 16 cents a pound, what it costs in nitrate of soda, the phosphoric acid at four cents and the potash at four cents, we find that the average quality manure carries $2.20 worth of plant food per ton. A little study will quickly indicate that the cost of handling the ton of stable manure makes its use far less economical for its plant food contents than the use of commercial fertilizer. We must, then, lay much stress on the value of those two factors already referred to, namely the organic nature of the manure and the bacteria it carries.

To make our study and value estimate of stable manure more accurate we need to estimate the probable average loss in handling. These losses may be summed up under three heads—one of which has been mentioned and the other two are common knowledge to the vegetable grower: Loss of liquid manure in the stable; loss of soluble portion through leaching, seen so frequently in the vicinity of barnyards where manure is stored; loss by escape of ammonia as gas.

A competent authority states that "in general, it is safe to say that, under the usual careless manner of storing manure out of doors, over one-half of the plant food value is lost."

It becomes more and more evident, as a result of study, that the indirect values of stable manure are the important values and that the use of stable manure is good practice because it provides, not so much actual plant food, but brings about such suitable soil conditions for the growth of plants and such an abundance of bacterial life as to make organic plant food available.

The cover crop or green manure crop enthusiast will ask why manure is needed at all, because the necessary humus-making materials can be supplied in that way. The answer is: For general farming, an ideal system of green manuring combined with the proper use of commercial fertilizers will give splendid results. For vegetable growing where crop values are high, and hence land values proportionately high, the market grower can not, first, use the time to practice complete green manuring; second, his tillage is intensive and rarely can he supply sufficient organic matter by this system alone; third, this practice does not cause as rapid freeing of plant food, due to the nature of the material and the comparatively small supply of bacteria to cause rapid decay. Where possible an ideal system is to combine green manuring, the use of stable manure and commercial fertilizers.—Market Growers' Journal.

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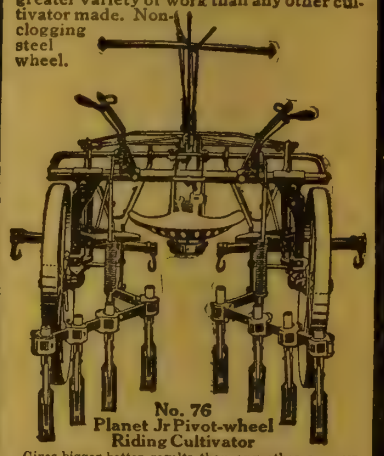

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With the development of the country, the increase of consuming population, quick and efficient means of transportation, and the regular strong demand at good prices for garden products, gardening has come to be a permanent and large factor in the national prosperity. With villages, towns and cities scattered thickly all over the country, millions of people are ready to buy, and gardening either on a large or small scale has become a profitable occupation. There is always a good home demand for good vegetables, and distant cities consume almost unlimited quantities. There is never danger of oversupply of good, high-class vegetables, and the farmer who makes gardening a strong side line to his general work can add considerably to his yearly income without seriously interfering with his other work. It is also a means by which the wife, daughters or sons can make spare money of their own.

There is no better occupation for boys and girls than to grow and market garden produce. In this way they acquire skill in growing things and business methods in marketing them, and can often make enough money for cherished objects, starting a small bank account, or for attending college. Where sufficient land is to be had, the possibilities for making good money at gardening are as great as in many other trades and professions. For instance, a young woman can make as much or more money at growing celery as at school teaching or stenography. The same is true of growing onions, tomatoes, lima beans, and many other things. And these are only a few of the long list. A near-by young gardener last year cleared $1000 on his 10-acre patch, and I myself cleared $200 on one acre of pole lima beans, under the disadvantages of being 240 miles from the city to which they were sold. Gardening is an honorable occupation, and each year finds more talented young men and women engaged in it. In fact large numbers of college graduates are taking it up as a life work, and have no fear that their chosen occupation will ever interfere with their social, mental or financial advancement.

The vegetable gardener has one or all of three motives in his work—growing for pleasure, for family use and for market. The first usually dominates all gardeners, even though the products are to be used at home or sold. Also there are more educated and expert men and women engaged in the profession of gardening now than at any other time in history, and this number is increasing greatly. The man or woman who can grow plants successfully shows as great brain power and skill as professional men, inventors, composers and artists. Many of the widely known and highly esteemed men are gardeners.

The size and kind of one's vegetable garden will depend upon the available time and ground at command. On the farm there are great possibilities for gardening. One of the main points in vegetable gardening, whether the products are sold or for home use, is to get things out and force them to early maturity. If they are grown for the home table we want them as soon as anybody else; if they are to be sold on the open market a few days in the time of ripening may mean a difference between profit and loss. The very earliest products are the ones that bring the very top notch in prices.

For securing early maturity the gardener must make some provisions for starting and protecting the plants during early cold spring weather. A small greenhouse is best for this, but since few farmers have such, the hotbed and cold frame are cheap and serviceable. In the absence of any of these, young garden plants can be started in the house in a sunny window. The hotbed will enable the seed to germinate and the young plants to grow in spite of the cold, and the cold frame affords a place for the protection and hardening of the plants till the soil is warm enough to receive them. The hotbed is made by excavating a place and filling with stable manure for artificial heat. A frame is built to suit the size of the bed. Over the manure is placed a layer of soil three inches deep and the seeds planted in it after the heat becomes constant. It is well to have the hotbed covered with sash if tomatoes and such vegetables are sown; but for the sweet potato no covering is needed. In fact covering is not best on the sweet potato bed. However, if one is not able to secure the glass it may be covered with white cloth, which will serve the purpose very well. The cold frame is similar to a hotbed except that it has no bottom heat. The cold frame may also be covered with cheap white cloth; in fact gardeners frequently grow their lettuce and other early hardy vegetables in this manner. The thin cloth admits light and also protects the plants from frost and cold, chilling winds.

It goes without saying that the garden soil should be rich. It should also be well drained, for the more water that is drained away and the less that has to be evaporated at the surface, the sooner the soil will become warm. Evaporation at the surface of the soil lowers the soil temperature. The best fertilizers are those from stables, as the decaying matter furnishes some heat and also improves the texture of the soil, liberating available plant food and making it retentive of moisture. Commercial fertilizers should only be used by the expert or under the direction of a skilled gardener. The garden should be arranged and planted so that all cultivation can be done with wheel hoes or horse tools. Very little gardening can be done with the hand hoe. Set all plants in rows far enough apart to permit cultivation.—Fruit Grower.

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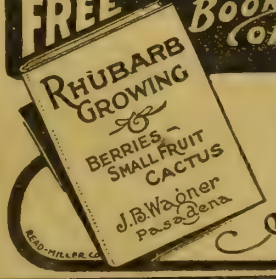

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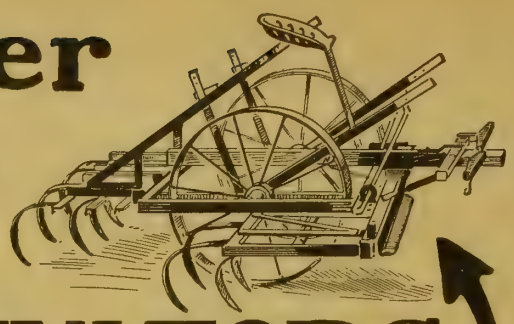

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Minimizes Scale Troubles, Controls Red Spider, Destroys Fungous Growth, Tones and Vitalizes the Trees.

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WRITE FOR BULLETINS

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The California Cultivator

Weekly—24 to 32 Pages One Dollar per Year

General Agriculture

SCIENTIFIC SOIL CULTURE

By H. W. Campbell

OF all branches of science that have had the attention of this country, none is more vital to the prosperity and happiness of the farmer, the business men and their commercial interests than tillage. Tillage of the right kind at the right time in an average year has more influence in obtaining the big crop of high quality grain, fruit or vegetables than rains or ample irrigation without scientific tillage. Ample and timely rains or abundant irrigation are good; yes, important; yet the certainty of crop and the high limit of yield and quality are never obtained without scientific soil culture.

To Know How the Great Essential

An engineer throws his reverse lever forward, then pulls the throttle and his engine moves ahead; as he pulls the throttle wider the velocity increases until the usual fifty-mile speed is attained. As he rounds a curve a red flag—the signal of danger—is noticed; he quickly shuts off the steam with one hand and applies the air with the other. He shuts the throttle because he knew the energy that was carrying that train at so high a speed forward was powerless when the steam was shut entirely out of the cylinder; he also knew the momentum already obtained would carry the train to destruction if something was not done quickly. He well knew that a certain slight movement of a certain lever would apply in an instant every air brake of the entire train. Thus directed by his knowledge of these facts the train is brought to a standstill before the danger point is reached. Because of the engineer's control of his train through his absolute knowledge of his engine, joy pervades the minds of all the passengers instead of grief, sorrow and continued worry.

The Farmer Also Needs It

So, too, have the farm crops become damaged or ruined over large portions of many states, and grief, sorrow and continued worry confront thousands of farmers and their families because the danger line was crossed and the whole train of bright anticipations have been wrecked; not entirely because of carelessness—not because the signal of warning that indicated danger was not given—but because the farmer did not know how to develop or control the great motive power in the growing of his crop. He did not know that his tank in which he must carry his supply of water to promote the needed energy was leaking badly. Enough had been lost to carry him from the starting of the growing of his crops to their finish; all of which could have been so easily prevented by a little "know how." Nor had he the precise knowledge of the principles of operating the mechanical part necessary to develop the motive power requisite for the growth of his crop to the high degree that is found in the tried and faithful passenger engineer above referred to who was compelled to learn every principle in detail before he was permitted to even try to manage his engine.

It is the "know how" of the great lawyer that commands the retainer fee of from $10,000 to $25,000. It's the "know how" of the great artist that makes his paintings worth $10,000 when yours copied from the same subject would not bring $10.00. It's the "know how" of the man who commands the great or small position as president, manager, superintendent or foreman, and enables him to earn a salary, while the man with less of the "know how" or "know why," but with possibly more muscle, commands only wages. So, too, the farmer that knows how to plow, plant, and cultivate his land at the right time in the correct manner with the proper tools expects larger crops of a better quality, and gets them. But, you say, sometimes he does not; if he failed we insist he made a mistake. Mistakes in soil tillage, and bad ones, too, are sometimes made by all of us. It is so easy to make a mistake that the most of us spend the greater part of our time trying to get out of the trouble these mistakes have brought us into. However, mistakes are rarely made by the one who, because of long training, study, and experience, really does "know how." They are usually the result of guessing or gambling methods; the way possibly that did bring results once and may again when the same accidental conditions may attain a condition of the soil that always has and always will bring results, but the average tiller of the soil knows only in part what it is, why it was or how it was done, and much less how it can be done again.

The New West

There is a new west that has been very largely settled in the past seven years, covering mainly western Nebraska and Kansas, eastern Colorado, Wyoming, Montana and the western portion of the Dakotas, prior to which date was all conceded only a grazing country, but the discovery and introduction of newer methods and principles of tillage, a little of that real "know how" has changed its possible future. During the first four years of the seven the rainfall was up to normal, and conditions improved very rapidly. The socalled dry farming seemed simple enough, and everybody saw nothing but unending success; but, about three years ago, the rainfall began to decrease in some sections, and what precipitation there was seems to have grown less timely, until it has been found necessary to resort to something more definite. Scientific soil culture is coming to the rescue, which simply means the "know how," or the application of more thoroughly scientific principles and methods of tillage that recognize the necessity of a certain physical condition of the soil by and through which not only can good to fair crops be grown in drouthy years, such as sometimes come, but all crops can be proportionately increased in good years.

The Skeptic and the Careless

Too many are heeding the warning of the skeptic who becomes horrified at any apparent turning from the

beaten path of the past, and holds up both hands and insists "it can't be done." He points with pride to the man he says tried it and failed (failed because he did not know how), then serenely folds his arms and closes his speech by that glorifying adage "I told you so."

Don't listen to these men; their ambition is to prevent you from advancing ahead of them. Try better tillage—intensive tillage—scientific tillage—call it what you please, but try it, and if you fail or find trouble, don't give it up; it's because you have made a mistake; you did not quite understand all the hows and whys. Great, yes, phenomenal results have been obtained by those who follow out the correct principles and it's up to you to learn how to do as well or better. Be an honest booster and not a reckless knocker.

Some Results

In 1905 a branch experimental farm was established at North Platte, Nebraska, by the state agricultural college for the main purpose of thoroughly trying scientific soil culture. The years of 1906, 1907 and 1908 show about the normal rainfall of 18 inches each year. In 1906 the records of the state on wheat yields were broken by the harvest of 54 bushels of wheat per acre on this station; in 1907 the records were again broken by the production of 62 bushels of wheat per acre. 1909 was quite dry, and only 45½ bushels per acre were grown; 1910 was still more drouthy and 37½ bushels were grown. Do not these records stand out boldly for scientific soil culture in good years as well as dry? Don't be so unwise as to say, "O, this is only the result of a state experiment station," for what one man can do, so can another, if he knows how.—Campbell's Scientific Farmer.

MORE ABOUT RICE

Written for the California Cultivator By Sacramento Valey Contributor

A great many people in California are greatly interested in rice at this time—and all sorts of questions are being asked about the crop, its origin, characteristics, history, etc.

Rice is supposed to have originated in India. It is an annual grain producing grass, and there are varieties suited for growing on dry lands, or rather on lands without submerging, as well as in overflowed checks with irrigation. From India rice has been taken to the entire civilized world, to the countries about the eastern end of the Mediterranean sea before Christ and to Italy in the 14th century. It was first cultivated in the United States in South Carolina in 1694—seed having been taken from a cargo and planted in gardens. Cultivation spread to all of the south Atlantic and gulf states as far west as Louisiana and Texas. Now California promises to be a big producer and higher per acre yields are now being secured here than anywhere else in this country.

Beside being the principal food of the peoples of the orient rice is used in Europe in starch making and in India for an alcoholic beverage. The national drink in Japan, sake, is also distilled from fermented rice.

In China and Japan irrigated rice is called "water rice," that grown without irrigation, "dry land rice." About 300 pounds of rice per capita per year is consumed in these countries—or 475,000,000 people use 71,250,000 tons annually.

Rice must be grown on over 97,000 square miles of territory to produce this. All but about 5000 square miles is irrigated.

It is estimated that an average yield for water rice in the orient is 40 bushels (45 pounds per bushel)—or 1800 pounds per acre, that of dry land rice about 20 bushels or 900 pounds.

In Japan 53 per cent of the irrigated rice lands are in fields of less than one-eighth of an acre. The levelling and preparing these fields by hand labor has been an enorous job, one that American farmers can scarcely realize.

Practically all of the rice grown in China and Japan is first planted in nursery beds then transplanted to the fields. These beds are highly fertilized and irrigated. When the plants are eight to ten inches high they are transplanted to the fields. A month is saved in the growing of the crop by this transplanting. The nursery bed can be started earlier than rice could be planted in the open field. The plants are kept in the nursery until they have strong feeder roots—so that when transplanted into rich land they soon begin to make rapid growth.

At transplanting time the plants are pulled, the roots washed, and the plants tied in bundles of a size that can be handled easily in the field in transplanting. Gangs of seven or ten or more laborers, generally whole families, set the plants in wet, puddled, rich soil in rows one foot apart, six or eight plants in a hill and the hills eight or nine inches apart in the row. The soil is made into the consistency of mortar and the planters go barefooted. A man sets about one-third of an acre a day.

After planting the crop is hoed, fertilized and irrigated, all laborious hand labor. Much of the irrigation water is pumped by foot power pumps or lifted in crude devices by hand.

Most of the harvesting is done with the hand sickle and the bundles are often hung on racks to dry before threshing. Much of the threshing is done by pulling the heads through a metal comb and fanning the chaff from the kernels as it is dropped from a basket to the ground, and some of the polishing is done by hand in a wooden mortar.

We have much to learn about rice in this country but our problems must be worked out along different lines from those followed in the orient.

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Make Horticulture Profitable

Our stock of fruit trees in several of the leading varieties will be entirely exhausted before February 1st. We hope to be able to supply at least all of our old customers with what they will need. Write us at once please, letting us know what varieties you expect to plant. We want to supply you if we can.

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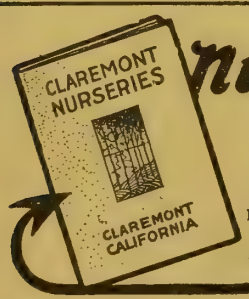

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Are in heavy demand this season. The selection of buds from established bearing orchards, careful selection of seed, causing healthy, vigorous growth—THE REASON. The following letter is one out of many thousands we have received in the past:

Grass Valley, Calif., Dec. 7th, 1914.

Fresno Nursery Co., Inc., Fresno, Calif.
Dear Sirs: In January, 1912, I received from your nursery 210 walnut trees of three varieties, which I am pleased to say have yielded since the first year of planting, each variety bearing a few nuts of excellent quality and TRUE-TO-NAME. I never lost one single tree of your shipment. The 600 pear trees received at the same time as the walnuts are also very satisfactory. My trees have done so well that the local paper has given considerable space about the vigorous growth of my orchard.
Very truly, (Signed) GORDON S. MORGAN.

That tells the story.—Prospective Planters, give us an opportunity of starting you right by supplying strictly first class nursery stock. Send us a list of your requirements for quotations. Our large 52 Page Book describes all varieties of Fruit Trees, Grape Vines, Ornamental Trees and Shrubs, Palms, Roses, etc. We send this book free upon request. Remember we specialize on DECIDUOUS FRUIT TREES, CITRUS TREES, OLIVE TREES, FIG TREES, GRAPE VINES, and Hardy Ornamentals. Write us if you want the best that money will buy. Address

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Economics on the Farm

THE FARM INVENTORY

ALL good business concerns take a regular inventory. Very few farmers keep even a record of their receipts and expenditures, and an extremely small percentage ever think of taking an inventory. For several reasons the farm inventory, properly kept, is one of the most essential features of the business side of the farm operations. The inventory should show all assets, including land and improvements, stock, farm equipment, cash, notes receivable, accounts receivable and everything whatsoever of any value, and all liabilities, including mortgages, notes payable, accounts payable, etc. If the inventory is properly taken the balance between the assets and the liabilities wil show the present worth of the individual. This balance compared with the balance of the preceding year will show the net returns for the current year. For example, if my assets January 1, 1915, equal $14,356.25 and my liabilities equal $5,231.75, my present worth January 1, 1915, would be the difference, or $9124.50. If my present worth January 1, 1914, was $7436.50 the net returns from my business for the year 1914 would be $9124.50 minus $7436.50, which equals $1688.00. This gives the farmer the best guide available as to whether he is getting ahead each year.

Keeping a record of receipts and expenses is essential, but the receipts minus the expenses will seldom give a correct idea of the net returns of the business for the year. Some new machinery may have been purchased, some breeding stock may have been added or some permanent improvement added to the place. These would make the expenditures run high, making the net receipts seem very low for the year; yet the machinery, the stock or the improvements would increase the farmers' assets and present worth at the close of the year by almost their entire cost, if properly cared for. On the other hand, there may have been a reduction in stock or equipment, swelling the receipts and making apparently high returns for the year, but incorrectly credited as the product of the year's business. The present worth would not be altered, although the form of certain assets may have been changed.

A proper inventory should include every item of equipment on the farm. This periodical checking up on every item, estimating its value, noting depreciation or its entire loss in many cases, leads to greater care in using and storing equipment. Such inventory would reveal sources of expense and loss due to neglect or carelessness that would reach total amounts surprising to most farmers.

The annual inventory tends toward a more accurate rating of the different features of the business. The man who never places a valuation on hay and grain fed on the farm is apt to overestimate the returns from certain stock and underestimate the crop side of his farming. Again an inventory showing the cost and depreciation of equipment connected with some one phase of the business like potato production, for example, will usually show a much greater charge against the crop for that item than many imagine. It will also usually show the importance of specializing to a certain extent so that a given equipment may handle more stuff. For example, a full equipment of up-to-date potato growers' machinery would place a prohibitive charge against five acres of potatoes, whereas the charge would be far less important on 50 acres.

The inventory furnishes an accurate basis for determining the profitableness of the business. In the example cited above, the $1688.00 net returns for 1914 is not satisfactory unless it covers a reasonable interest on my present worth of January 1, 1914, and in addition pays what wages I could have earned above the expenses of keeping my family. If other members of my family have given their time to the farm also and could have earned regular wages elsewhere the $1688.00 should cover their possible wages also. In other words, if I could have placed my $7436.50 at interest January 1, 1914, and the wage earners of my family and myself could have earned enough after maintaining the family to make more than $1688.00 when added to the year's interest on $7436.50 I am not conducting my business successfully. Many farmers who make no allowance for their own time would find upon taking careful inventory each year that they are not making fair wages for themselves after allowing reasonable interest on the money invested.

The best time to take the inventory

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is when there is least salable and consumable products on hand. This will usually be some time during the winter or early spring. Taken at this time, it will show the farmer before the season's work opens what new tools or repairs are needed.

The inventory should be carefully taken, but when once properly taken the succeeding inventories are simple. A record book should be secured that will hold the inventory for several years. Every item should be listed at the left side of the page and as carefully classified as possible. When there are two or more items of one kind, like plows, cows or horses, they should, as far as possible, be listed separately by name or number, rather than recording as three plows, four horses, etc. The inventory will be much more accurate and it will enable one to keep closer track of the separate items of equipment and of changes in equipment. This would apply to everything that is carried two or more years, like work animals, producing stock or machinery, but things produced for sale within the year would quite properly be valued collectively as 10 pigs, 53 chickens, etc. In the latter cases the breeding stock would be listed separately from the sale stock.

The value of each item at the time of taking first inventory should be inserted in the first vertical column to right of list and under date of inventory. Each succeeding year's inventory values will be placed in the first vacant column to the right in each case. When an item is sold, worn out or lost, note of the fact can be made under the proper date. When the first list is made enough vacant lines should be left at the end of each class of articles to take care of all additions to the class for several years. If each new item and price is recorded when purchased, when the second and succeeding inventories are taken, one has but to check over all items recorded and he knows that he has gone over all his working equipment. Many things, like feed, store stuff like potatoes, hay and apples, to be sold, fattening pigs and all such stuff that does not carry along from year to year, will have to be listed anew each year and will bear no necessary relation to the last year's list.

The value and accuracy of the inventory as a key to the owner's progress, lies not alone with the completeness of the inventory but with the judgment used in placing valuations. The land and the improvements may well be listed and valued separately. The valuation placed upon such improvements as buildings and fences will decrease according to the wear and tear, but will be raised at any time by repairs placed upon them. Increased cost of building material and labor may raise the real value enough or more than enough to make up for deterioration. Such factors must be considered. Proper management may increase the producing value of the land five, ten, fifteen or more dollars per acre. The inventory may honestly indicate such increase in valuation. The reverse may happen also. Any stable rise in value of land, due to general development of the country, may properly be shown in the inventory as it would represent a real increase in the owner's assets. Extreme temporary fluctuations in the values due to disturbed financial or industrial conditions had better be ignored in the inventory unless one intends to take advantage of temporary conditions by closing out business as it gives no indication of a man's permanent worth.

One general rule may be distinctly used in the value of all items to be sold or to be retained upon the farm. If for sale, place at the market value, whether high or low. If to be retained, place at its normal value for use on the farm. Three illustrations will suffice. Suppose we have 20 tons of alfalfa hay, the usual value on our farm being $12.00 per ton. Temporary conditions have raised the price to $20 per ton. If it is for sale we can properly place it in our inventory for $20. If we have cows and are wise enough not to get scared and sell out we will have to feed the alfalfa and can realize only what it is worth for feed. It will give us a truer indication of our present worth to inventory it at its freed value, for that is all that we are going to realize out of it. Again, suppose we have five brood sows. Temporary demand has placed an abnormal value on brood sows and ours could be sold at 50 per cent more than they are normally worth. If we are to retain them, they should be inventoried at their normal value. Again, suppose we purchase a new binder. At the next inventory date it would, if carefuly handled, be worth within 10 per cent of its cost for continued use on the farm, while its sale value would be reduced probably one-third or more because it becomes second-hand. The wearing value is the proper one to give in the inventory.

In short, "sale value" for all things for sale and "use" or "wearing value" for all things to be retained will make the inventory the most useful guide to the farmers' real financial standing.—Geo. Severance, Agriculturist, Washington Agricultural College.

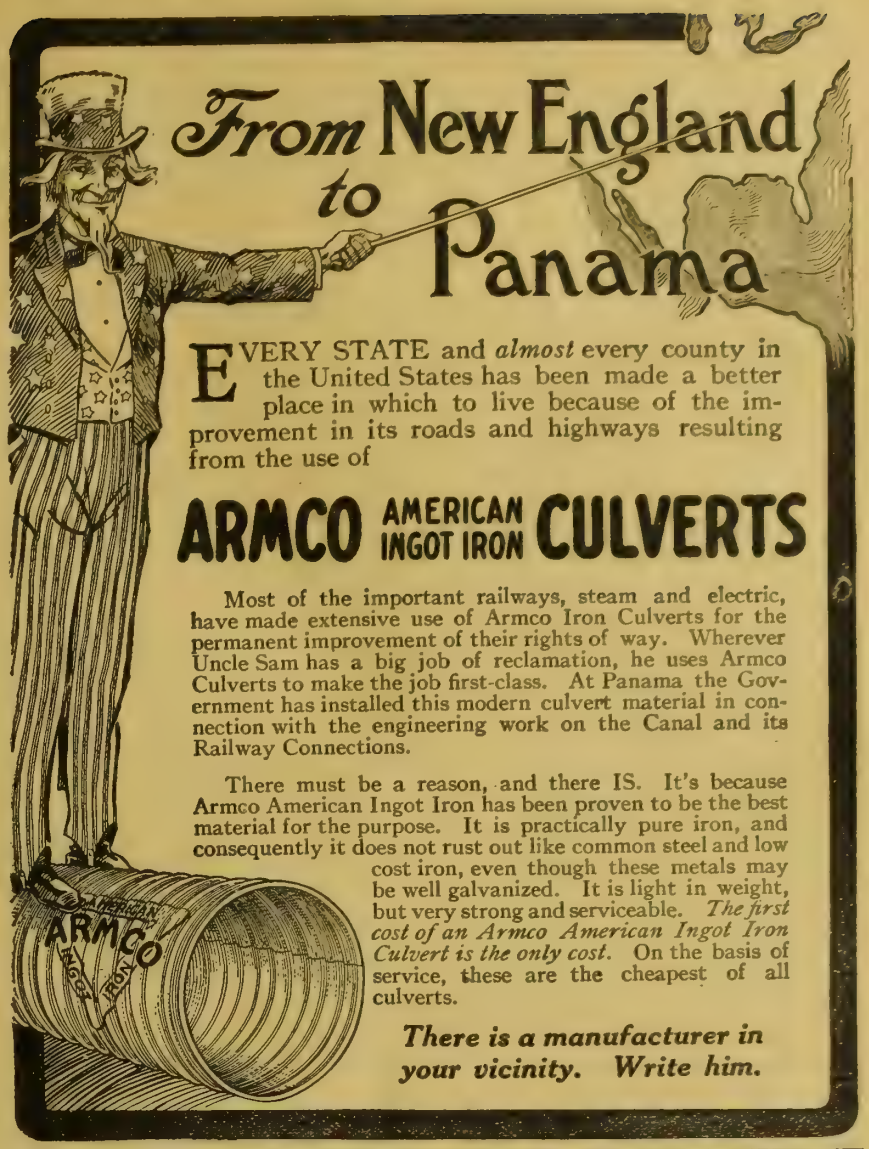
DISCREPANCY IN MARKETING

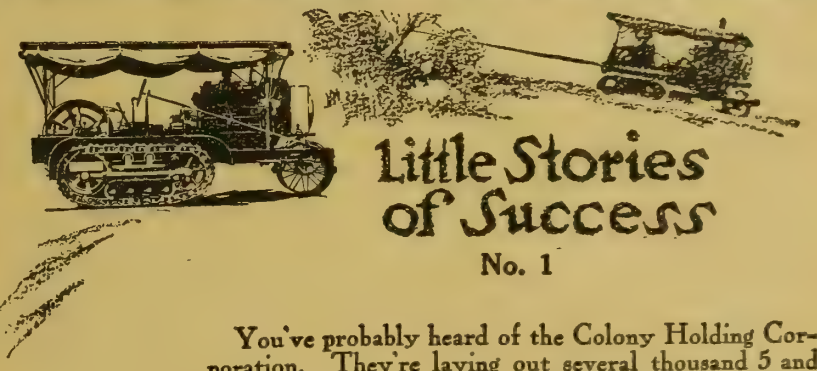
In Mr. Roeding's article on the peach he refers to the cause of low prices of dried fruit and seems to think it is on account of the quality or because fruit has not been peeled and put up in attractive shape. If this is true peach men should do their best to correct the omission but is there not another cause? I think the main cause is in our marketing system, especially with the retail men. The farmer is getting three cents per pound for his dried peaches and the consumer is paying ten cents or more. There is too much discrepancy. Besides, if the consumer pays ten cents certainly the producer should receive as much as five cents. If retailers could be content with a lesser profit and all fruit could reach the consumer at a lower price vastly more of it would be consumed. Is there not some way of correcting this evil?—John E. New, Reedley.

NUMBER OF APPLE TREES IN STATE

There are, according to figures compiled by the secretary of the apple show, held in San Francisco, 5,784,000 apple trees in the state, divided among the thirty counties as follows:

Alameda, 8,000; Butte, 60,000; El Dorado, 16,000; Fresno, 30,000; Humboldt, 126,000; Inyo, 110,000; Lake 15,000; Los Angeles, 180,000; Madera, 30,000; Mendocino, 650,000; Monterey, 500,000; Napa, 160,000; Nevada, 16,000; Placer, 26,000; Riverside, 150,000; Sacramento, 40,000; San Bernardino, 380,000; San Benito, 60,000; San Diego, 150,000; San Joaquin, 27,000; Santa Barbara, 60,000; Santa Clara, 60,000; Santa Cruz, 2,000,000; Shasta, 35,000; Siskiyou, 100,000; Sonoma, 700,000 Sutter, 30,000; Tehama, 25,000; Yolo, 25,000; Yuba, 15,000.





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Rural California combined with the California Cultivator

A Journal of Horticulture and Agriculture

By
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Thursday, Jan. 21, 1915

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We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

TWO COTTON CROPS

Some Imperial Valley growers are claiming a production of two bales of cotton per acre, but secured through two plantings in one year. The first crop was harvested in June, in fact, the ginning was done on June 17, said to be the earliest record yet made in the United States. Then, according to newspaper reports, new seed was planted on the same ground and on October 15 the second bale on the same acre was ginned. It is possible the newspaper account is somewhat deficient in accuracy of detail, but there is indication that valuable results were obtained by a little attention to intensive cultivation. California climate, soil and water conditions are such that two or more crops a year are possible, and if conditions change so that a reasonable price may be secured every farmer should use his soil to the limit.

SHOP EARLY

A few eastern farm papers are urging farmers to help in restoring business confidence and better times by buying at once, implements, seeds and supplies needed for spring operations. Whether this would aid materially in advancing our general prosperity we are not certain, but we believe it would aid in advancing the prosperity of the farmer, that is, thorough preparation for the coming campaign by having supplies all in hand gives a command of conditions which may arise which the backward farmer may not have. Perhaps to that extent the present campaign will aid in securing a return of prosperity. In any case, let us all be hopeful and let us plan for the future; let us plan for big crops. Along some lines it must be admitted there are still large supplies on hand and little immediate promise of early clearing of the markets, but before another year's productions are ready to offer it is to be presumed that there will be peace on the high seas and ships will be engaged in carrying merchandise rather than those supplies that are used to destroy merchandise.

A FINE BOOK

The Cultivator is proud of the first number of its series of books. As announced some weeks ago, the first number will be a manual of poultry practice. It is written by one who has had the hard knocks of practical experience in California poultry raising. It is not intended as a complete treatise or last word in poultry culture, but we will claim for it that it is one of the most helpful books for the poultry learner we have yet seen. It acknowledges that there are great difficulties in the way of poultry success and tells how to overcome them. The author, Mrs. Koethen, has written for Cultivator readers for some years and has given proof of her ability to say things in a clean-cut, informing way. Her book is even more helpful than her articles, and we know will deserve a place in the library of every farmer, for every farmer does, or should, keep a few head of poultry. The book will be off the press in a short time, and as soon as the first copies are bound they will be mailed to those who have already ordered. It is taking a little longer than was anticipated, but if those who are waiting for the book will have a little patience, it will be received, and we believe prove the best dollar's worth ever secured in the book line.

CANADIAN BREEDERS' CLUBS

The minister of agriculture of Canada is at the head of a thoroughly up-to-date agricultural department. One of the latest advance steps by this department, more particularly by the live stock commissioner, is a service which will greatly advance Canadian horse breeding interests. Stated briefly, the scheme is as follows: The farmers of any district wishing to work for the betterment of horse breeding by encouraging the use of sound, individually excellent pure-bred sires may form a breeders' club, for the purpose of hiring a pure-bred stallion for the benefit of the members. These breeders' clubs, by organizing under and adopting the constitution and by-laws and conforming to the various rules and regulations governing this grant may participate in the federal assistance given to such clubs. This consists in paying practically 25 per cent of the service fees on a guaranteed number of mares. Regular fees are to be charged and one-fourth of these fees are to be returned to the Dominion government to compensate it and ultimately pay for the animal. This is securing some of the best blooded stock to be had and placing it at the service of the farmer and without investment of large sums. The result is most beneficial.

STATE ECONOMIES

While it is being urged that we all economize at every turn, even to the extent of going without our pie, or even doughnuts, that the Belgians and others nearer home may have bread, perhaps it is in order to suggest to our state legislature that this is a good year for economy. There has been wonderful improvement in the handling of state matters within the past few years. Perhaps with the growing state and the growing demands of the people there may be equally as large sums spent as formerly, but we believe to far better purpose.

Of course this is 1915, the year we have long been looking forward to, and we cannot withhold our hospitality during the year when our visitors are coming, but there are at every session of our legislature thousands—and the word, "thousands" is not an exaggeration—of bills presented which lead to the pork barrel. It will be a service greatly appreciated if our legislators will scan these bills very carefully and cut out every measure—with as much economy of time as possible—which shall not have to do with direct and immediate advancement of the state's interests. As an eastern paper has said when appealing for similar action on the part of its state legislature:

"A good house cleaning is needed, and economies can be instituted here and there that will patch the clothes of indigent children, rest tired mothers and lift mortgages from despondent homes."

THE FARMER PAYS

Speaking of the recent advance in freight rates permitted by the interstate commerce commission a national lecturer of the Farmers' Educational and Cooperative Union referred to the fact that no matter what advance might be permitted the railroads or any other transportation or manufacturing interest, the farmer would pay the bill. No matter what the financial loss or the increase of cost, the farmer, who initiates everything, must pay the bill. Had the eight-hour bill carried this would have added still another burden to the farmer, not only because of the immediate advance in his payroll, but because the plows, the cultivators and the transportation would all cost more.

"When a farmer buys a plow he pays the man who mined the metal, the woodman who felled the tree, the manufacturer who assembled the raw material and shaped it into an article of usefulness, the railroad that transported it and the dealer who sold him the goods. He pays the wages of labor and capital employed in the transaction as well as the price of the tools, machinery, buildings, etc., used in the construction of the commodity, and the same applies to all articles of use and diet of himself and those engaged in the subsidiary lines of industry.

"The total value of the nation's annual agricultural products is around $12,000,000,000, and it is safe to estimate that 95 cents on every dollar goes to meeting the expenses of subsidiary industries. The farmer does not work more than 30 minutes per day for himself; the remaining 13 hours of the day's toil he devotes to meeting the payroll of the hired hands of agriculture, such as the manufacturer, railroad, commercial and other servants.

"The farmers of the United States are not financially able to carry 'dead heads' on their payrolls. Our own hired hands are not paid unless we have something for them to do, and we are not willing to carry the hired help of dependent industries unless there is work for them. We must therefore insist upon the most rigid economy."

Merced will hold a two-days' farmers' institute Friday and Saturday, January 29-30. Dr. Coit of the state university will deliver an address on fig culture.

Agricultural Notes

There has been a steady increase in the value of pineapple importations to this country. During the first ten months of 1914 they totaled $1,306,689.

A movement to bring Belgian widows and children to this country to help solve the domestic and farm help problem is being pushed by the Oklahoma Farmer-Stockman.

The International Union of Municipal Dairies will hold its seventh international congress at Stockholm, Sweden, this year. The sixth congress was held in Berne, Switzerland.

During one week, from Monday, December 14, to Saturday, December 19, 1914, the receipts at the Union Stock Yards, Chicago, were 442,453 head of live stock, for which producers are said to have received in cash $11,134,210.

The federal bureau of plant industry is urging potato planters to use as seed only potatoes which have been inspected and bear the white label of the potato inspection service of this bureau. This precaution is because of the danger from powdery scab infection.

An anti-alien land ownership bill is up before the Idaho legislature. It provides that no land in the state may be held by an alien who has not declared intention of becoming a citizen, and that where aliens come into possession of land by inheritance or lien they must dispose of it within five years.

A memorial issue of gold and silver coins to commemorate the Panama-Pacific International Exposition has been authorized by congress. The measure authorizes the coinage of fifty-dollar, two-and-one-half-dollar and one-dollar gold pieces. A part of the issue of gold fifty dollar pieces would be after the model coins issued in California in 1851.

A plan is being presented to the Cuban government to bring in from Europe 15,000 families to colonize different sections. Each family is to be given free passage, placed on 33 1-3 acres of land and maintained for one year. The project is not alone designed to encourage Spanish emigration to Cuba, but also men from other countries—Swiss, Danes, Belgians and from northern Italy.

On the suggestion of David Lubin, delegate of the United States to the International Institute of Agriculture at Rome, congress has passed a resolution aimed to bring about a series of treaties between all nations to steady the world's prices of staples. A conference is called in Rome in 1917, the conference to consist of members appointed by each government adhering to the institute to consider the establishment of a permanent international commerce commission on merchant marine and ocean freight rates.

A moving picture machine attached to an auto is the latest idea of the Louisiana agricultural department. A short time ago the government furnished the university with moving pictures showing the latest methods of intensive farming. But as electrical apparatus and lighting facilities were almost always lacking in the rural communities where the pictures were to be shown, the farmers were forced to forego the educational campaign that had been planned for their especial benefit. Now the problem is solved by attaching a small dynamo to the car. The outfit can be handled and operated by one man.

Agricultural News Notes of the Pacific Coast

Northern California

Cloverdale announces there will be no citrus fair in 1915. This is the first failure to hold the exposition in 23 years.

Approximately 12,000 carloads of vegetables were shipped out of California during 1914, the largest amounts being of potatoes, onions and celery.

A big farmers' meeting is called for Willits, Mendocino County, February 2, for the purpose of organizing a farm bureau and applying for a county farm adviser.

Shipments of deciduous fruit from the state for 1914 totaled 16,146 carloads as compared with 13,331 in 1913. These figures are for all green fruits exclusive of apples.

A mass meeting of farmers of Mendocino County has been announced for the first week in February. It is to be held at Willits and it is proposed to effect an organization for the purpose of securing a county farm adviser.

The secretary of agriculture has authorized the grazing of 9,600 head of cattle, 400 horses, 50 swine, 16,200 sheep and 1,000 goats upon the El Dorado national forest for the grazing season of 1915. Forest Supervisor Evan W. Kelley of Placer County will receive grazing applications until March 1.

The forest service has made a new ruling of importance to stock breeders whose herds graze in the national forests. Where request is made by a majority of users of any grazing grounds in a national forest the forest service will refuse to permit breeding animals of low grade on the range. The rule will become effective February 1.

The Northern California Beekeepers' Association met in Sacramento the last two days of December to consider legislation of interest to bee men. The following officers were elected for the ensuing year: Harry K. Hill, Willows, president; Mrs. L. D. Walker, Sacramento, vice-president; A. L. Heim, Fair Oaks, secretary-treasurer; E. L. Sechrist, Fair Oaks, director; B. B. Hogaboom, Elk Grove, director.

A sweeping quarantine order has been issued by Governor Johnson prohibiting importation into California from all but 16 states of cattle, swine and sheep because of fear of the foot-and-mouth disease. The states excepted are: Washington, Oregon, Idaho, Nevada, Utah, Arizona, Colorado, New Mexico, North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, Texas, Minnesota, Arkansas and Louisiana.

The annual meeting and banquet of the Humboldt County Dairymen's Association was held January 5. The association charges members five per cent for handling their business and report for the year shows a good balance in the treasury. Officers for the ensuing year were elected as follows: President, Harry A. Perry; first vice-president, Louis East; second vice-president, J. N. Fulmor; secretary and treasurer, J. M. Christiansen; directors, J. J. Hansen of Metropolitan, H. F. Harbers of Waddington and M. L. Pontoni of Arcata.

Central California

A farmers' institute was held at Modesto January 7-9.

A carload of apples was recently shipped from Watsonville to Copenhagen.

Persons who graze cattle on the national forests are supplied free of cost with blackleg vaccine on application to foresters.

A bill has been introduced to the legislature for the establishment by the state of free labor exchanges.

A working model of the LaGrange dam will be installed at the Panama-Pacific Exposition by the Modesto chamber of commerce.

The Oakvale Farmers' Club held an institute at the Kings River school house January 15. Practical demonstrations were given in pruning.

The Turlock branch of the Stanislaus County farm bureau now has 120 members. The next meeting of the bureau will be held on the first Tuesday in February.

There was a poultry show in connection with the farmers' institute held at Hanford January 15. Professor Dougherty of the state university talked to poultrymen.

The Inland Waterways' Association of California will meet in San Francisco March 25-27, 1915. This will be the first great congress to convene at the new exposition auditorium.

Flockmasters of the district about McKittrick in Kern County are planning for the annual spring shearing. They report a good growth of grass in the valleys and expect a good heavy wool clip.

The interstate commerce commission announced recently that the proposed increase in freight rates on melons from Sacramento and nearby points to Portland, Seattle and Tacoma are justified.

It is announced that on the 15th of February 60 sections of land eliminated from the Kern national forest will be open to settlement. Practically four-fifths of this was patented before it was withdrawn.

The Ahwahnee unit of the Madera County farm bureau will hold its next meeting January 27 at the Worman ranch. County Adviser Mayhew will be present and give practical demonstrations of planting and pruning.

There is a reward of $25 for the arrest and conviction of anyone killing a pheasant. This statement has been issued by the state fish and game commission to correct an impression that the present is an open season for these birds.

"Sun-Maid" is the name of a new brand of raisins to be placed on the market by the Associated Raisin Company. The cartons will be standard size and will carry illustrations of the San Joaquin Valley and recipes for use of the raisins.

Fresno County has a new ordinance which requires that all growers of, and dealers in nursery stock must register with the county commission of horticulture. No charge is made for registration but there is a heavy penalty for those who do not comply with the provisions of the ordinance.

Southern California

Riversiders are talking up a county fair for this year.

Corona is building a new lemon packing house.

San Dimas orange men estimate the crop at about 75 per cent of normal.

This is the height of the celery shipping season of Orange County.

A bill has been brought before the state legislature to prevent hunting of bear from June 1 to October 16.

The orange packing houses of Highland are doing a big business, one house having 107 employes on its payroll.

Report comes from Garden Grove, Orange County, that the acreage of chili peppers will be greatly decreased this year.

The National Orange Show at San Bernardino 17-24 will give particular attention to citrus by-products. Prizes are offered.

New and more stringent regulations governing importation of cottonseed into Imperial County have already gone into effect.

The Anaheim Walnut Growers' Association has added equipment costing over $6,000 to its packing house during the past season.

The Imperial Valley land office bill has been changed to include a part of Riverside County in the district assigned to the proposed new office.

Poultrymen of Arlington, Riverside County, have signed up to market their eggs cooperatively. The organization is to be modeled on the Petaluma plan.

Orange County has a new milk and dairy inspector in the person of A. L. Barlow, inspector of the Los Angeles health department. His headquarters are at Buena Park.

Santa Monica is proposing to have a rooster barbecue early in May. It is proposed to enact a city ordinance that will practically prohibit chicken raising in the residence district.

The Anaheim Walnut Growers' Association held its annual meeting at its packing house on Saturday, January 9. The association has only 7,000 sacks remaining unsold of this season's crop. It has never handled a crop of finer quality.

The Yorba Linda Citrus Association held its annual meeting Saturday, January 9. The meeting was addressed by Professor H. S. Fawcett on bark and gum disease of citrus trees. G. Harold Powell, sales manager of the exchange, also spoke on marketing.

Shipments of cotton from the United States during the month of December showed 1,110,595 bales, as compared with 1,230,000 during December of 1913. In addition large orders are in sight from Germany, Russia, Austria, Hungary and Italy. Japan has also been buying liberally.

Mr. Francis Cuttle of Riverside is urging citrus growers to pool their experience as to whether it pays best to prune or not to prune frozen citrus trees. There was much discussion on this subject immediately following the big freeze two years ago and Mr. Cuttle suggests that the present is the time to obtain authoritative information on the subject.

The Coast

The farmers' union of Chandler, Arizona, held a broomcorn meeting January 16.

Forest fires in British Columbia covered more than 300,000 acres during the past year.

There will be a convention of the National Beekeepers' Association at Denver February 16-18.

The second annual show of the Utah State Poultry Association is being held this week at Salt Lake City.

Seventeen million dollars' worth of live stock was sold in Portland during the year 1914.

General Villa has issued an order prohibiting exportation of cattle from Mexican territory under his control.

The farmers' week at the Arizona college of agriculture at Tucson had more than double last year's attendance.

The Province of Saskatchewan has presented to the British government 1,500 horses to be used as cavalry mounts.

It is reported that there is a big market in Hawaii for box shook for packing canned pineapple and pineapple juice.

Poultrymen of Chandler, Arizona, held a meeting the day after Christmas to organize an association. The association will hold a show January 28-30.

A horse show will be one of the notable features at the conference week to be held at the Oregon agricultural college at Corvallis, February 1-7.

The Oregon irrigation conference held at Portland the first week in January had the largest attendance of any congress in the history of the association.

The annual farmers' round-up and housekeepers' conference of Southern Utah was conducted by the Utah agricultural college at Richfield the second week in January.

The Idaho State Dairymen's Association convened at Boise January 12-13. The market situation of the Northwest was one of the principal topics of discussion.

The foot-and-mouth disease quarantine declared by the state of Nevada has been materially modified by a new order which allows transportation of cattle through the state to California.

The Northern Arizona Poultry Association has changed its name to Arizona Poultry Breeders' Association, having received its charter as official state branch of the American Poultry Association.

The State Grain Growers, Millers and Shippers' Association of Washington has elected R. C. Lord of Spokane, president. The association advocates a change in the present grading system of grain.

The annual meeting of the Arizona State Poultry Association was held January 9 at Phoenix. W. W. Carney of Mesa was chosen president, G. W. Mears of Phoenix, vice-president; H. G. Powers, secretary; Mrs. G. W. Mears, treasurer.

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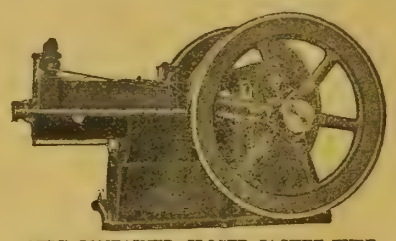

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Live Stock and Dairy

FEEDING SORGHUM TO STEERS

ANSWERING an inquiry in regard to the feeding of steers on silage and sorghum hay, Prof. F. W. Wilson, animal husbandman of the Arizona agricultural experiment station, says:

Your ration of 25 pounds of silage and 10 pounds of sorghum hay is not sufficient as a ration for growing and fattening steers. It is entirely too wide for an economical gain in weight. Further, in order to make up the requirement for growing steers such as you would probably feed, it would be necessary to increase the number of pounds; consequently, on account of its bulk it would be rather difficult for your animals to handle enough of this feed to make the required gains. I would suggest that grain or some other concentrate would be advisable, provided it can be economically produced or shipped to your railroad station. I believe that pasture is worth more than $2 a month in the Salt River Valley and in the Imperial Valley. We have found that sorghum rations alone were undobutedly inferior to alfalfa alone, but in combination with alfalfa yield greater gains than when fed alone. This was true with a series of experiments with beef cattle, also with sheep.

The shrinkage of the animals fed alfalfa and combined rations, that is, alfalfa and carbohydrate feeds, was practically the same, although there seems to be slightly more with combined rations. At this time there is no discrimination between the quality of meats produced on combined rations such as alfalfa, milo maize, sorghum, etc., and that of steers on rations of alfalfa alone; in fact there is no discrimination that I have been able to learn between animals that are corn fed, those from the range, or grain fed in Arizona. I have found that with the use of alfalfa in combination with such feeds as you mention we get approximately the same results as when alfalfa is fed alone.

The general practice in feeding sorghum, especially in irrigated valleys, is to simply turn the cattle into the fields when the herds are well grown, allowing them to feed at will. Later the residue is picked up by stock and young cattle. In many instances sorghum cannot be conveniently handled for feeding in corrals. My experience in western Kansas in the feeding of sorghum hay was to simply cut the crop, rake, shock and leave it in the field; when it became necessary to use this forage I hauled the feed in as required. The forage is usually distributed over the ground. This method is considered economical for the reason that there are no expensive corrals and feeding racks to build; moreover it is much easier to dispose of the residue in the way of coarse stalks, roots, etc. I think that we can be safe in saying that a ration of cane hay or milo maize ensilage and dry hay will not compare very favorably as a meat producer with the alfalfa pastures and alfalfa hay of the irrigated valleys of the southwest. A combination of this feed with alfalfa would probably give you very good results; however I believe that alfalfa hay would be rather expensive for you to feed.

Milo silage is a great deal higher in crude protein, carbohydrates and fat than amber cane silage; consequently, we would consider it a much better silage for the fattening of steers. However, it has been found that cane silage makes an excellent grade of dairy ensilage. My idea of your proposed ration would be that it is perhaps just a little bit better than a maintenance ration; hence you would expect your animals to make but little gain in weight. Probably ensilage and cane hay could be economically used in your section of the country in connection with the feeding of animals that are not doing well on the range, particularly old cows. A little feed at the proper time is of a great deal of benefit to animals that are in a rundown condition, and it would be a great saving to the cattlemen of your section if they would make more use of crops such as you have suggested.

I have been unable to find anything definite relative to Egyptian wheat as an ensilage. Sudan grass is a little higher in carbohydrates and also a little lower in fat than cane hay. It should make a very successful feed for your section of the country in view of the fact that it does not require a great deal of water and, moreover, is a very quick growing crop. In some sections of Texas it will make a hay crop in 60 days.

POINTS ON CHURNING

Always scald the churn out well before churning.

Regular and frequent churning is preferable to heavy and irregular churning.

Stir cream well after each separation. Never add warm cream to cold, nor add sweet to sour. Keep it all sweet until ready to ripen.

In working the butter, all the milk and water should be removed from it, which will add to its flavor, appearance and good keeping qualities.

Sweet cream makes better flavored butter than sour cream, but it is somewhat harder to churn and does not yield quite the amount of butter sour cream does.

If one churns too quickly much of the butter will be left in the milk and the product will be of a poorer quality than if churned in the proper time, about 30 to 50 minutes being acknowledged as the correct period for securing best results. Butter comes sooner than this though under certain conditions, especially in winter.

The most satisfactory results are secured by churning with the vessel not over one-half full of cream—one-third full will be even better; so there will be ample agitation and splashing of the cream to separate the fat-globules and produce the maximum amount of sweet, solid, well-flavored butter.

Before attempting to churn cream, it is better to let it sour till it tastes about as ordinary butter. This supplies more acid than is in sweet cream, which aids in breaking up the butter-fat globules, causing all the butter to be extracted. If the cream is slow in souring, set it near the stove and stir

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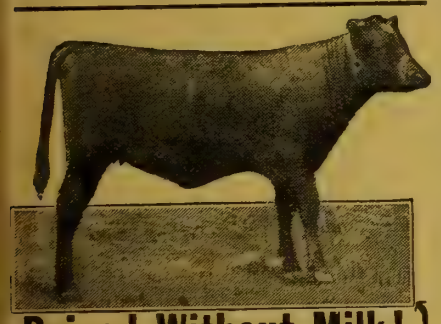

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frequently till the warmth turns it to the proper flavor for easy churning and good butter.

Where the cream froths in churning, it is too cold—a very common error. In such case, do not try to warm it by adding hot water or setting it over a fire, but secure a good-sized vessel (tub, large candy-pail or boiler). Fill it with water as warm as the hand will bear, set the churn in it and let the temperature of the cream rise till it stops frothing; then remove the churn from the water and continue churning. Adding hot water to warm the cream scalds and injures the butter-particles till much of the butter will be lost and gives that which is secured a sickly, whitish color, it being soft, greasy and of very inferior grade.—Successful Farming.

PNEUMONIA IN HORSES

It is very easy for horses to contract pneumonia during the spring months. If the horses have become warm from work and stand unblanketed for an hour or more in the wind they readily take cold and frequently the lungs are affected.

Pneumonia is inflammation of the lungs, the horse has a high fever, 105 degrees, and the pulse is so rapid in many cases that one cannot count it. The animal refuses feed, the hair all over the body stands erect, the breathing is labored, the eyes partly closed and inside of lids very red. If one sees the horse in the early stages he will notice the animal having a chill the same as a person. The surface of the body is cold, while the inside of animal is hot with fever.

Put your affected horse in a box stall where there is plenty of air but do not allow the wind to blow on him. Put a mustard plaster over the lungs, of equal parts mustard and flour. Then cover with two or three warm blankets. Give the horse all the water he wants. Give him any feed he will eat. You can keep the high temperature down by frequent rectal injections of cold water. If your patient will eat bran mashes they will be valuable in keeping the bowels laxative, as the high fever has caused constipation.—C. L. Barnes, Colorado Agricultural College.

COYOTES

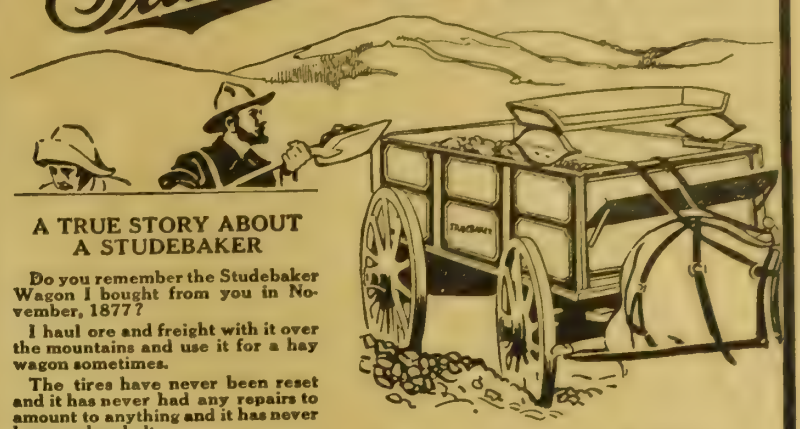
We may truthfully say that the coyotes with the advance of civilization are holding their own, if not increasing.

During the winter season lack of their natural food will cause the coyotes to seek the nearby ranches and feed upon domestic animals. Coyotes are very cunning and somewhat difficult to trap or poison. On account of his craftiness the coyote is a prominent figure in Indian myths. One is as follows:

The Deity and creator of the Karok religion was Kareya, who made the fishes, animals, and finally man. Him he commanded to assemble all the animals, in order to assign to each his rank, by distributing bows and arrows, the longest to the most powerful, and so on.

The birds and beasts came together the night before the distribution and all went to sleep except the coyote, who determined to stay awake all night and go forth earliest in the morning to get the longest bow, but overreached himself and fell asleep just before dawn. When he opened his eyes only the shortest bow was left for him. But Kareya, pitying his weakness and disappointment, gave him cunning ten times greater than

Studebaker
WAGONS BUGGIES HARNESS



A TRUE STORY ABOUT A STUDEBAKER

Do you remember the Studebaker Wagon I bought from you in November, 1877?

I haul ore and freight with it over the mountains and use it for a hay wagon sometimes.

The tires have never been reset and it has never had any repairs to amount to anything and it has never been under shelter.

It is a good old wagon yet and capable of being used for many years to come.

Ray McLaughlin,
Hayman, Col.

36 year old Studebaker hauling ore over mountains

THINK what this sturdy wagon, bought in 1877, has earned for its owner.

—and think how very little he has spent on it for repairs. Even the tires have not had to be set.

—and it has never been under shelter,

What you can expect from a Studebaker

A remarkable story. But no more than is expected of a Studebaker.

Air dried wood, tested iron and steel, good paint and varnish and skilled workmanship are bound to give satisfaction—and lasting results.

That's why it pays to buy a Studebaker.

It is true you may be offered a wagon represented to be "just as good" and costing less. But don't be imposed upon. A wagon is as good as its life is long—and Studebaker wagons are cheapest in the end.

What you want is a wagon that will last a lifetime, run easily and not cost you continual small sums for repairs.

And that is what you get when you buy a Studebaker. Sixty-three years of wagon building integrity insure you against the mistakes of the manufacturer who makes farm wagons to sell cheap.

Remember a Studebaker is sold at the lowest price for which it is possible to make a trustworthy wagon.

—and the same is true of Studebaker Harness and Buggies.

STUDEBAKER, South Bend, Ind.

NEW YORK CHICAGO DALLAS KANSAS CITY DENVER
MINNEAPOLIS SALT LAKE CITY SAN FRANCISCO PORTLAND, ORE.

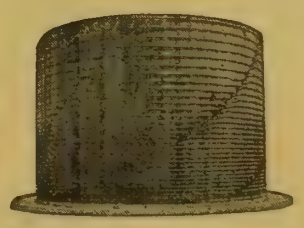
Studebakers last a lifetime

SILOS

BUILT FOR YOUR PARTICULAR NEEDS.
EXACTLY AS YOU WANT THEM.
ALL SIZES AND DIMENSIONS

16 x 36 Redwood Stave Silo manuafactured by us for the Panama-Pacific International Exposition, San Francisco, 1915

TANKS

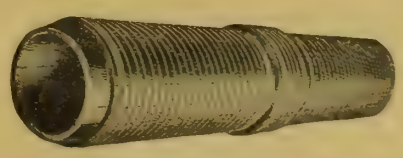


Built to order, to suit all uses and users. Cheaper than metal tanks, last longer. Won't rust. Can be taken down and re-erected without damage. Capacities, 500 to 500,000 Gallons. Towers included if you want them.

PIPE

MACHINE BANDED OR CONTINUOUS STAVE

For water supply—irrigation or power. Cheaper than any other pipe of equal size or capacity. Longer lived than any metal pipe except cast iron.



All our silos, tanks and pipe are designed by engineers to meet every condition. Made in our big factory from CLEAR, AIR DRIED REDWOOD. Selected from a stock of 40 million feet which we carry at all times.

ASK US FOR PRICES

REDWOOD MANUFACTURERS CO.
804 KOHL BUILDING SAN FRANCISCO

Really Cheap Alfalfa Land Within 35 miles of Los Angeles

The RESERVED LANDS of the CHINO RANCH, 35 miles east of Los Angeles, have been placed in our hands for sale,

At Bargain Prices

The CHINO RANCHO is noted for the prosperity of its farmers. The soil is deep, rich, fertile. There is an abundance of water underlying the property. On the land which is for sale the pumping lift should not exceed 25 feet—which means CHEAP WATER.

Much of the land faces upon county roads, for the paving of which bonds have been voted. This will give quick and easy communication to THREE good towns and shipping points, on three railroads.

We believe that a man who understands

Hog Raising

Can make more than a good living off 20 acres of this land, partly planted in alfalfa, raising part of his fattening food, buying part of it. The land is good for beets, general farming, gardening and fruit as well as alfalfa.

We will sell good level land, which can be readily watered at low expense, as cheap as

$175 an Acre

And make very easy terms. THIS IS THE LAST of the Chino irrigable ranch lands. Inquiry has been FAST, it is going to sell FAST, the land is ALL GOOD, but SOME IS BETTER. Those who come EARLY get their pick.

Special terms will be made to men who have had experience in HOG RAISING.

See L. B. Joralmon, with

THOMAS D. CAMPBELL & CO.

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THE "SPIRITS"
POCKET CIGAR LIGHTER
No Flint—No Friction
The best and only practical lighter on the market. No wind can extinguish the flame. Invaluable to smokers. Can be used for a hundred different purposes.
A Scientific Discovery That Ignites Instantly
Each lighter packed in individual box
Price 40c. Agents Wanted
A. L. HYDE, 2923 So. Flower, Los Angeles

The production of olives in the state for 1914 is placed at 27,500 tons, at a gross value of $2,750,000.

before, so that he is sharp-witted above all animals.

The following methods for poisoning have been used successfully:

Take the regular 2-grain capsules and fill with sulphate of strychnine. Securely cap and wipe all trace of the drug from the outside. Insert one capsule in a piece of beef suet the size of a walnut and close the cavity to keep out moisture. The poisoned bait should never be handled except with gloves or forceps, so as not to have any human scent. The bait may be placed around any carcass on which the coyotes are feeding or along trails they are in the habit of following.—W. L. Burnett, Colorado Agricultural College.

NATIONAL ASSOCIATION

The eighteenth annual convention of the American Live Stock Association will meet at San Francisco March 24 and continue three days, according to the official call issued today by Secretary T. W. Tomlinson. Officials of the Panama-Pacific Exposition have designated March 26 as American Live Stock Association day.

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Brain Trouble

I have a horse seven years old that is very restless and does not want to stand at all. He walks around with his head down, stumbles over things, or will butt up against the wall of the barn and does not seem to care. He eats heartily and does not seem to suffer but does not take on any flesh. Can you tell me anything to do for him?—Subscriber, Jackson.

Probably something is wrong with his brain. It may be a small abscess or tumor, or it might be simply congestion. You might try giving him half an ounce of bromide of potash in the drinking water two or three times a day.

Dyspepsia

What is the cause of my mules eating up the corral fences and hayracks? —Subscriber, Plano.

Dyspepsia causes a continual craving. It is caused by overfeeding or a lack of something in the feed. They do not need medicine; the cure is regular and proper feeding. Give water frequently. Feed them each in the morning three pounds of hay and three pounds of grain; no more. At noon feed each three pounds of hay and three to eight pounds of grain, according to the work they are doing. In the evening give each eight to twelve pounds of hay, according to the size, and when this is half eaten give as much grain as you gave at noon. When not eating or working keep them tied so they cannot reach anything to gnaw at. In a short time they will be cured and then continue this method of feeding. Every day they do not work cut out the grain at noon but do not increase the hay. A horse or mule only needs one pound of hay a day for each 100 pounds weight of the animal, and about the same amount of grain when working.

Cow Aborts

Cow aborted and afterbirth did not come and after waiting 36 hours I attempted to remove it myself.

Some small parts were easily removed but the bulk of it was grown very firmly to the uterus, so that it could not be removed. In the attempt a part of it was torn from the wall of the cavity producing a severe hemorrhage. The parts were then washed with a two per cent solution of zenoleum. The operation was performed four days ago and since then the cow has had more or less fever, and at times seems to be in pain and refuses to eat anything. She has not come to her regular milk.—Subscriber, Ontario.

The cure would be to remove the whole of the afterbirth and thoroughly irrigate the uterus with a good antiseptic solution. The two per cent solution of zenoleum that you used is all right. The afterbirth is attached to the uterus by about 40 cotyledons, and at maturity they separate. By careful manipulation they can be separated without causing a hemorrhage. By rough handling you have caused large ulcers and those coming in contact with the retained portion of the afterbirth causes blood poison. That is the cause of the pain and fever. If a good veterinarian is in reach you had better employ him to complete the job and he will probably save the cow.

Cancer

Horse has had a sore on the shoulder for about two months; think it was scratched by barbed wire. When first noticed it was about the size of a half dollar and dripped blood all the time, but now is 20 times larger. It does not cause any lameness. Veterinarian cut it out but now says he can not cure it. What can we do to check the growth and stop the bleeding? —Subscriber, Princeton.

While cancer is uncommon in the horse we fear this may be one. Would not advise you to give it up too soon. Try this: Get half a pound of formaldehyde and some vaseline. Clip off the hair around the sore and apply plenty of vaseline. Then with a swab apply plenty of the formaldehyde to the sore. This will burn and smart and you will have to tie the horse so he cannot rub it against anything. Apply the formaldehyde several times inside of a few hours. This will form a scab and when it loosens wet the parts once a day with a solution of permanganate of potash; one dram to the quart of water. When it begins to heal grease the edges with bacon fat to keep the skin soft. If it is a cancer nothing will stop it, but it may only be a summer sore and in that case treatment will cure it.

Colt in Poor Condition

Have a colt that will be three years old next spring that is about half the size it should be. It is so extremely poor that it is unsteady on its legs. At times its hind legs stock up, its lower jaw becomes swollen, and in fact the whole head has a swollen appearance. It eats very little. This condition has existed since last spring, when it was castrated. Would castrating cause such a reaction? It was not in the best of condition when castrated. How can its nutrition be improved?—Subscriber.

The castrating might have something to do with the trouble, but since you say "it was not in the best condition when castrated" it may be worms that is keeping him down. First examine him where he was castrated. The cords may have been left too long and have grown to the scrotum. If they have you will find hard lumps as large as an English walnut or larger where the testicles were. They must be removed, and only a veterinarian can do that. After this treat for worms by giving the following: Spirits of turpentine, three ounces; tincture of iron, two ounces; aloin, four drams, and enough raw linseed oil to make one quart. Mix. Shake the bottle well and every other day give four ounces of the mixture. If it physics him do not give it so often but give it all. When you have finished this write again, referring to this article, and tell what the results are and we will advise you what to do next.

Overfed Goat

I have a young milch goat that will often lie and grunt as if oppressed in her stomach. She is a hearty eater and keeps fat on a little but is not too fat. She is with kid since October but used to grunt the same way last summer. They are all yarded and fed hay and a variety of fresh greens. She comes of a heavy milking stock. —Subscriber, San Luis Obispo.

Probably the goat eats too much and the distended stomach does distress her. You should feed her by herself and limit the feed. In a short time the muscles of the stomach will contract to the normal size and she will feel better and even do better in every way.

Read our guarantee of advertisements and advertisers. Quacks and swindlers can't break into these columns with a stick of dynamite.

Faulty Eyesight

I would like to know what is wrong with my horses. They seem stiff in their backs and their hind legs. When they go in and out of the barn they step about two feet high and seem to be in pain while doing it. If one pulls on the halter rope while leading them they pull back and keep pulling until they get loose. Pressure on back of the head or top of the neck seems to hurt them. They eat and drink well. This is a desert country, and they have been running on bunch grass part of the time for three months. —Subscriber, Inyokern.

The backing and pulling at the halter is only a habit. Have someone follow up with a good whip and when they start backing a few lashes will stop that trouble. The high stepping on entering or leaving the stable is probably due to poor eyesight. Probably your stable is dark and they cannot see in. Put plenty of windows in the stable.

HAULING HOGS IN FORD

Mr. T. C. Slaughter of Gardena has a novel and expeditious way of getting his pure-bred Poland Chinas to market. It consists of his Ford auto, to which is attached a two-wheeled trailer. The two wheels from which this trailer is made and the axle were secured from an old castaway automobile. The wheels are very substantial, have rubber tires, and underneath the bed of the trailer is a pair of heavy springs. He can put a ton of live hogs on this and connect the pole with a metal plate which he has attached to the underside of his auto. He says he can start to market over Los Angeles County's good roads and take with him a ton of produce at 25 miles per hour.

Alfalfa Seed

Every field where Seed we offer for sale was grown in 1914 was thoroughly inspected by us for dodder, noxious weeds, etc., before it was harvested.

Everything we offer has been government tested to make our assurance doubly sure, both as to germination and foul weeds.

We are actually offering California's best product.

If you are looking for cheap, unreliable stuff, you will have to look elsewhere, but if you want good seed at an honest price we can serve you.

Samples, prices, etc., on application.

V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.

The only exclusive Alfalfa Seed Dealers in the West.

HEY HAVE 'EM IN AUSTRALIA TOO

A request has been preferred for a efinition of the word "kicker." Let be understood straight away that a kicker" is not one who voices a legitimate trouble or grievance. The "kicker" is another class of man altogether. He waters too much and blames the soil when his crop is a failure; he refuses to make a proper head ditch and blames the grading when the water breaks away and causes trouble; he wants bridges and other facilities provided in impossible places and thinks himself hard done by when he can't get them. Generally he chafes at any necessary regulation or ordinance as a matter of principle and looks at everything connected with the scheme through somber colored spectacles.

His kind are happily becoming scarce on the areas these times as the drouth is showing how much better off a settler is there than on a dry-farming proposition, but he and his like will occasionally make their presence known no doubt for many years to come.

OLD MISSION CHURCH AND PLAZA OF LOS ANGELES AS IT APPEARED 50 YEARS AGO.

It is hard to tell the "kicker" from the well-known gentleman who is always "'agin' the government"; in fact, the names are interchangeable.—Irrigation Record, Leeton, Australia.

FOREST FIRES HARM SOIL FERTILITY

A definite relation between the amount of humus, or vegetable matter in the soil, and its crop-producing power as shown by yields of corn is given in figures just issued by the department of agriculture. The department therefore advocates the use of various methods to introduce the required humus into the soil.

Experts of the forest service state that the soils of the whole country, and particularly of the south, have lost and are losing immense amounts of this source of soil fertility through forest fires which apparently do little immediate damage but rob the soil of accumulations of humus. In many parts of the southwest land is being cleared for farming, and where such forest land has not been burned there is a large percentage of vegetable matter which provides considerable fertility and a good texture. Moreover this soil has a greater capacity to absorb and retain moisture and thus is less likely to be washed and gullied under heavy rains. For these reasons, leaving out of account the damage to standing timber, the department's authorities are agreed that fire should be rigidly kept out of woodlands.

The farmers' week of the Missouri college of agriculture provides instruction not only for farmers and farm women, but has special courses for boys from 10 to 18 years of age and for girls of the same age.

New Macatawa Everbearing Blackberry

Wonderful Vitality

Four out of the six "Macatawa" have started growth, which is satisfactory considering the roots were only packed in paper and sent this long distance.
Yours, faithfully,
TERCY FOWLER.
Shanghai, China, July 6, 1913

THE MACATAWA originated by Alfred Mitting, in 1909, at Holland, Michigan, a cross between the true Giant Himalaya and the Eldorado, and offered to the trade in the fall of 1912. I have named it the Macatawa as that term carries to me the idea of our cold Michigan winters and our occasional dry summers, which this berry stands without the slightest damage. It went through the extreme cold winter of 1911-12 in an exposed condition without freezing. The Macatawa has characteristics of both its parents. The fruit is very large and sweet, in fact it is the sweetest blackberry grown. It is coreless and almost seedless; very solid, jet black when ripe, and can be shipped 1000 miles without bruising. The shape is oblong, very uniform, averaging three and one-half inches around one way, by three and one-fourth inches the other way.

It begins blooming in the southern and coast states about February 15. In the eastern states about April 1st. One month later you can begin to pick. It is a continual cropper from Spring until the frosts, in fact it is the only berry in my 46 years' experience that is an everbearing variety.

Its habit is similar to that of the Eldorado, but self branching, and the bloom is almost semi double, about the size of a silver dollar. So far, all who have tried the berry, say that it is the sweetest and best flavored berry they ever tried. When it was in fruit at Berrydale, it was admired by everyone that saw it, and three thousand plants were sold to said visitors, in the fall of 1912. The young plants come from suckers and not from tips, but it is a shy sucker maker, so we propagate by digging up the roots between the rows and cutting same into one, and one and one-half inch pieces. These piece roots are sown in rows four inches deep, and the rows two feet apart. They should be sown in the southern and coast states from December 1st to March 1st, in the center states from March 1st to May 1st. By the next fall you will have nice plants full of fiber roots, and the plants will be 18 inches high and ready to plant in the field for fruit. Our price for these piece roots is $10 per thousand, one year old plants, $2 per dozen, $12 per hundred, $100 per 1000. 50 plants go at 100 rates, 500 at thousand rates.

The Macatawa Berry is 3½ inches one way by 3¾ inches the other

Macatawa is a Great Berry for Canning

Address all orders to

Santa Cruz Bulb & Plant Company
8 New Street
SANTA CRUZ, CAL.

Wanted Agents to sell The New Macatawa Everbearing Blackberry Plants. Some of our agents are making $10 to $25 a day. We allow a liberal discount on all sales made. Send for outfit now with References to Santa Cruz Bulb & Plant Co., No 8 New St., Santa Cruz, Cal.

Mandy Lee
Incubator of Certainty

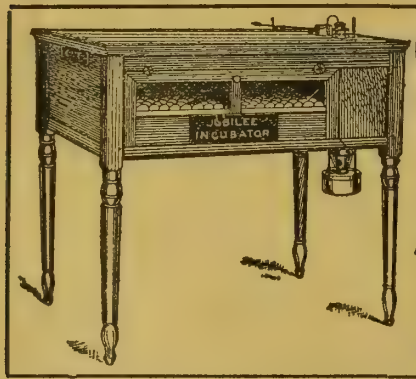
For the first time, Heat, Moisture and Fresh Air are measured and exactly adapted to each other.

What This Means to You

That millions more chicks are going to be hatched from the same number of eggs and the new principle which is proving such a great success in the Mandy Lee Incubator is going to give the same certainty to all operators.

Made in 60, 100, 140, 200, 300, 600 Egg Sizes.

Peerless Poultry Supply Co.
409 East Third Street LOS ANGELES, CAL.



Going to Hatch Chickens?

How are you going to supply the demand for chicks and eggs for 1915? You cannot make a success unless you use a

JUBILEE

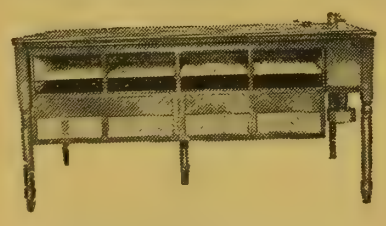
Ask the poultryman who has one.

Send for Catalog J.

JUBILEE INCUBATOR CO.
Sunnyvale, - - - - California

AGENTS
Jubilee Incubators and Brooders
POULTRY SUPPLIES AND SEEDS
Aggeler & Musser Seed Co., Warehouse 6th & Alameda St. Branch Store 115 No. Main St. **Los Angeles, Cal.**

"PIONEER" Patented Incubator $15.00
540 Egg Size



down and balance payable monthly. We pay the freight and ship for your approval before you pay ONE CENT. Our prices are much lower than other factories. We claim and guarantee the Pioneer to be the highest class hot water Incubator on the American market. All sizes.
Send today. Free 32-page catalog.

THE PIONEER HATCHERY CO. 112 East 8th St., Los Angeles, Cal.

Baby Chicks: Standard Bred; The best to be had are shipped by us every week in the year. Also Petaluma's best utility stock. Price-list and pamphlet mailed free upon request.
Now booking orders for Fall and Spring delivery.
Thomas Hatchery, Petaluma, Cal., Route D.

BABY CHICKS and EGGS
We will book your order for Chicks or Eggs for future delivery.
WHITE LEGHORNS, BLACK MINORCAS AND R. I. REDS OUR SPECIALTY.
Our Chicks are hatched in the
BEST VENTILATED HATCHERY IN CALIFORNIA.
INSTRUCTIONS HOW TO RAISE CHICKS FREE.
Hicks Jubilee Hatchery, Route 2, Box 22, Petaluma, California

THE LARGEST RETURNS FOR YOUR MONEY
proved by actual experience, are produced by NITRATE OF SODA; because Nitrate is always needed in our soils.
Send five cents for postage on free books, and state what crops you are growing.
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RIGHT NOW WE ARE HATCHING MANY KINDS OF BABY CHICKS, and can fill orders for most any number. Write us your needs and date you wish them and we will be glad to quote you prices by return mail. FREE 66-PAGE CATALOG.

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FREE 1915 SEED CATALOG
OF INTEREST TO EVERY RANCHER
1,000 QUESTIONS ANSWERED
200-page, handsome illustrated seed catalogue. Surpasses all previous editions. Complete listing of seeds. Poultry hints valuable to ranchers. Write for it.
AGGELER & MUSSER SEED COMPANY
6th AND ALAMEDA STS. LOS ANGELES, CAL.
READ-MILLER CO.

Poultry for Profit

ARTIFICIAL BROODING OF CHICKENS

THE artificial method of brooding chickens, according to the United States department of agriculture's specialist, consists in supplying artificially, as nearly as possible, the heat furnished by the hen under natural conditions. The temperature of a hen is about 106 degrees Fahrenheit, but as hens seldom sit closely on chickens the latter do not receive this degree of heat. Hens adapt their methods of brooding to conditions, such as temperature, size of the chickens, wet weather, etc., and the operator of a brooder must meet these conditions as well as he can. This lack of adjustability to changes is one of the weakest points in our present brooders and brooder systems. Some of the most important faults in the management of brooders are overcrowding and lack of ventilation, while the chickens fail to get sufficient exercise. The brooder should supply the proper temperature, be readily adapted to changes in weather conditions and be easy to clean and well ventilated.

Chickens are usually left in the incubator from 24 to 36 hours after hatching, without feeding, before they are removed to the brooder, which should have been in operation for a day or two at the proper temperature for receiving the chickens. A beginner should try his brooding system carefully before he uses it. After placing the chickens in the brooder they can be given feed and water. Subsequent loss in chickens is frequently due to chilling received while taking them from the incubator to the brooder. They should be moved in a covered basket or receptacle in cool or cold weather.

Hovers, Brooders and Brooding Systems

There are a large number of hovers, brooders and brooding systems used throughout the country, some with success, although many are discarded as failures, while each year brings some modification or change. One poultryman uses a system successfully, while his neighbor may make a failure of the same system but does well with another. More difference of opinion exists as to the value of brooding systems than in any other part of poultry rearing, which shows that no system is ideal for all conditions or all people, but that success depends largely on individual handling and care. Many failures in brooding are due to weak chickens, which may be traced to faulty incubation or weakness in the breeding stock. Successful rearing of chickens depends primarily upon having healthy, vigorous breeding stock.

Brooding systems may be classified as follows, according to their capacity: Individual brooders or hovers holding from 25 to 100 chickens; coal, gasoline and engine or distillate oilstove brooders, with a capacity varying from 200 to 1,200 chicks; and hot-water pipe systems, the capacity of which is unlimited. The beginner, if possible, should thoroughly investigate the brooding equipment used on successful poultry farms which have been in operation for some years.

Individual Hovers and Brooders

The small individual hovers and brooders are heated with either hot air or hot water, with kerosene oil as the source of heat. Hovers are used entirely inside, either in brooder houses or in small colony houses, while brooders are made for both indoor and outdoor use. Outdoor brooders are used with success and work very satisfactorily under most weather conditions. The capacity of brooders and hovers is often overestimated, and one-half to two-thirds of the number of chickens commonly advised will do much better than a larger number. The danger from fire, due frequently to carelessness and lack of attention, is considerable in cheap brooders and hovers, while there is some risk in the best grades, although proper care will reduce this to a minimum. Individual hovers in colony houses or several in one large house are giving quite general satisfaction on small poultry farms, while the pipe system of brooding is commonly used in large commercial poultry plants and where extensive winter brooding is done. When a lamp is used as the source of heat, care should be taken to keep the wick and burner properly cleaned. Brooder lamps and stoves should be inspected several times a day. Do not fill the brooder lamp quite full of oil, as the heat from the lighted wick will expand the oil in the bowl and may cause it to overflow and catch fire.

Gasoline brooders, brooder stoves burning engine-distillate oil, and a separate individual hover heated by a coal fire are coming into more general use, each with a capacity varying from 200 to 1,500 chickens. These large individual brooders are used in colony houses, and when the chickens are weaned the colony house is used as a growing coop, which requires a smaller investment than the long, piped brooder house, and allows one to rear the chicks on range to good advantage. Brooder stoves with a capacity of from 500 to 1,500 chickens, heated by distillate oil, are used quite extensively in some sections of the country. These stoves are usually seen in houses which are about 18 feet square, but are occasionally found in long brooder houses. Most of them are equipped with a water regulator that controls the flow of oil, which is fed automatically from a tank or barrel outside the house, or several stoves may be connected with the same supply tank. This system provides good ventilation, sufficient heat to keep the chickens from crowding, and requires a minimum of care.

Until one has had considerable experience it is best not to brood over 1,000 chickens in one flock, and a much smaller number would probably do better.

Individual hovers with a capacity of from 200 to 1,000 chickens have recently been placed on the market and appear to be giving satisfaction. Each hover is heated by a separate self-feeding coal stove which is adapted for use in a colony brooder house. The value of this brooder would appear to depend greatly on the efficiency of the heater and the

"From Factory to You."

The Commercial Engine

Highest efficiency at lowest cost.
A size for every need

Valuable Catalog

containing useful water tables Free. Send for it.
Some of our users say:
"Shows a very high efficiency."
"Think Commercial best on market."
"Giving us perfect satisfaction."
Before you buy find out about "The Engine of No Regrets."
Send for catalog 18-C

Commercial Engine Co.
2416 PORTER ST. Los Angeles
Branch, 1228 "H" St., Fresno

40 Acre Equipped Farms

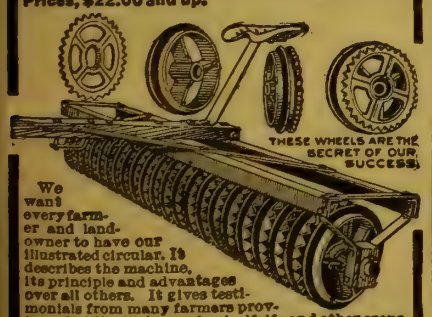
On every 40 acres we install a pumping plant, provide trees and seed adapted to the soil, and necessary farm implements to begin your work.

This establishes you at once on good land in the early fruit district of the upper Sacramento Valley, and assures crop returns the first year. Every one who wants a farm should investigate this offer. Write to.

DUDLEY MOULTON
12th Floor 1st Nat'l Bank Bldg., San Francisco

3 MACHINES IN 1

A perfect seed bed is as important as to sow or plant. The Western Pulverizer, Packer and Mulcher makes a perfect seed bed and leaves a loose mulch on top to retain the moisture in one operation. It will double profits on crops. Made in 8 sizes, 1 and 3 sections. Sold direct to you on one year's trial. Prices, $22.00 and up.



We want every farmer and land-owner to have our illustrated circular. It describes the machine, its principle and advantages over all others. It gives testimonials from many farmers proving what it will do on wheat, alfalfa and other crops. It contains valuable information on how to prepare the soil for better results. Send for this circular today, whether you want to buy or not.

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LET THE WIND **PUMP YOUR WATER FOR NOTHING**

WHY PAY FOR GASOLINE WHEN WIND IS FREE! Get a Big, Powerful, Light-Running, Double-Geared

SAMSON WIND MILL

admitted by all perfection in Wind Mill Construction

STOVER MFG. CO.
178 Samson Avenue Freeport, Illinois
We also build Alfalfa Grinders, Hand Grinders, Stover Feed-mills, Pump Jacks, Ensilage Cutters Free catalogs

SECOND HAND **PIPE** AND CASING

All our pipe and casing has newly cut threads with new couplings attached and dipped in asphaltum. Guaranteed good as new. Prompt delivery on carloads or less. Small orders receive same attention as large ones. All sizes of pipe, also fittings and valves.

WEISSBAUM PIPE WORKS
100 Eleventh Street, San Francisco

time required to care for the stove.

Hot-Water Pipe Brooders

This system consists of long brooder houses, heated with hot water, coal being used for fuel almost exclusively. Many of the latest mammoth brooders are giving good success, and in these cases the labor of brooding a large number of chickens is less than where small individual brooders or hovers are used. These brooders are suitable for large poultry farms or for farms where most of the chickens are raised during the winter and early spring.

Method of Heating

Brooders are heated either by overhead or bottom heat or by a combination of these two methods. Too much bottom heat does not give good results, while either the overhead or the combination methods are used successfully. Many pipe systems have a hover or cover over a section of the pipes in each pen, while others are used without them, and each appears to give good results with different operators. A piece of wool felt or cotton flannel is often used for this purpose. Gas and electricity are also used for heating brooders and hovers with good success, and where available they supply one of the steadiest and most convenient sources of heat. A brooder built along the style of the oil brooder stoves, with gas or electricity as the source of heat, should prove very satisfactory. Heaters for the mammoth brooders or hot-water pipe systems are usually equipped with automatic regulators, which are operated either by expansion of water or electric contact. Both types of regulators have given good satisfaction. A reliable regulator is very essential to success with any of these systems.

DRAWING POULTRY

The poultry handling specialists of the United States department of agriculture are urging housewives to buy their chickens undrawn and with their heads and feet still on. An undrawn chicken, they say, shows its lack of freshness or its unfitness for food much more clearly than does a fully dressed bird, in the dressing of which certain significant signs can easily be removed by the crafty poultry dresser.

Moreover, by actual government tests as reported in Circular No. 70 of the bureau of chemistry, fully drawn poultry with head and feet removed decomposes the most rapidly, while undrawn poultry keeps much better than does poultry either wholly or partly drawn. This is because once a chicken is opened for cleaning the delicate tissues in it are open to the bacteria of the air which multiply very rapidly and soon destroy the flavor of the chicken, even if they do not bring about actual putrefaction. The undressed chicken is far less likely to be contaminated in this way as the outer skin is a protection against the inroads of such bacteria.

When the feet of chickens are removed the housewife loses one of the easiest methods of determining whether the bird is young or old. Young chickens have smooth, clean feet and shanks. Old birds have scaly, rough legs and buttons or spurs. The head of a dead chicken gives very clear indications of staleness. The head of a chicken that is not fresh will show a greenish color below the bill, sunken eyes, and a darkening or discoloration on the neck, all of which indicate decay.

The housewife should require that the entrails of a chicken be not drawn, or at least should have the butcher draw them in her presence. Moreover, the entrails of the chicken often show fully conditions that are not evident after the bird is fully drawn. The appearance of the entrails will help her to tell whether the chicken is fresh and whether it has been properly handled. Entrails in a good chicken should be almost empty, round, firm in texture, and showing little red veins here and there. If the intestines are full the bird was not starved for 24 hours before killing as it should have been, or else sand was fed to it to increase its weight and work a fraud on the buyer. If the animal heat was not removed quickly and completely, the roundness of the intestines will be lost and the folds of the intestines will stick together. There also will be an undue amount of sliminess and an unpleasant odor which is not found in a properly chilled bird. There is, of course, always some odor when the body cavity of a bird is opened, even if it is just killed, but this odor is quite different from the pronounced smell which comes with decay. An unscrupulous dealer cannot foist bad birds on the housewife who dresses the chickens herself and knows how to interpret what she sees and smells.

The skin of a chicken will tell the housewife whether the bird has been properly "dry" picked and "air chilled" or whether it has been "scalded" in order to remove the feathers. The skin of a dry-picked chicken is flexible, translucent, with the feather papillae plainly visible and contains short hairs which have to be removed by singeing. If a chicken has been scalded the skin is hard, thick, close to the muscles underneath and almost free from these hairs. The skin of a dry-picked chicken which has been chilled in water has lost the powdery look which is characteristic and is shiny, thicker than when air chilled, and it is scarcely possible to see the pink muscles underneath as one should be able to do. A water chilled chicken is also a fraud to the buyer, because it absorbs water, which is charged for at chicken prices.

Housewives should insist on a dry-picked chicken, because any wetting of a chicken, and especially scalding, lessens or destroys the delicate flavor of the meat.

CONTROL OF CHICKEN MITES

Replying to an inquirer from Congress, Arizona, who asks about a remedy for chicken mites and ticks, Prof. G. W. Barnes, farm adviser on livestock of the agricultural extension service of the university of Arizona college of agriculture, recommends the following powders and sprays:

Formula 1—Three parts gasoline, one part crude carbolic acid, 90-95 per cent strength. (Do not use crude carbolic less than 90-95 per cent strength.)

Formula 2—Three parts gasoline, one part cresol. Mix the gasoline and crude carbolic acid together or if cresol is used instead of crude carbolic mix very thoroughly; add gradually while stirring plaster of Paris to take up all the moisture. It will require about four quarts of plaster of Paris to one quart of liquid. When enough plaster of Paris has been used the mixture should be a dry pinkish brown powder, having a combined carbolic and gasoline odor. Sprinkle well into the feathers.

For a spray to be applied to the roost, boxes and walls, you may use three parts kerosene and one part crude carbolic acid, 90-95 per cent strength, or if the 90-95 per cent crude carbolic acid cannot be obtained, cresol may be substituted. Stir thoroughly and apply with brush or spray pump.

It would be well also to rub the chickens' heads with vaseline and sulphur.

Dont Forget

That care in selecting the grain you are going to feed your baby chicks will save you lots of trouble and loss. The ingredients of

Coulson's

Special Chick Food

are very carefully selected to give the best results.

Only strong wheat, sound corn, kiln dried steel cut oats and carefully selected seeds are used in its composition.

Give It a Trial
Same Price as Before

Coulson Co. Petaluma, Cal.

The Fresh Air Brooder Stove

It exhausts warm Fresh Air from its Base to the chicks. If you use our stove you can't get away from proper ventilation. Our 1915 Brooder Stove is by far the best model we have ever produced. Let us send you our New Catalogue. It is full of splendid information and value to you with any system.

J. E. Kresky
Petaluma, California

A Night Scene of 1500 Baby Chicks Asleep in Sutherland's Perfect Brooder. Note the distribution.

Write for Complete Catalogue and Prices.

Sutherland's Brooder Works
PETALUMA, CALIFORNIA

the Steel King Motor Plow

probides

A Real Service

To the farmers who use from 4 to 12 horses.

Send today for literature.

Weight 3500 lbs. Equal to 8 horses Price $1050.00

STERLING C. LINES
Pacific Coast Dist'r
500 E. 3rd St. Los Angeles, Cal.

MANURE

CARLOAD LOTS
HORSE, COW or SHEEP
Fresh or Well Rotted
Call or Write
PACIFIC MANURE & FERTILIZER CO.
429 Davis St, San Francisco

THE FOWL'S DIGESTIVE SYSTEM

The following description of the digestive system of a fowl is given by a farmers' bulletin of the department of agriculture of New South Wales, Australia: In man digestion begins in the mouth, where the food is begins in the mouth, where the food is masticated and mixed with the saliva. In fowls the system is different, there being very little saliva, and it is thought the tongue is of small use as an organ of taste and assists in swallowing only. About half-way down the gullet is the crop which is a sort of reservoir for feeding the stomach. Below this, the gullet, or oesophagus, opens into a glandular stomach termed the succentric verticle; the food here gets mixed with the gastric juices, and proceeds then to the stomach, or gizzard, where the food is ground by the grit therein to a fineness enabling it to be acted upon by the digestive juices. From the gizzard the masticated food proceeds into the first section of the intestines, the duodenum, where it is transformed into a more digestive substance. Between the sections of the intestines lies a glandular body, the pancreas, which secretes a digestive fluid, its duct opening into the intestines, where the juices are mixed with the already digested food. Opening also into the duodenum, at the back of the pancreatic ducts, is the canal of the gall sack, by which the bile is secreted and emptied into the intestines. This also assists in promoting muscular action of the intestines, whereby the food is forced onwards, either to be absorbed by the blood or voided as waste. The liver has several functions. It plays an important part in the purification of the blood; it secretes bile, supplies heat to the body, etc. The spleen is a wine-colored, disc-shaped body, lying at the right side of the stomach, but the part it plays in the physiology of poultry is not known. The small intestines consist of a number of convolutions, in which the food undergoes further changes. The portion of the intestine extending from these becomes larger in size, and is known as the rectum, and opens into the vent.

UP-TO-DATE STOCK ADVERTISING

We have received from Willowmoor Farms, Redmond, Washington, lithograph showing in colors general view of the farm, also a string of very fine Ayrshires, for which the farm is noted. The farmer, especially the stock grower, is learning that up-to-date advertising has as great value for him as for the merchant or manufacturer.

COMFORTING

It was after the distribution of prizes at a Sunday school.

"Well, did you get a prize?" asked Johnny's mother.

"No," answered Johnny, "but I got 'horrible mention.'"—Ladies' World.

HAD A GOOD EXCUSE

Mother—Tommy, if you're pretending to be an automobile,. I wish you'd run over to the store and get me some butter."

Tommy—I'm awful sorry, mother, but I'm all out of gasoline.—Judge.

"It is the duty of every man and woman to be married at the age of twenty-two," said the lecturer.

"Well," said a woman of thirty, with some asperity, "you needn't tell me that. Talk to the men."—Philadelphia Ledger.

The Gridley Cow Testing Association is experimenting in the feeding of concentrates to dairy cattle.

Money Making Little Liners

Inserted in These Columns Under a Classified Heading. A Clearing House for Our Many Thousands of Readers

LINER RATES ARE 12c PER LINE PER ISSUE

No Ad Accepted for Less Than 36c Per Issue. Figure 6 Words to a Line.

TREES

For Sale—10000 VALENCIA LATE
5000 MARSH SEEDLESS GRAPEFRUIT
8000 EUREKA LEMONS
12000 WASHINGTON NAVELS
Softland trees, perfect in quality, grown by us. Lowest price. Will plant if desired. Consider some exchange—now is most favorable time to make contract for next spring planting. Write or phone today for prices. Phone 559. Ward Realty Co., San Dimas, Cal.

We Have Made a Specialty of Placentia Perfection Walnuts on native black root for a number of years, and are offering the finest trees we have ever grown this year. 80 per cent of our stock is eight feet and up. The scions used were taken from trees in our large orchard that have made a very high record for the past five years. Good Ancestry Pays. Nursery at Villa Park. Hugh T. Thomson, Orange, Cal., R. F. D. 1.

Walnut Trees—Late blight resisting varieties grafted and budded on California Black and on FIRST GENERATION Royal and Paradox Hybrid roots, which are as much superior to the California Black root, as the California Black Root is to the English root—Eureka, Franquette, Mayette, Neff's Prolific, Concord and Placentia. Dr. W. W. Fitzgerald, Elks' Building, Stockton, Cal.

Home-Grown Fruit Trees—Largest assortment, including thousands of Royal Apricots, Tuscan and Phillips Cling Peaches, Pears, Apples, Figs, Grapes, etc., etc. Guaranteed true to name; strong, healthy and well rooted. Special low prices on application. Orange County Nursery & Land Co., Fullerton, Cal.

Cheap Reliable Trees—4,000 Phillips' Clings; also Tuscans, Fay Elbertas, French, and Imperial prunes, 10,000 Bartletts, 8,000 Gravensteins, Grafted Walnuts and other stock cheap. Write or wire for just what you want. Will save you money. Table Grove Nurseries, Healdsburg, Cal.

Apple Trees—Rome Beauty, Black Ben Davis, Jonathan, Missouri Pippin, Mammoth Black Twig, Lawver, Wine Sap, Winter Banana; well rooted, 4 to 7 ft., $10.00 per hundred. A. B. Sanderson, Hemet, Cal.

Grafted Walnut Trees on Northern California Black Root. Special price, must be moved. Placentia Perfection, Chase, Eureka, Mayette, El Monte Large, etc. Both phones 6971. Whittier Nursery, 803 West Philadelphia St., Whittier, Cal.

The Walnut Nursery has a fine lot of grafted walnut trees again this season. Chase, Eureka, Mayette and Placentia Perfection. Order now and get the best. W. A. Litten, Prop., R. F. D. No. 2, Whittier, Cal. Home phone 7863.

Walnut Trees—Eureka and El Monte varieties a specialty, also Franquette and Placentia. Write for prices and description of stock. Personal inspection invited. Eureka Walnut Nursery, Montebello, Cal.

For Sale—2000 Late Valencia Orange trees, two years from bud. 1800 Washington Navel, one year from bud. A1 stock. Address, H. H. Eshelman, Soldiers' Home, Cal.

Buy Fruit Trees direct from the grower. Finest Apricots and Pears, 12½c, 10c and 8c. Apples, 5c; Oranges, 25c. Let me quote you on everything you need. Julius Mayr, Tree Grower, Hemet, Cal.

Walnut Trees, Wilson Wonder, Franquette—Budded on Northern Black Walnut root. Eucalyptus trees in large quantities. Prices right. Ekstein Nurseries, Modesto, Cal.

For Sale—Excellent citrus trees, Valencia 1600, Navel 1500, Eureka lemons 2400, ⅝ up. Price loose, 15c; baled, 23c F.O.B. Budded with fruit buds after freeze. Address B. C. Dodson, Glendora, Cal.

For Sale—Seedbed stock. Grapefruit and Florida Sour Seedlings, two-year old, 18 inches to 3 ft. and up in height. Strong, vigorous stock. JAMES MILLS ORCHARD CO., Willows, Cal.

For Sale—Grafted walnuts on black and soft root, oranges, lemons, apricots, peaches, everything in the nursery line. Get my prices. A. R. Marshall's Nurseries, Box 64, Santa Ana, Cal.

Franquette and Mayette grafted on Northern California Black, 3 to 10 feet. Prices right. Special discount on large orders. Sunset Nursery, 525 W. San Carlos St., San Jose, Cal.

Budded Citrus Trees and seedlings at fair prices. Will take auto or land. Butler's Morning Side Nursery, P. O. Box 15, Lamanda Park, Cal.

Walnuts—Choice seedlings, 10c up; also grafted Chase and Placentias. Now contracting citrus and avocados for spring planting. Magnolia Nursery, Whittier, Cal.

The 1200-Acre Nursery, growers of 1500 varieties of trees and plants. OREGON NURSERY CO., Orenco, Oregon. Sales office, 522 Chamber Commerce, Los Angeles, Cal.

Fig Trees—2000 Calimyrna (Smyrna) and Caprifig trees for sale. Make offer for one or all. Strong, well grown stock. W. F. Lowe, Roberts P. O., Cal.

Mission Olive and Eureka Lemon trees for immediate planting. Write for special prices. A. C. Wisegarver, San Fernando, Cal.

For Sale—Eureka Walnut Trees, budded on Native Black Walnuts. Choice stock. Order immediately. Don't delay. Wm. Holve, Fullerton, Cal.

Grafted Walnut Trees on northern black root. Eurekas and Placentia Perfection. Also Satsuma Plum trees. J. M. Koller, Puente, Cal.

You Future Nurserymen—Write for prices on special stocks of plants to start business with. Ballou's Nursery, Pasadena, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

TREES

Grafted Walnut and Paper-Shell Pecans—Exclusive propagators of Tribble Mayette, Kerr Parisienne, and Improved Franquette. All walnut grafts taken from our bearing trees. Finest trees in the State. Eureka, Wiltz, San Jose Mayette, Concord and other varieties. Bartlett Pear on Blight Proof Root. Olives, fruit trees, etc. Reduced prices. New list ready. Tribble Nurseries, Elk Grove, Cal.

JUST A FEW LEFT of those "Ton to the Acre" "Howell" budded walnut trees. The Perfect "Placentia Perfection." Don't fail to plant the best; it means success in the future. On Northern California Black Roots. Raised in sandy loam soil, which means good roots. Jno. W. Henderson, El Monte, Cal. Maxson Station, Covina Elec. Line.

Olives—Mission and Manzanillo. We will save money for you. Large stock, stocky, straight, well grown, thrifty and clean. Come in and see the finest trees in the land growing in the nursery. Get our prices. Kavan Nursery Co., San Bernardino, Cal.

Seedless Grapefruit—I have for sale for the coming season a limited number of fine, clean trees propagated from a tree brought from Florida. I believe that this is a type of Marsh's Seedless superior to anything on the market. Send for circular. Inspection invited. G. W. Sherwood, Fullerton, Cal.

Avocado Trees—We have extra fine "HARMAN" budded Avocado trees now ready for delivery, and are booking orders for Spring planting. Special prices on application. Write for our new literature just issued. STEARNS & HARMAN, 317 Consolidated Realty Bldg., Los Angeles, Cal.

Get Present Prices for Spring Delivery on Citrus Trees and Spineless Cactus, Luther Burbank and Mediterranean Spineless Cactus Plantations, Robinson Citrus Nurseries, R. F. D. 35-A, San Dimas, Cal.

Orange Trees—2½-year-old buds from select stock, average ¾ inch; 500 Navels, 40c, and 500 Late Valencias, 50c, F. O. B. nursery at San Dimas, Box 108, Pomona, Cal.

For Acacias, Avocados, Budded Loquats, Citrus trees, Evergreens, Feijoas, Palms, Roses and all kinds of trees, shrubs, vines, etc. Write for our new catalogue. Robertson Nurseries, Fullerton, Cal.

Budded Avocados—All leading varieties, Feijoas, Guavas, Mangoes, Cherimoyas. Write for prices. Edgemont Avocado Nursery, R. F. D. 2, Box 213, Pasadena, Cal.

For Sale—About forty or fifty thousand sour orange seed bed stock at reasonable price at 1560 E. 22nd St., Los Angeles, Cal.

Apricot and Olive Trees—Royal and Tilton Apricots. Mission, Ascolano, Chemlaly olives. Choice stock. Correspondence solicited. C. E. Moyer, Hemet, Cal.

Royal Apricots—Healthy, clean trees, 5 to 8 feet, $15 per 100; $135 per 1000. K. B. Utigaard, Hemet, Cal.

Before Planting Olives, Avocados, Feijoas, Rhubarb or Cactus, get my free booklet. Bishop's Nursery, Highland, Cal.

For Sale—Avocado Seed, home grown; also fine budded "Taft" Avocado trees. C. P. Taft, Orange, Cal.

TURKEYS

For Sale—Mammoth White Holland Turkeys. Mature hens and toms. ALSO young stock from five distinct pens headed by toms from yards of leading breeders of this breed in the state. EGGS IN SEASON. Orders given prompt attention. Prices on application. Address H. McKusick, Box 733, Calexico Imperial Co., Cal.

For Sale—Turkeys; Bourbon Red, White Holland, Mammoth Black, in separate wire-covered yards. Range alternately. Males, $8 to $12; females, $5 and $6; eggs, $5 per dozen. Now booking orders. Won 1st prize adult males in all three varieties at Los Angeles show just closed. Mrs. B. Hocking, Guasti, Cal.

Thoroughbred Mamomth White Holland Turkeys from strong, vigorous prize winning birds, thoroughly domesticated; the stay at home kind. Eggs in season. Orders given prompt attention. Prices on application. Mrs. E. H. Broadwell, Crows Landing, Cal.

Mammoth White Holland Turkeys—A few fine toms for sale. Also eggs in season from two very select pens. Orders given prompt attention. Prices on application. Address H. McKusick, Box 733, Calexico, Imperial County, Cal.

Giant Bronze Turkey Toms from prize winning stock; weigh over 20 lbs. at 8 months. Write for prices. Mrs. Nellie Hart, Holtville, Cal.

Mammoth Bronze Turkeys. Largest and best flock in the world. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

POULTRY

Try Us for first-class chicks. Eggs for hatching. Eight breeds. We ship chicks C. O. D. when 50 per cent deposit accompanies order. We guarantee safe arrival any distance within 72 hrs. Our prices are right. The Hawkeye Hatchery, Turlock, Cal.

Blue Ribbon Buff Minorca eggs and stock now on sale; also Indian Runner Ducks; good, vigorous stock, reasonable prices. Cedarhurst Ranches, R. D. 2, Sacramento, Cal.

Eggs for hatching from select mated pens of thoroughbred White Plymouth Rocks. Seven cents each, $1.00 per 15. Ben F. Thorpe, Bonsall, California.

Highest Utility Cockerels, S. C. W. Leghorns—Also day old chicks, S. C. W. Leghorns and Anconas. J. E. Blackshaw, San Jacinto, Cal.

White Plymouth Rock Cockerels, standard bred birds. Ramona Farm, Box 1361, R. D. 2, Sacramento, Cal.

POULTRY

The Cultivator Poultry Book. By Jean A. Koethen. Published by Cultivator Publishing Co. after repeated calls for a thorough treatise on poultry. A book for every western poultry raiser, whether experienced poultryman or beginner. Over 200 pages, 50 illustrations. Contains simple methods of avoiding and overcoming difficulties. Nicely bound in cloth. Price $1.00, postpaid. Send orders to Cultivator Publishing Co., 115-117 N. Broadway, Los Angeles, Cal.

Macfarland Strain White Leghorn eggs $5 per 100, chicks, Jan., Feb., $12, afterward $10, order now, any quantity. Cockerels $2. White Rock eggs, chicks, cockerels; write for prices. Big plant, best stock, lowest prices. Newton Poultry Farm, Dept. 3, Los Gatos, Cal. N. B.—See article about us by Prof Adams, U. C., in October Poultrycraft.

White Leghorn baby chicks from McFarland Strain, from two years old hens; there is no better laying strain than this. You cannot succeed in the poultry business with poor stock. I guarantee safe arrival by express. My specialty is pleasing my customers. Chicks $10.00 per 100. Book your order for Spring delivery now. $2.00 per hundred with the order. J. W. Lyon, Gardena, Los Angeles Co., Cal.

S. C. White Leghorn Baby Chicks—From my pure-bred flocks S. C. White Leghorns, carefully selected for laying and Standard qualities, $9.00 per 100, $85.00 per 1000. A first class chick at a reasonable price. Eggs for hatching, $5.00 per 100, $45.00 per 1000. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

Incubator Chicks—White Rock, Rhode Island Red, Black Minorca, White, Brown and Buff Leghorn, and Indian Runner Ducks, high class stock—Standard bred and Hoganized. Send for booklet of prices and make your contracts now. Mahajo Farm, P. O. Box 597, Sacramento, Cal.

Richey's New Zealand Red Rabbits—1st at L. A. Show. Barred Rock eggs for hatching $1.50, 15; special cockerel mated, $2.50.

Roselle, the famous jelly plant—equals red currant—annual; 10c per packet. Sow in April. Mrs. C. A. Richey, Route 8, Box 557, Los Angeles, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. National Poultry Co., successors to Allaway & Layton Co., 607 E. Third St., Los Angeles, Cal.

Rhode Island Red Chicks and Hatching Eggs—Hundreds er thousands. Chicks hatched right in our $60,000.00 Hatchery from eggs laid by our 1800 heavy-laying breeders. Pebbleside Poultry Farm and Hatchery, Sunnyvale, Cal.

White and Brown Leghorns—Day-old chicks from healthy vigorous breeders. "Chicks well hatched are half raised." We will be pleased to send you circular and prices. San Jose Hatchery, 371 Meridian Road, San Jose, Cal.

Baby Chicks—Eggs for Hatching—Pure Bred—Booking orders for February and later hatches. R. I. Reds, Buff and White Leghorns, Black and White Minorcas, White Wyandottes, Buff Orpingtons. Gem City Yards, Los Gatos, Cal.

Rhode Island Reds and S. C. W. Leghorns; greatest laying strains in California. Baby chicks: Reds, $15.00 per hundred; Leghorns, $12.50. Rainescourt Poultry Ranch, Zelza, Cal.

Pullets—Thoroughbred stock—Golden Buff Leghorns—Sheppard's strain Ancona—White Leghorn—White Minorca hens—baby chicks and eggs. Prices reasonable. Sand Ridge Hatchery, Kerman, Cal.

Stirling Farm—Incubator chicks and hatching eggs from fully matured S. C. White Leghorns. Wykoff's strain; also S. C. Brown Leghorns. Route 2, Box 1416, Sacramento, Cal.

S. C. White Leghorn Baby Chicks and Hatching Eggs that are Top Notch. Write for particulars. Prices reasonable. Ten years in business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

Booking Orders for Hatching Eggs from S. C. White Leghorns, utility birds; selected stock, $6.00 per 100; $50.00 per 1000. No baby chicks. Pine Tree Poultry Farm, Los Gatos, Cal.

Barred Rock Cockerels—(Hawkins Royal Blue Strain) ready for mating, also Barred Rock, R. I. Red, Buff and White Orpington day-old chicks every week. Enoch Crews, Santa Cruz, Cal.

Baby Chicks (White Leghorns)—Shipped on approval. Examine at your home before remitting. No weak ones charged for. Schellville Hatchery, Sonoma, Cal.

Silver Spangled Hamburg—Silver Laced Wyandottes, White Wyandottes and Light Bramah cockerels, beautiful large birds. Tribble Nurseries, Elk Grove, Cal.

Barred Plymouth Rocks—Winners at New York, Kansas and California shows. Eggs and choice stock for sale. C. H. Vodden, Los Gatos, Cal.

Petaluma Hatchery—Now booking orders for December and January. Early chicks bring big money. Send for circular. L. W. Clark, Petaluma, Cal.

Hatching Eggs—Hoganized S. C. White Leghorns four dollars per hundred. Thirty-five per thousand. D. Clayton, R. D. 2, Modesto, Cal.

Pit Games—A few choice specimens for sale. Write for prices. Delivered your station. O. L. Crane, R. D. 3, Santa Rosa, Cal.

Barred Rocks—Only a few fine breeding cockerels for $3.00 each. G. L. Hawley, Madera, Cal.

For Sale—Buff and S. C. Black Minorca cockerels. Also eggs for hatching. Mrs. N. Schilling, Ripaugh, Cal.

MACHINERY

USED WINDMILLS, TANKS, PUMPS, ENGINES, RANCH MACHINERY
ENGINES! ENGINES!
3 h. p. Fairbanks, $45; 5 h. p., $95; 6 h. p. Lambert, fine, $115; 15 h. p. Fairbanks; 12 h. p. Columbus; 18 Union, $195; 28 Lambert, $295; many others guaranteed.

SPECIAL SNAP
Complete Pumping Plant, 18 h. p. Union Engine, complete with No. 4 vertical, centrifugal pump, all pipe and fittings, belt, etc., $295. Cost $1500.

SPECIAL SALE ALL KINDS PUMPS.
Aeromotor windmill with steel tower.$35.00
Brand new 2,000-gal. galv. tank.... 29.50
2,000 gallon redwood tank..... 20.00
7,000 gallon redwood tank..... 39.50
12,000 gallon redwood tank..... 55.00
15,000 gallon redwood tank..... 68.00
25,000 gallon redwood tank..... 85.00

RANCH MACHINERY
Heavy used ranch tools. Why buy new? Can save you over half.

MATERIAL GUARANTEED
Champion Binder, fine shape, $75; Header, $95; 2 gang Deere Disc, $35, fine; 3 gang Disc, $35; 15-in. Mouldboard Riding, $35, nearly new; 6 gang Tractor Disc, $140, cost $270; two Holt 60 h. p. Ranch Tractors, cost $4000, $750 each, payments; Knox Road Tractor and Trailer, 10 tons, cost $6000, for $2000; new Southwick Power Baker, also Whitman Empress Baler; Fan Mill, Corn Sheller, Power Ensilage Chopper; small ranch tools. Absolutely cheapest serviceable material can be produced for.

ALSO
Engine plows, mowers, rakes, scrapers, plows, harrows, cultivators, potato and beet machinery; sprayers.
WANT TO BUY IRRIGATION PIPE AND RANCH TOOLS OF ALL KINDS
ODDS, ENDS
Heavy drill, $25.00; shovels, picks, 20c; pipe fittings, gates, stocks, dies, sundries. Material guaranteed; save half.
Pioneers in our line. DEMMITT CO., UPSTAIRS, 120 N. Main, Los Angeles.

Gas engines, centrifugal and deep well pumps, motors, and everything pertaining to irrigation, for sale and exchange. If you want a complete plant or any part write us; we are experts in irrigation; advice and estimates cheerfully given. Will buy, sell or exchange. Reliable and responsible, everything guaranteed as represented. Machinery & Motor Exchange, Inc., 733-735 San Fernando St., Los Angeles. Main 6382, F-3433.

For Sale—Used and new gas engines, 2 H.P. up, rebuilt and fitted with modern equipment. 22 years' experience enables us to repair and rebuild gas engines correctly. Get our prices. Lloyd, 306 N. Main, Los Angeles.

FARM LANDS FOR SALE

VICTORIA, AUSTRALIA, WANTS SETTLERS
Special inducements; government land, railways, free schools; cheap irrigation; 31 years to pay for farms adapted to alfalfa, corn, grains, fruit, etc.; climate like California; ample markets; reduced passages; special excursion being arranged. Free particulars from F. T. A. Fricke, Government Representative from Victoria, 687 Market St., San Francisco, Cal., Box X.

A Double Your Money Land Buy—312 acres near Watsonville, all first class fruit soil. Fine dairy or stock ranch, splendid buildings, well watered. 7 acre family orchard. Adjoining land, same class, held at $200 an acre. $95 an acre buys this, part cash, part city property, balance easy terms. If you're looking for a giltedge investment, write for full description and photos. E. STEINHAUSER, WATSONVILLE, CAL.

For Sale—A splendid opportunity for dairying and hogs. 100 acres, 80 acres leveled and checked for alfalfa, 40 seeded; large reservoir and pumping plant, good soil, small house, good barn. Price reasonable. Terms. Will take some exchange. Six miles southeast of Merced. J. D. Harp, R. D. No. 3, Box 71-A.

For Sale—Half mile from Exeter 40 acres, 10 acres four-year-old oranges, balance alfalfa, good 10 H. P. electric pumping plant. One-third cash, good terms on balance. Address Box 236, Exeter, Cal.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

For Sale—800 acres, large and small tracts, Pittsburg County; farming, pasture, oil and gas land. $5 to $25 per acre. Write John Cavanagh, McAlester, Okla.

MISCELLANEOUS

St. Joseph's Agricultural Institute, Rutherford, Napa Co., Cal. An Agricultural High School for boarding students. A thorough training given in the theory and practice of diversified farming. The school is located on a thousand acre farm. The students assist in all the branches of work conducted on the farm, plowing, seeding, cultivating, orchard and vineyard work, dairying, hog raising, poultry raising, etc., thereby acquiring a practical knowledge of agriculture which is of equal importance to the theory. The Eighth grade is also conducted, as a preparatory class. The fee for board and tuition is very reasonable. Classes reopen on January 4th, 1915. For further information apply to the President, Bro. Thomas H. Clafty, S. M.

Owner of established Rice Selling Agency Company with broad charter for general export and import business, desires to exchange same for ranch valued at $3000 and upwards. Fine opportunity for city man on ranch to re-enter commercial activity or for a farmer's son to acquire a city business. Present owner wants to go on a ranch. No agents—principals only. Box R, Cultivator.

Free for Six Months—My special offer to introduce my magazine "INVESTING FOR PROFIT." It is worth $10 a copy to anyone who has been getting poorer while the rich, richer. It demonstrates the REAL earning power of money, and shows how anyone, no matter how poor, CAN acquire riches. INVESTING FOR PROFIT is the only progressive financial journal published. It shows how $100 grows to $2200. Write NOW and I'll send it six months free. H. L. Barber, 430. 28 W. Jackson Blvd., Chicago.

"Smith's Pay the Freight"—To reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St., San Francisco.

SEEDS AND PLANTS

For Sale — Non-irrigated, San Fernando Valley Grown Seeds. Black Seeded Chilean and Angeleno Melon, 80c per lb.; Improved Hybrid, Golden Beauty and Pineapple Casaba, $1.50 per lb. First class seeds direct from the grower. M. C. Sutton, Van Nuys, Cal.

For Sale—Gooseberry Bushes. Downing, Houghton, Red Jacket, Oregon Champion, Monterey; a few of an English sort. Each 15c, one of each 75c, $1.20 doz. Write for prices in larger quantities, p. p. paid. E. C. Hall, Gooseberry Specialist, Greenfield, Cal.

Strawberry Plants — Gold Dollar, Clark Seedlings, Magoons, Wm. Belt, Marshalls, Goodells, Early Ozark, and new Oregons, $2.50 per thousand. Thoroughbred plants. Mr. John Christiansen, R. F. D. 2, Canby, Oregon.

Sudan Grass—Government inspected. 2 lbs., $1.50; 5 lbs., $2.50; 10 lbs., $4.00, prepaid. Special prices on larger quantities. Also headquarters for Feherita, White Maize and Black Kaffir. Amarillo Seed Co., Amarillo, Texas.

Sudan Grass Seed—We have a limited quantity of inspected seed that we are closing out at prices that will interest you. Write for our prices; it will pay you. Kimbro & Parks, Lubbock, Texas.

Berry Plants, Rhubarb, Cacti—It will be worth your while to send me a postal right now if you are interested. Louis F. Scribner, P. 2, Pasadena, Cal.

Sudan Grass, Kudzu, Imp. Alfalfa, Spineless Cactus—The big four forage plants. Prices O. K. Write, J. L. Lawson, San Jose, Cal.

Rhubarb—Crimson Winter, $3.00 per hundred; Wagner's Giant, $5.00 per hundred. Good, strong, one-year plants. Currier Bulb Co., Seabright, Cal.

For Sale—10,000 Burbank cactus leaves of highest type. For information and prices write to John Zuur, Santa Rosa, Cal.

For Sale—Beldi Barley, clean for seed. H. Pile, Ramona, Cal.

Himalaya Berry Tips—$2.50 per 100; $15 per 1000. A Cooley, Sunnyvale, Cal.

LIVE STOCK

Ohio Improved Chester White (O. I. C.) Entire herd immunized against hog cholera. Nothing but immunized stock sent out. Extra fine lot of fall pigs, both sexes, ready for shipment during December and January. Three herd boars used. All stock crated and registered. Make reservations now. C. B. Cunningham, Mills, Sacramento Co., Cal.

Grape Wild Farm Thoroughbreds—Guernsey Bulls of A. R. Breeding. BERKSHIRE HOGS. Finest herd in the state All ages for sale. A. B. Humphrey, proprietor. Mayhews, Sacramento Co., California.

For Sale—Young registered Berkshire boars and sows; fine, strong stock. Boars ready for service—January. Stanislaus Ranch Co., Crows Landing, Cal.

Thoroughbred Berkshire Boars of all ages; two grade Holstein Bull Calves from seven gallon cows and registered bull; born Aug. 11, 1914, Jan. 10, 1915. $45, $20. Riccomi Bros., Mountain View, Cal.

For Sale—A few fine good Toggenberg Milch Goats; write for description and tell me what you want. C. H. Brown, Box 444, Chandler, Ariz.

For Sale—90 head of mixed cattle, steers, heifers and young milk cows. For particulars write J. A. McNulty, San Jacinto, Cal.

Glenview Poland China—Stock for sale Chas. R. Hanna, R. F. D. No. 3, Riverside, Cal.

M. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale.

WANTED

Wanted—2 more berry growers to come to SANTA CRUZ, CAL., to grow berry plants for us under contract for 5 years; will also buy all the fresh berries when we put up our new berry drier in 1916. We will guarantee that you will double your money each year. We need 1,000,000 berry plants grown each season, and also use 100 tons of berries for our drier. Send for particulars to SANTA CRUZ BULB & PLANT CO., 8 NEW ST., SANTA CRUZ, CAL.

Farms Wanted—We have direct buyers. Don't pay commissions. Write describing property, naming lowest price. We help buyers locate desirable property free. American Investment Association, 12 Palace building, Minneapolis, Minn.

Wanted—A reliable party to put out large acreage to Burbank Cactus on half shares. For information write to John Zuur, Santa Rosa, Cal.

Wanted—Two hot water incubators, cheap for cash. Reed & Co., 205 Grant Bldg., Los Angeles, Cal.

TO LEASE

To Lease—100 acres plow land. 50 acres pasture, good buildings, irrigation, corn, beans, alfalfa, potatoes; large oaks, hogs, cattle. Must have some money. Stock, implements, etc. Good hunting, fishing, placer mining. Box 42, Clipper Gap, Placer Co., Cal.

HORTICULTURAL PRINTING

Catalogues for the seed and nursery trade. The live stock and poultry industries are a specialty with us. Two thousand illustrations to select from. Write for prices and samples. The Kruckeberg Press, 237 Franklin St., Los Angeles

GEESE

Thoroughbred Toulouse Geese—Large stock. One, two and three-year-old. Breeders for sale. $7.00 per pair, $10.00 per trio. Snapshot photo on request. A. E. Nelson, El Monte, Cal.

BEES

Beekeeping Pays Big—Price list, bees, instruction books, etc., free. Spencer Apiaries Co., Box 14, Nordhoff, Cal.

RABBITS

New Zealand Reds—Scored and sold on merit. Investigate. Our Catalogue is free. Caldwell Bros., Los Angeles, Cal., Box 613.

Irrigation Forestry

THE FUEL VALUE OF WOOD

THE fuel value of two pounds of wood is roughly equivalent to that of one pound of coal. This is given as the result of certain calculations now being made in the forest service laboratory, which show also about how many cords of certain kinds of wood are required to obtain an amount of heat equal to that in a ton of coal.

Certain kinds of wood, such as hickory, oak, beech, birch, hard maple, ash, elm, locust, longleaf pine and cherry, have fairly high heat values, and only one cord of seasoned wood of these species is required to equal one ton of good coal.

It takes a cord and a half of shortleaf pine, hemlock, red gum, Douglas fir, sycamore and soft maple to equal a ton of coal, and two cords of cedar, redwood, poplar, catalpa, Norway pine, cypress, basswood, spruce and white pine.

Equal weights of dry, non-resinous woods, however, are said to have practically the same heat value regardless of species, and as a consequence it can be stated as a general proposition that the heavier the wood the more heat to the cord. Weight for weight, however, there is very little difference between various species; the average heat for all that have been calculated is 4600 calories, or heat units, per kilogram. A kilogram of resin will develop 9400 heat units, or about twice the average for wood. As a consequence resinous woods have a greater heat value per pound than non-resinous woods, and this increased value varies, of course, with the resin content.

The available heat value of a cord of wood depends on many different factors. It has a relation not only to the amount of resin it contains, but to the amount of moisture present. Furthermore, cords vary as to the amount of solid wood they contain, even when they are of the standard dimension and occupy 128 cubic feet of space. A certain proportion of this space is made up of air spaces between the sticks, and this air space may be considerable in a cord made of twisted, crooked and knotty sticks. Out of the 128 cubic feet a fair average of solid wood is about 80 cubic feet.

It is pointed out that heat value is not the only test of usefulness in fuel wood, and since 95 per cent of all wood used for fuel is consumed for domestic purposes, largely in farm houses, such factors as rapidity of burning and ease of lighting are important. Each section of the country has its favored woods and these are said to be in general the right ones to use. Hickory, of the non-resinous woods, has the highest fuel value per unit volume of wood, and has other advantages. It burns evenly and, as housewives say, holds the heat. The oaks come next, followed by beech, birch and maple. Pine has a relatively low heat value per unit volume but has other advantages. It ignites readily and gives out a quick hot flame, but one that soon dies down. This makes it a favorite with rural housekeepers as a summer wood, because it is particularly adapted for hot days in the kitchen.

The fuel qualities of chestnut adapt it particularly to work in brass foundries where it gives just the required amount of heat. Coastwise vessels in Florida pay twice as much for Florida buttonwood as for any other because it burns with an even heat and with a minimum amount of smoke and ash.

The principal disadvantage of the resinous pines is their oily black smoke.

FARM ANIMALS

"Farm Animals," a book covering the general field of animal industry by Thomas Forsyth Hunt, dean of the California College of Agriculture, and Charles William Burkett, editor of The American Agriculturist, published by Orange Judd Company, at $1.50.

"In preparing 'Farm Animals' the authors have sought to treat in detail not merely the subjects of breeds, breeding, feeding, sanitation, medication and animal products, but to cover the whole field of animal industry. They have followed the general plan as developed in 'Soils and Crops,' the initial and companion volume of this series. By means of the two books a full teachable course covering soils, crops and animals is now available for use in the schools. Each of these books is complete in itself in its field. No collateral reading has been suggested for pupils, not because the authors wish to discourage such independent effort on the part of the pupil, but because they believe they have included as much subject-matter as can be covered wisely in 16 weeks by pupils of high school age."

While in a sense this is a school text book and its 48 chapters are called "lessons," yet there is a lesson in every one of them for the farmer who would keep in touch with modern-day agriculture. The lessons start with sorting of animals, animals made useful, relation of animals to man, plants and animals, food nutrients, scientific terms in feeding, how food is digested, and so on through feeds; draft horses and speed horses, explanation of how they move, breeds, dairying, beef, sheep, hogs, goats, bees, and even fish, on the farm. The closing chapters have to do with diseases and keeping animals healthy, farm butchering, marketing and an appendix. Of course there is a good index, which is one of the most valuable features of every reference book.

THE LURE OF THE LAND

We have a letter from the Century Company in which it refers to the fact that Dr. Harvey W. Wiley has written a new book. It is "The Lure of the Land," and contains much good advice for the man or woman tired of city life, and much interesting reading for the farmer. In the book Dr. Wiley discussess agriculture, a learned profession, the born-on-the-farm myth, the dairy, the hope of the small farmer, the farmers' market, the farmer and the parcel post, the decreasing meat supply, Uncle Sam's big farm, etc. It will be issued soon.

Orosi, Tulare County, will hold a farmers' institute January 22-23. There will be lectures and demonstrations of pruning, stock judging, etc.

"I Saved $400.00 on My House and Barn by Buying Building Material from the Whiting-Mead Commercial Co."

This is an actual statement made by one of our customers. You can do the same. You can save from $25.00 to $40.00 on every hundred dollars' worth of building material you need by buying direct from us. We cut out the dealer's profit. If you are going to build or repair a house, barn or auto shed—study these prices carefully and be sure to send coupon below for our Big Free Catalog.

THIS SPECIAL STEEL ENAMEL BATHTUB

A wonderful bargain! Made of finest galvanized 24-gauge steel. Outside finished with a rich sky-blue enamel, bronze trimmed. Price only $8.00

Others larger in size at $8.50, $9, $10. Just the thing for your house.

Low Down Enamel Steel Toilet Combination..... $12.50
Complete to floor—wonderful value.

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Special value—worth $22.50.

Big values in High Tank Toilet Combinations..... $10.00
Complete to floor—a bargain.

Special Bankrupt Stock of Kitchen Sinks. All sizes—up from..... $1.00

Best Quality Porcelain Lavatories; every one guaranteed—$10 down to... $3.75

Standard House Paints. High grade—24 colors—per gal..... $1.50

Black Graphite Roof Paint—per gal..... 50c

Standard Roof Paints—red, green, gray—per gal..... 85c

Shingle Stain, made from pure ground colors—per gal..... 50c

Everything in Paints, Wall Tints, Brushes, etc., at big savings to you. Weship direct.

ROOFING PAPER—1-ply, plain or sanded—per roll of 108 sq. ft... $1.25

—2-ply only $1.50 per roll. Cement and nails ready to lay included in above price. Send for free sample.

WIRE FENCING at Half Price—per rod..... 35c

Extra heavy Field Wire, 6-inch galvanized mesh. Perfect condition; 55 inches high, 20 rods to the roll. This is just about half price. Don't pass up this big opportunity. Send us your order, your money back if you are not satisfied.

GALVANIZED BARB WIRE—per roll of 80 rods..... $1.75

Our Light Wire Special, slightly water stained in shipping otherwise in perfect condition.

Special heavy galvanized "Waukegan" barb wire, 80 rods to reel, weighing 100 to 115 lbs., only $2.75 per 100. Going fast! Don't miss this opportunity.

Lowest price yet on CORRUGATED GALVANIZED IRON—per hundred square feet..... $3.55

Look at this! Corrugated galvanized iron, 2-inch corrugattions, from 6 ft. to 10 ft. long. This is in perfect condition and won't last long at this special price.

WALLBOARD

The highest grade wallboard on the market; made of 3 layers of moisture-proof fibre, with asphaltum between each layer; or cream white fiber board.

Cheaper and neater than plaster or lumber, and any one can install it in one-quarter of the time. Per 1000 square feet..... $19.00

This is a $30.00 Value.

Special—NAILS—in 100-lb. kegs—per keg..... $2.20

This is an unequaled price for 20, 30, 40, 50 and 60 penny common nails. We also carry all sizes and finishes at $2.20 per 100 lbs. base.

LUMBER, SASH AND DOORS — Lowest Prices on Rough and Finished Lumber

2-inch Redwood as low as $12.00 per 1000. 1 in. x 6 in., 8 in. and 10 in. length, 8 to 18 ft., going at $15.00 per 1000. 8 ft. x 12 ft., galvanized all-metal frame skylights glazed with ribbed glass, suitable for hot-house, roofs, etc., crated, $12.00 each.

Two-light double hung windows 1⅜ in. thick, best quality American window glass, all sizes..... 60c

No. 1 Colonial Door Selected Kiln-Dried Oregon Pine — all stock sizes—$1.50 up.

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You can buy anything in the Building Material line second-hand, at one-half to two-thirds less than the price of new material. We do 95 per cent of all the wrecking done in Southern California.

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ACME FOOT LIFT Weeder

A RIDING orchard cultivator and mulcher. Gets all the weeds—large and small. Used in orchards or for summer fallowing; keeps down weed growth and properly mulches surface soil.

Foot Lift Lever enables operator, on seat, to clear off weeds that may gather while working. All steel construction. Light draft. Depth of cut adjustable. Price right.

No. 8—8½ Ft. Wide

Your John Deere Dealer Sells It!

What a user says about it: Naches, Wash., Aug. 20th, 1914

Dear Sirs: The Acme Weeder is the best weed killer I ever used without any exception. It works well in large and small weeds alike and is easily cleaned when clogged. No orchard man can afford to be without one. *(Name on Request)*

DUANE H. NASH, Incorporated
377 Division Ave. Millington, N. J.

PIPE Second Hand

SCREW CASING

Alexander Pipe Company

MAIN OFFICE—254 North Point St., San Francisco
BRANCH OFFICE—1611 E. 6th St., Los Angeles

Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Blue Gum Fence Posts

Can blue gum, especially two-inch growth which is coming up from stumps, be used for posts, and how may they be treated so they will last? Is crude oil good for this purpose?—N. D. E., Del Rey.

After cutting allow the posts to thoroughly season, then dip in hot creosote. This will extend the life of posts many years. We have seen posts six inches in diameter, which were cut and set in the ground green, become like punk in two years. Brush treatment is not satisfactory, nor is the crude oil as efficient as creosote. Whichever is used, it should be hot, then immerse that portion of the posts which will come in contact with the earth and allow to remain in the solution until it cools to the temperature of the atmosphere. If the method of applying creosote over surface with a brush is followed as it is at times, have the creosote hot and make two applications, but great care must be used to soak the creosote into all checks, knot holes or other defects. By this method there is but very little penetration, but if a perfect surface covering is given it will very materially extend the life of such posts. It must be borne in mind that posts must first be thoroughly seasoned, for if not the moisture within will cause large checks after the dipping is done and these will admit moisture to the center and their life will be materially shortened. Brushing creosote over green poles is of practically no value.

Olives

What is the outlook for products of olive trees? What are the best varieties for pickling and for oil? Can olives be propagated from cuttings, and how is it done?—N. D. E., Del Rey.

There will always be a demand for good olives and good olive oil and we trust the price will remain as satisfactory as it has been during the last two or three years. The removal of the tariff has admitted large quantities of foreign-made oils, but even with all southern Europe shipping to this country there would be a demand for all that California can produce in addition. The best variety, or at least that which is most generally planted, is the Mission. We would recommend planting only such varieties as are best for pickling, then in grading any inferior fruit may be sent to the oil mill while the choicer fruit will be in line for good prices for pickling purposes. There are many strains of the Mission olive and one should see the trees from which he is going to take cuttings. If they are taken from a tree of the larger, better bearing strain it will be well. They may be propagated from truncheons or hard wood cuttings ten to fourteen inches long. They may also be propagated more rapidly in glass houses or hot bed where the smaller herbaceous cuttings are used. Mr. Mills gives complete instruction regarding both methods in an article published in the issue of the Cultivator of December 21, 1911.

Pure Bred

Am breeding ordinary heifers to pure bred Guernsey bull. How near to pure bred can I get the offspring and in how many generations? Will change sires at each crossing. How distantly related should the sire be to insure vigorous offspring?—Subscriber, Tulare.

Assuming that a pure bred bull is used each time, the fourth generation will have 15-16 pure blood and 1-16 mongrel. From this it will be seen that for practical purposes a very few generations will give a comparatively pure bred animal. For breeding for registry a thousand generations would not suffice, even if the male was always registered stock. The matter of relation of sire to offspring is a long one which it is impossible to discuss in these columns, for the matter of line breeding is one involving volumes in its discussion. There are many cases where vigorous offspring has been secured where sire has been bred directly to daughter.

Planting Bamboo

What time of the year is best to transplant bamboo and how should it be reset? We wish especially to keep the tall growth from dying.—Subscriber, Gaviota.

After May is perhaps best. We have reset them as late as August, but they seldom get established so as to start new growth before the cool season and then if frost comes it is reasonably sure to catch them during the winter. The only way to reset and preserve the tops is to take up with a large ball of earth. As there are many fibrous roots this is comparatively easy unless the clump is to be subdivided. Taken up with a large ball one may reset at the present time for there is then no great shock to the plant. In fact, we saw hundreds of them which have been planted on the world's fair grounds at San Francisco within the past few weeks and these were all brought from Japan. Where the clump is subdivided we presume May and June would be the better months.

Best Crops

I would like to ask as to best fruit or other crop to plant on my ranch near Garden Grove in Orange County. Have been advised to plant Bartlett pears with Muscat grapes between. Are pears profitable in this particular locality? Also, how about apricots and plums or figs?—Subscriber, Los Angeles.

With water close to the surface, which is usually the case in that section, and soil conditions rather heavy, the planting of fruit is somewhat restricted. Owing to your altitude being rather low, it will perhaps not be best to try Bartlett pears. In the southern end of the state they do better on higher land. Perhaps the best crop for your particular section would be chili peppers. The locality is particularly adapted to that crop and it has proved successful there. Regarding culture of this plant in the Garden Grove district Mr. J. B. Neff advises:

"I do not recall the exact location of this land, but if it is not too heavy adobe the inquirer will likely do better by growing chili peppers than any other crop, as that locality is particularly well adapted to peppers. I would advise a dressing of eight to ten tons

of stable manure to the acre each year as soon after the crop is gathered as it can be put on, and in addition would sow broadcast about 400 pounds of superphosphate, having 17 to 18 per cent available phosphoric acid, to each acre. Then have the land well plowed and have it cultivated several times before planting time. Get the chilis in as early as can be done to escape late frost, and I believe it will prove more profitable than by planting fruit trees.

Diphtheretic Roup

What is the matter with my chickens and turkeys? They get so they can't swallow. They eat as though they were starved but the food stays in the throat until they spit it all up. I opened the throat of one after it died and it was white and smelled bad. They hang around until they starve to death. There seems to be a lump in throat so the food doesn't go by it.—Subscriber, Inyokern.

I am afraid your birds have diphtheretic roup, a very serious disease and difficult to cure. The most common remedy is peroxide of hydrogen. Make a swab with a piece of absorbent cotton and stick, and paint the grayish patches in the throat with peroxide diluted with an equal quantity of water. Do this daily till there is improvement. Dr. Salmon recommends common salt, two drams in a quart of warm water. Dip the swab in this solution and gently rub the false membranes till they are loosened from the underlying tissues. After the false membrane has been removed, moisten another swab of cotton in a two per cent solution of lysol or carbolic acid and apply for a minute or two to the diseased surface. Another solution which may be used consists of 35 grains of chlorate of potash and two grains of salicylic acid in an ounce of water, with an ounce of glycerine added. This may be applied to the spots three or four times a day. It is absolutely essential that all sick birds be removed from the general flock and placed in sunny, well-ventilated coops, either indoors or where they are well sheltered from the wind. It would do no harm to give all the birds, sick and well, a little permanganate of potash in the drinking water. Examine the feed and litter for mold and look well to sanitary conditions.—J. A. K.

San Jose Scale

I submit twig of plum tree which is troubled with some disease. What is it and what is the remedy?

This is nothing more nor less than a severe infestation of San Jose scale. The best remedy for this is lime sulphur wash. Apply at once or while the trees are dormant at the rate of about one part to ten or eleven parts of water.

Worms

Replying to a query as to treatment for worms in chickens, Mrs. Koethen writes:

"It is said that worms often inhabit the intestines of chickens without affecting the health of the birds, and it is only when for some reason they become very numerous that treatment is needed. If very many birds are affected I should consider it an indication that it is time to move to clean ground. If the soil they are on is full of these worms it is impossible to get rid of them in any other way. One of the best remedies for worms is oil of turpentine which should be given when the birds are fasting. Give a very light feed at night and give the medicine the fol-

For the Orchard or Truck Farm

$385

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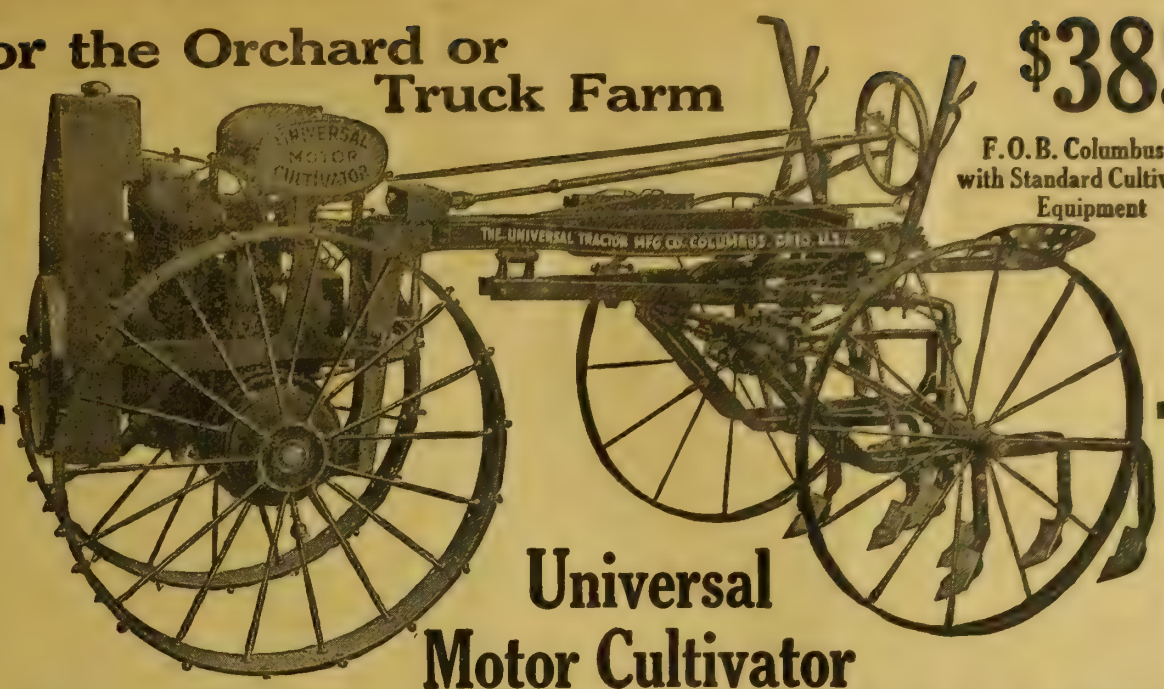

Universal Motor Cultivator

Developed from the Modern Light Automobile—Not from the Heavy, Crushing Traction Engine

Costs Less than a Good Team

YOU need take no chances on crop failure through neglect. By changing shifts among men or boys you can get into the corn, cotton, tobacco or small truck and stir the ground from 16 to 24 hours a day at the rate of an acre an hour and at an average fuel cost of but three-fifths of a gallon of gasoline per acre. And when not at work there is no upkeep cost.

Tried and Proven Mechanical Principles

From the long stroke, 10-horsepower motor to the latest worm gear transmission every part of the machine is an adaptation from the automobile and the motor truck applied to field work.

Has 3½ inch bore, twin cylinder, long stroke motor, automatic lubrication by plunger pump, automatic thermosiphon radiator, Holly carburetor, automatic governor to take care of the changes in load, Atwater-Kent ignition, worm gear transmission running in oil bath, expanding ring clutch, one speed—forward and reverse, develops 10 to 12 h. p. on brake [equal to pulling power in the field of an ordinary team], weighs 1000 lbs.

The Only Tractor That Cultivates

It enables you to get into the field any time and cultivate as fast or slow as you want to go. Get the quick dust mulch after rain that means crop salvation. Work in the field every one of the 24 hours if you wish, when the work crowds.

It Cultivates corn, cotton, potatoes, kaffir, sorghum, sugar cane, federita, tobacco, tomatoes, garden truck, orchards, vineyards, etc.

It Pulls mower, rake, spike tooth harrow, drag, rollers, small disk harrow, cultivators of various kinds, weeders, etc.

It Plants corn, cotton, sorghum, clover, alfalfa, potatoes, garden truck, etc.

It Operates pump, wood-saw, feed grinder, corn sheller, washing machine, churn, electric light plant, or any other light appliance of the modern farm.

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Let Us Show You how to get into the corn and double your efficiency in corn plowing time. If you are an orchardist let us explain the machine's fine orchard work. Whatever your class of work, we want you to send for the free book.

Send for the Book

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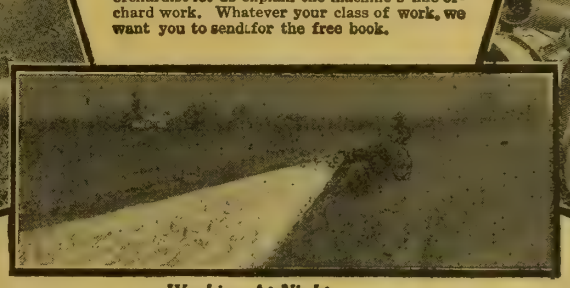
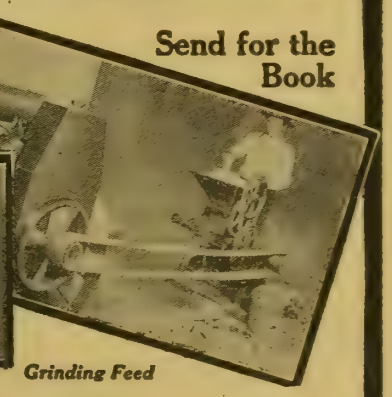

Working At Night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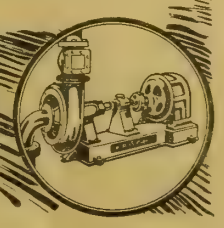
All water for big San Francisco Fair supplied by Krogh Pumps. It will pay you to investigate before you select your outfit.



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When selecting a sprayer don't cheat yourself into buying a cheap or untried make—get a good one and Spray Right.

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lowing morning before they are fed. Mix the oil of turpentine with an equal quantity of olive oil and give a dose of 20 to 30 drops to each bird. After two hours follow the turpentine with two to three teaspoons of castor oil. An hour later a light feed may be given. Santonica or worm seed in doses of seven or eight grains is also recommended as a remedy for round worms, and powdered areca nut, 30 to 40 grains to a dose, is especially successful in treatment of tape worms. Whatever remedy is used it should always be followed by castor oil or epsom salts. I think your birds have round worms but cannot be sure from the description given. Tape worms are in segments which can usually be found in the droppings when the worms are present.—J. A. K."

Whitewash for Poultry

Please give effective and cheap white paint or whitewash for poultry houses. Wish it to be free of lumps so as to run through spray pump.—Subscriber, Santa Cruz.

Martinez Nursery

Established in 1884

T. S. DUANE, Prop., Martinez, Cal.

All leading varieties of fruit and ornamental trees.

GRAPES, ORANGES and LEMONS.

$1.65 worth of Native Shrubs for $1.00

Cascara (Rhamnus California), Christmas Berry (Heteromeles Arbutifolia), Wild Cherry (Prumus Ilicifolia), Wild Lilac (Ceanothus), Rhus Integrifolia.

(Send money or stamps)

Native shrubs beautify foothill or canyon property and can be grown where other shrubs do not do well. They require very little care or water.

We are growers of all kinds of nursery stock, shrubs, trees, etc.

Send us a plan of your grounds and we will make suggestions regarding the landscaping.

Our catalog is free—write for it.

IRVING N. WARD NURSERY

SIERRA MADRE, CALIFORNIA

We would refer our subscriber to the issue of the Cultivator of January 7, 1915. To run through spray pump screen or strain the wash after it is made through fine copper mesh sieve.

Winter Irrigation

In the issue of the Cultivator of January 7, I note an article entitled "Winter Irrigation" in which the theory is advanced that if the soil is soaked deep enough for the irrigating water to reach the underground water it will cause the latter to rise higher. Is it a fact that this procedure will raise the level of the underground water and, if so, to what extent? The water level in this section is from 28 to 30 feet and the moisture rises to within about 20 feet of the surface. Would it be of any material advantage to wet the ground down to moisture?—Subscriber, San Bernardino County.

We do not believe the thorough soaking of soil in the winter until surface moisture meets water level will "bring up" any of the lower moisture but if there should be deficient rainfall this thorough soaking does saturate the soil down to water level and roots have opportunity to make deeper penetration. Then thorough cultivation holds the surplus moisture much later in the summer.

Six Weeks Beans

Please name the beans enclosed. Will they thrive in the San Gabriel Valley in Los Angeles County?—Subscriber, Eugene, Oregon.

It is almost impossible to be certain of the variety of any beans for they grow in such infinite varieties, but with little question this is the bean known as Six Weeks and it does well in the San Gabriel Valley.

Pest of Dogs

A neighbor has three dogs which prove a nuisance on our place by scratching or digging up the garden, destroying many vegetables, and in addition the dogs have been known to bite and do injury. I also have a female dog and the neighbor having the three dogs threatens to make me get rid of it. Is this possible and is there any way of controlling the others?—Subscriber.

There certainly is no way in which anyone can be made to dispose of any well-dispositioned dog. We presume the neighbor's dogs would come under the ordinary trespass law, which however provides that unless one's property is surrounded by a "substantial fence" no damage can be collected for injury done. If these dogs are known to bite or in any way be dangerous the law of common nuisance will apply and the authorities should be able to at least force them to be muzzled and kept within bounds.

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.
Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Partnership

A and B are in partnership on a ranch. B works the ranch while A furnishes the capital. The ranch is being bought on contract. B has the contract in his name. A has a contract from B for half interest. In case A should become involved in debt could his creditors attach the whole of the ranch? The contract calls for an undivided half interest. Where would there be any danger to B from A's creditors?—C. N.

If the contract of B alone is recorded, A's creditors would be obliged to prove that A had an interest in the property. If both contracts are recorded A's creditors could sell out under execution sale the interest of A in property.

Making Will

Have willed property to minor son. In case we both die would property go to his mother, who was divorced from me? Property was bought after our marriage.—Subscriber, Santa Cruz.

Unless your will should provide for a reversion to some other person, in case of death of your son prior to his arrival at the age of 18 years, the estate in case of himself and you would revert under succession to his mother, but as stated, this can be avoided by proper provision in the will.

Mistake in Survey

A and B own adjoining land, which was surveyed and a line established 25 years ago. A has had his land under fence most of that time. Now B has had his land surveyed and claims the line runs over on A 200 feet. If the surveyor made that mistake can B take the 200 feet from A after 25 years of undisputed possession?—Subcriber.

Cases of boundary mistakes lie so largely in evidence that it is difficult to give a definite answer. There have been cases in this state similar to this, amounting to 16 years undisputed possession, wherein it was held that by reason of acquiescence in the boundary line of fence parties could not thereafter show there was different boundary, but acquiescence is based upon facts of each case.

To Collect Board

A is working on public works and boards with B. Bill has been sent him, but he does not pay. What procedure should be taken to collect same from wages?—Subscriber.

In order to hold moneys due debtors from a city, county or state, it is necessary to procure a judgment and file transcript of such judgment with the auditor, together with affidavit stating the exact amount due at the time of the filing.

Tax Exemption

How much tax exemption is allowed a soldier that served in the Spanish war? When does the law on not paying poll tax go into effect?—Subscriber, Sierra Madre.

Property to the amount of $1,000 of a resident of this state who has served in the army, navy, marine or revenue service of the United States in time of war and received honorable discharge therefrom or if he has not such an amount of property in his own name, then that amount in the name of his wife is exempt from taxation; unless such discharged soldier or his wife owns property of the value of $5,000. The constitutional amendment abolishing poll tax went into effect the 26th of December and eliminated the poll tax assessable the first Monday in March, 1915.

Water Rates

Am a stockholder in an irrigating company that also furnishes domestic water direct from its underground irrigating mains. To most of its stockholders it makes a flat rate of $1.00 per month to domestic users, but to some consumers the supply is metered and they are charged $1.00 up to the first 10,000 gallons and $1.00 additional for each additional 10,000 gallons. Is such discrimination legal? Can the meter users compel the company to either meter all customers or else eliminate meters?—Subscriber.

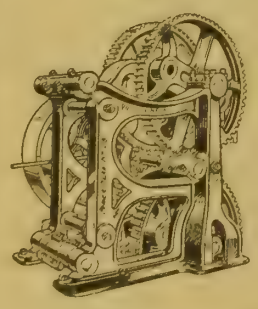
A corporation organized to deliver water solely to stockholders at cost and no one else is not a public utility, but otherwise it is a public utility and is subject to regulation by the railroad commission. It would seem that the company above named is a public utility, in which case the above differing rates would constitute a discrimination and could be regulated by the railroad commission upon application filed therefor.

Filing on Power of Ditch Water

I have a ditch running through my place in which I have no right except what I may have through appropriation for stock. This ditch is really an old creek used now for irrigation. It flows through my yard and, having considerable fall through my land, I am considering filing on it for power purposes. I would like to know if that can be done and if so how it should be done. Should I file on a certain number of inches? Can I then hold that number of inches should the users decide to turn the water off? I have lived here for over two years and have never seen it dry except once for a day or so. I would like to install a small power plant and don't like to go to the expense until I am sure of the water.—Subscriber, Bishop.

If the appropriators for irrigation have either abandoned the water flowing through your land or have turned it into this creek to waste, you would be entitled to appropriate the said water for power purposes. As you are claiming for electrical power it would be necessary for you to procure a permit from the water commission, which will cost you not less than $25; at the same time it would be wise for you to petition the water commission to ascertain the relative rights of the claimants to this stream. The commission will thereupon take testimony and give judgment, which would settle the rights of appropriators. A person desiring to appropriate water must post a notice in writing in a conspicuous place at the point of intended diversion stating that he claims the water to the extent of a given number of inches measured under a four-inch pressure, the purposes for which he claims it, the place of intended use, the means by which he intends to divert it, and the size of the flume, ditch or pipe. A copy of this notice must within ten days thereafter be recorded in the office of the county recorder and within 60 days after posting of notice claimant must commence the construction of the works by which he intends to divert the water.

Pomona Deep Well Pumps



—are built on strictly mechanical lines, provided with twin "stepped" gears, with two bearing faces, machine cut, and by our new "Walking Beam" motion; the up-stroke, or working stroke, is a slow, almost absolutely vertical pull, while the down-stroke is quicker, and the slight side movement is on the down or light stroke, this feature greatly reducing the wear on cylinders, plungers and leathers as compared with the old style of plunger pump.

Write for Catalog No. 54 C —giving full information.

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OUR Circular Valves are the only valves so constructed as to permit the cross bar to be entirely removed, leaving an absolutely clear passage, yet when replaced, which is done instantly, are as solid as though permanently attached. Can be adjusted to allow the passage of any volume of water up to the capacity of the pipe line or stand pipe. This is done by merely turning a thumbscrew. Full details of Gates and Valves will be found in our Valve Booklet. Send for it.

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The Household Department

THE FRIEND

It's not that he's obligin',
Good lookin' or a saint:
Dear God (who made him out of mud)
Knows well that's what he ain't.

He never lent me money;
He never saved my life;
An' he don't like the brand I smoke,
An' I don't like his wife.

He's not so quick an' clever—
That is, not as a rule;
At times (the times we disagree)
He seems a sort of fool.

But still it somehow thrills me
To grip his hearty hand.
I guess the thing that makes us stick
Is that we understand.

I understand the varmint;
Sometimes he savvey's me,
And that's what makes a man your pal
As far as I can see.—Charlton Lawrence Edholm.

THE PATH

ONCE upon a time there was a light-hearted girl who walked her Path. She knew it was her Path, as do all those who have asked for guidance, and she knew that it led toward Home.

The days came, as all days do, glad ones, sad ones, and some indifferently pleasant. Then when perhaps the girl herself had grown indifferently pleasant—who knows?—she became suddenly aware of a barrier placed directly across her Path—Her Path, Friend, and she couldn't understand!

At first she laughed, and called it imagination. The great gray wall that stretched up into the gray clouds was just a dream and would dissolve into nothingness.

But the wall remained.

Then she decided it was a task for her energy of will, and she bent all the force of her mentality to demolish the hindrance to her way.

But the wall was still there.

Fear crept into her heart, but she brought high courage to bear. She forced a sort of peace into her mind and said, "I admit the Wall, but there must be a Door Out." So she searched until the shadows fell and engulfed her in their grayness, and she was one with the gray sky, and the hard gray wall.

But the wall still towered to infinity.

Then terror overcame her. With clenched hands she beat against the wall. Her body was bruised and torn from head to foot. * * * And her heart was broken.

But the wall had not moved.

Days passed and days came again, and still she lay, body-conquered, soul-daunted. But because she was close pressed against the earth, crushed into a sense of oneness with earth-sorrow, she found she was not alone.

Then, girl no longer, she arose, ready for her woman-part in the world. Thankful if she could bring a smile to a sad face, glad when little children ran to her.

And lo! when the mists of self-seeking cleared from her eyes, she discovered no miracle, but a simple fact: The wall was still there, but it indicated only a sharp turn in the Path. The way was still open.

The way had never been closed.

And the woman, filled with a quiet joy, turned and followed her Path.—C. N. B., Grand Traverse Herald.

FEBRUARY PRIZE CONTEST

For recipes telling how to use potatoes and potato flour in breads, cakes, etc.: $2.00 for best, $1.00 for second best, six months' subscription for all others published. We are hearing much these days about the advisability of using potatoes where possible to substitute for wheat, which is soaring out of sight owing to war prices. European governments are reported to be urging their people to eat bread made half of potatoes. If you have not already experimented with potatoes as a substitute for wheat flour do so this week and send the Cultivator the recipe you have found most satisfactory.

The modern cook, of necessity and of choice, stays not in the beaten paths. She makes carrot plum pudding and flavors soup with green almonds. Let us all join the ranks of the discoverers.

Recipes should be in this office by the morning of Thursday, February 11. Write on one side of paper only. Send name of member of your family now receiving the Cultivator that the six months' extension of subscription may be credited to that name.

THE TOLL ON LIVING COST

Distribution expense is a big item in the present high cost of food products. Here is an illustration: A housewife in the city, living a mile and a half from her grocer, steps to the phone.

"Central, two, four, three, please."

"Smith's grocery? Please charge and send me 10 cents' worth of animal crackers. Pick out the elephants—the baby is afraid of them. Get them up right away."

Talk about high living cost! If the consumers of today would apply common sense judgment in their demands on the middlemen who serve them, they would get food cheaper. Of course, there are always some who think they must have this kind of useless and expensive service, and who are willing to pay for it. But they are not the ones who complain the loudest. It is those who cannot and should not afford such a toll on living cost who are continually berating the producer. If they would look nearer home, they might discover some of the real causes of high prices which they are now overlooking entirely.

SAVING HIS ENERGY

"Yes," said the man just back from the West, relates the Pathfinder, "when I went to Montana I did what nearly every other tenderfoot does—bought one of those broad-brimmed felt hats like the ones stage cowboys wear, and put it on at the first opportunity.

"Mine wasn't the only one in town, but I felt conspicuous just the same. Somehow or other I hadn't acquired the knack of wearing it. One windy day—and, believe me, it can blow some in B——, without half trying—I walked down the main street of the town holding onto my hat with one hand and my coat with the other. As I turned a corner the wind seemed to stop blowing, and I let go of the hat, when a sudden gust came, took it off my head and sent it rolling like a frightened hoop down the street.

"I started to give chase, when another hatless man—he was a sure enough Westerner, too—took me by the arm and said:

"'Don't chase it, pardner; there'll be another one along in a minute.'"

CROCKERY

Quickly Made Clean and Bright by the Use of

Large Sifter Can, with Full Directions, 10c

Bring up a Girl—

Along lines that will develop her into a robust woman. Give her Ghirardelli's Ground Chocolate. No fear of harmful after effects. It combines all the elements which growing girls require, and it has a taste that every child likes. Every mother should serve it because of its purity, its wholesomeness and the ease with which it may be prepared. Costs less than a cent a cup.

In hermetically sealed tins.

Ghirardelli's Ground Chocolate is the only original ground chocolate. It has been used in Western homes for over a third of a century and its popularity is growing day by day.

D. GHIRARDELLI CO.
Since 1852 San Francisco

The price remains the same.

GHIRARDELLI'S GROUND CHOCOLATE

PIPE

For Every Purpose
NEW Threads and Couplings
Hot Asphaltum Dipped

2nd Hand and NEW

Screw Casing
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Guaranteed for Pressure

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The Cultivator Poultry Book contains honest information poultry raisers should know; 200 pages and 50 illustrations bound in cloth, price..... $1.00

The California Cultivator, the largest and cleanest farm weekly on the Pacific Coast; 24 to 36 pages each issue. Per year..... $1.00

Lowney's New Cook Book—A necessity in every home; contains 420 pages, 38 color illustrations and 1450 recipes, bound in cloth..... $1.00

The Housewife, a ladies' monthly magazine full of helpful hints for every branch of the home life; printed on fine book paper, per year..... $ .50

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The California Cultivator, 1 year .. 1.00
$2.00 — **$1.75**

No. 2 Lowney's New Cook Book.....$1.00
The Housewife, 1 year..... .. .50
The California Cultivator, 1 year... 1.00
$2.50 — **$1.65**

No. 3 The Cultivator Poultry Book.....$1.00
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The Housewife, 1 year..... .50
The California Cultivator, 1 year.... 1.00
$3.50 — **$2.40**

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Or send us four renewals for the California Cultivator at $1.00 each. Send us the $4.00 and we will mail you the Cultivator Poultry Book—FREE. — **No. 4 Free**

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We do not know of any Family Weekly that we can more heartily recommend to our readers than The Youth's Companion. It gives us pleasure, therefore, to announce that we have again arranged with the publishers to make the following offer:

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The Youth's Companion
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115½ North Broadway, Los Angeles

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Candy Recipes

A New Divinity Candy

Three cups granulated sugar, two-thirds cup water, one-third cup honey, whites of two eggs, one-half dozen figs and pinch of salt.

Bring sugar and water to boiling point, then add the honey. Boil until it spins a thread when dropped from a spoon, then pour slowly over the beaten egg whites, beat a couple of minutes and add the figs cut up fine. Beat hard until it begins to granulate and pour quickly into buttered tins. Later it can be cut into squares.—Mrs. Glenn D. Smith, Ontario.

Pink Divinity

Two cups of sugar, one-half cup of white corn syrup, one-half cup of hot water. Cook until quite brittle when tested in cold water.

Pour slowly over the stiffly-beaten whites of two eggs. Color pink, and beat until it begins to harden. Add one-half cup of preserved cherries cut into small pieces, and flavor.

Spread on buttered plates, and when cooled cut into squares.—Susan May Pinkerton, Santa Paula.

Honey Foam

Three cups granulated sugar, one-half cup strained honey, two-thirds cup water. Boil until a firm ball can be made when tested in water. Have ready the whites of two eggs beaten very stiff, and add gradually the boiling syrup. Beat until quite stiff then add a cup of seedless raisins and pour into a buttered dish.—Mrs. C. H. Weed, Porterville.

Loaf Candy

Three pints white sugar, one and one-half pints cream, one pint light colored syrup, one quart nuts, one teaspoon vanilla. Cook until it forms a soft ball when tried in cold water. Take off of fire and beat hard until it begins to get cold, then pour the nuts in and beat together. Pour into a deep pan so it will make a loaf. You will find this is a delicious candy and will keep for months.—Mrs. J. H. Paul, Eagle Rock.

California Pralines, a Southland Dainty

One pound brown sugar, water to dissolve. Boil till nearly brittle, then add one cup of cream, let boil up again and add juice of one orange, boil again and add one tablespoon of butter. Beat like caramels and pour over one pound of English walnut meats and grated rind from the orange. Beat to a cream, then drop small pieces on greased pans to harden. Glucose or corn syrup may be used with the sugar to insure smoothness.—Mrs. E. Carrithers, Laguna Beach.

Turkish Delight

One ounce gelatine, one-half cup cold water, two cups granulated sugar, one-half cup boiling water, grated rind of one orange, juice of one orange, juice of one lemon, one-half cup chopped nuts, fruit coloring if desired.

Add cold water to gelatine, let stand until dissolved. If sheet gelatine is used break in pieces before adding cold water. Put sugar and boiling water in saucepan, bring to boiling point, add gelatine and let simmer 20 minutes. Add coloring if desired. Strain, add nut meats and turn into pan rinsed in cold water. Let stand until cold, remove to board, cut in cubes and roll in powdered sugar.—Josephine Herrick, Colton.

California Creams

Three cups white sugar, one and one-half cups water, one cup walnut meats, lump butter size of walnut, one teaspoon vanilla flavoring. Put sugar in a pan over a slow fire, let it melt and brown a light brown. Watch closely as it must not burn. Add the water and butter. Boil this, without stirring, to the soft ball stage, remove and stir until thick and creamy, adding nuts and flavoring. Turn into a platter and mark into blocks.—Mrs. S. D. Teel, Santa Ana.

Delicious White Nut Candy

Two cups granulated sugar, two cups of milk, one-half cup butter, three-fourths cup chopped English walnut meats, one-half cup chopped figs, one tablespoon vanilla or almond extract. Put the milk, butter and sugar into a saucepan by the side of the fire until the sugar is nearly dissolved. Then boil until the syrup forms a hard ball when tested in cold water, or 250 degrees by a candy thermometer, then take the pan from the fire, add the chopped nuts, figs and extract and beat until the mixture begins to get sugary. Pour at once into buttered tins. Mark into squares with a knife, and when cold break into pieces.—Anna Moss Keyes, Lakeside.

Walnut and Date Loaf

Three-fourths cup of water, two cups of sugar, one-fourth teaspoon of cream of tartar, vanilla.

Directions: Put the sugar, cream of tartar and water in a saucepan and stir thoroughly. Then boil the mixture without stirring until it forms a soft ball in water. Remove from fire and pour in a wet bowl and let stand until nearly cool, then beat with a spoon to a soft creamy mass, knead with the hands until it is soft and smooth and mix in the vanilla. Have cut up in small pieces a cup of walnut meats and dates mixed, and knead into this fondant. Then cut into slices.—Mabel Peterkin, Orange.

Boston Loaf Candy

three and one-half cups sugar, one and one-half cups milk, one cup corn syrup. Boil until it forms a lump in cold water—not quite so hard as for taffy. Take from fire and beat until it begins to stiffen. Add nuts, cocoa or cocoanut or simply pour into buttered tin. Cut into squares when cold.—Mrs. Chas. Catlin, Saticoy.

Fruit Paste

One cup dried figs, one cup raisins, one cup dates, one cup walnuts. Put each ingredient through a meat grinder three times. Mix all thoroughly, knead with the hands and roll out an inch thick. Cut into cubes. These may be dipped into chocolate if one prefers. This fruit paste has the advantage of being not only a delicious candy but a wholesome food as well.—Caroline C. Condit, Berkeley.

Honey Fudge

In a saucepan put five tablespoons each of honey and thick sweet cream, and cook for about five minutes after it begins to boil, or until a white line appears around the side of the pan when the candy is stirred. Remove from the fire and when slightly cooled stir in a small pinch of salt and a drop or two of almond extract. Arrange in shallow oiled pans a layer of chopped marshmallows and pour the hot fudge slowly over them.—Miss Emma Gatzke, Ventura.

Sour Milk Fudge

Two cups sugar, one cup sour milk, one tablespoon butter, one teaspoon flavoring, any kind desired; one-half cup chocolate if desired, one cup nuts if desired. Let the sugar and sour milk come to boil, then put butter in and boil till it turns brown and threads in water. Take from fire, drop in chocolate and nuts and stir for a minute then pour in buttered pans and stir till cool and cut into squares.—May Blake, Ceres.

Wellesley Marshmallow Fudge

Heat two cups of granulated sugar and one cup of rich milk (cream is better.) Add two squares of bitter chocolate and boil until it hardens in cold water. Just before it is done add a small piece of butter, then begin to stir in marshmallows, crushing and beating them with a spoon. Continue to stir in marshmallows after the fudge has been taken from the fire until half a pound has been used. Cool in sheets three-quarters of an inch thick and cut into cubes.—R. Ferris, Woodlake.

Fruit Fudge—Chocolate Dipped

One and one-half cups granulated sugar, one cup maple syrup, one and one-half cups pure corn syrup, one-half cup thick cream or one-third cup milk and one-fourth cup butter, one cup of fruit—figs, candied cherries and apricots—cut in small pieces, one-half cake sweet chocolate for dipping.

Stir sugar, maple syrup, corn syrup and cream until sugar is melted, cover and let boil three or four minutes, then uncover and let boil, stirring occasionally, until when tested in cold water a soft ball will form. Remove from fire to cool. Then add the fruit and beat until it becomes thick. Pour into pans lined with waxed paper. In about 15 minutes cut into squares and dip these in melted sweet chocolate.—A. Butcher, Healdsburg.

Marshmallows

Take two cups of sugar, one cup of boiling water and cook till it forms a soft ball when tested in cold water. Soak two tablespoons of gelatine in six tablespoons of hot water. When syrup is done, add a teaspoon vanilla, pour the gelatine into it and beat steadily for 20 minutes or until it becomes stiff enough to roll out in a sheet one inch thick on powdered sugar, then put powdered sugar on top and when cool cut into inch squares and roll each one in powdered sugar mixed with one tablespoon of corn starch sifted in it.—Mrs. Nora Stronatt, Tulare.

Puffed Wheat Candy

Four cups puffed wheat, one cup sugar, one-half cup molasses, two tablespoons butter, one-eighth teaspoon salt, one-half tablespoon vinegar, one-third cup cold water.

Put wheat in shallow pan and place in oven until crisp.

Cook butter, molasses, sugar, salt, water and vinegar to crack stage. Pour syrup over wheat. Mix thoroughly, then pour in buttered pan.—Mrs. Geo. A. Grober, Cohasset, Minnesota.

Rich Caramels

Two and one-half cups granulated sugar, one and one-half cups milk, one half cup butter.

To make—Put all in a saucepan and cook. As soon as it boils well add very slowly one cup sugar, brown preferred, which has been melted without water in a saucepan. Cook until it ripes well. Remove from fire and beat well for five minutes. Add a teaspoon of vanilla, spread while warm and cut in squares.—Mrs. Geo. F. Herrick, Riverside.

Caramels

Four cups granulated sugar, one cup glucose or white corn syrup, one large can evaporated milk, one-half cup butter. Stir all together and cook until it will harden when tried in cold water, stirring constantly. When done add teaspoon of vanilla, nuts if desired, or for chocolate add small tablespoon of cocoa or grated chocolate.—R. F. C., Hemet.

One Pound of Fondant

For chocolate, walnut or other cream candy into a small aluminum or granite kettle put two cups of granulated sugar, one cup of cold water and little cream of tartar. Measure both sugar and water in same cup. I fill a teaspoon level full of cream of tartar and cut across each way, then use one-fourth of the spoonful for above recipe.

Before placing on hot stove stir till all the sugar is moistened, do not move the pan nor stir after it starts heating. Boil rapidly and after six or eight minutes put a little into cup of cold water. If it hardens so you can gather into soft ball in the spoon it has cooked enough. After a few trials you will be able to tell when it is just right. I like to take it off a little too soft rather than too hard. When done cooking set out to cool on inverted steamer or wire frame so bottom will cool too. It is ready to stir when you can hold your hand on the bottom of kettle for awhile. Put cover over kettle so top will not cool rapidly enough to crust. If you stir it too warm it will cream quickly but it will be grainy. If too cool it will remain syrupy.

A silver or wooden spoon was recommended to me, but I cannot see any difference, so be sure to stir rapidly in the same direction without stopping. As soon as you can lift it in your hand place on waxed paper. Take it up and work between your hands. It will soon become very creamy. Divide into as many parts as you want different flavors. Dent each piece and drop extract into depression. You can color with cochineal for pink or red, with vegetable paste for violet or orange. After melting chocolate in small bowl over teakettle add small piece paraffin. A friend told me a short time ago that she used a broken knitting needle to hold fondant or cream ball and had a piece of window screen under the waxed paper. I tried it and certainly it works beautifully. Stick end of needle into ball, dip into melted chocolate and paraffin, turn till well covered and drained, press other end of needle through waxed paper and through screen and your cream is in perfect shape.

Grind any nuts fine and work into fondant. Cut into squares and wrap in waxed paper Dip or roll fondant balls in fine cocoanut. Grind fresh cocoanut and work in same as nut meats. Our greatest advantage is in knowing that we have a perfectly pure candy and that the cost is many times less than we must pay for the same grade of candy. In most homes the children enjoy the making as much as the eating.—Allen Corwin, Mesa, Washington.

After Dinner Mints

Four cups granulated sugar, one-half pint glucose (best grade), one-half pint water. Boil on quick fire to "crack" or between 290 and 300 degrees on thermometer. Boil without stirring, add two ounces butter, remove from fire when butter is melted; pour out. When cool pull until white, flavor with peppermint while in last stages of pulling. Pull out like sticks, cut into one-half-inch pieces with scissors, roll in powdered sugar and leave 24 hours to ripen.—Mrs. M. Garrett, Merced.

Maple Panoche

Grate one pound of maple sugar, add one cup milk. Stir over the fire until the sugar is dissolved and then boil until the syrup forms a soft ball when dropped in cold water. Take from fire, stir for a moment until it begins to thicken, then add hastily half pint pecan meats and turn the mixture into a square greased tin. When partly cold mark into small squares with greased knife.—Jessie G. Storer, Beaumont.

PRIZE WINNERS

First prize, Miss Emma Gatzke,, for "Honey Fudge;" second prize, Allen Corwin, "One Pound of Fondant."

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San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, Jan. 20, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Butter has gone up 4 and 5 cents all along the line. Receipts were normal, but demand was unusually heavy.

Prices to trade 4 cents above following quotations:

Creamery Extras 31
Firsts 29
Country 25
Ladle 24

CHEESE

Prices to trade, 1 and 2 cents higher:

California Fresh .... 15½@16
Domestic Swiss .... 20@21
Eastern Daisy 18½
Longhorn .... 18½@19
Imported Swiss .... 36@38
Oregon Triplets .... 17½@18

EGGS AND POULTRY

There has been a slight decline in eggs since last week. Large supplies are coming in daily.

Prices to trade, 3 cents higher than following quotations:

Fresh ranch, case couts 31
Candled .... 33@35
Northern case couts 29½
Petaluma-Santa Rosa 30½

Prices to producers:

Hens, lb. .... 15@18
Roosters, old 9
Broilers, lb. 26
Fryers 20
Roasters, lb. 15
Turkeys .... 19@20
Ducks 17
Geese 16
Squabs, doz. 2.00

LIVE STOCK

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs., per cwt 7.85
Prime Steers .... 7¼@7½
Heifers .... 6¼@6½
Calves, lb. .... 8½@9
Sheep—
  Ewes, head 4.50
  Wethers .... 4.50@5.00
  Lambs, head .... 4.50@4.75

POTATOES

Wholesale selling price:

Idaho .... 1.50@1.55
Early Rose .... 1.90@2.00
White Rose .... 1.50@1.75
Sweets, lug .... 75@80
Northern Burbanks, cwt .... 1.45@1.50
Salinas .... 1.90@2.00
Shimas .... 1.50@1.60
Lompocs .... 1.90@2.00

ONIONS

Australian Brown, cwt .... 1.50@1.65
White Globe .... 4.50@4.75
Yellow Danvers .... 1.50@1.65
Spanish Red Globes .... 1.25@1.60
Sets, yellow 9
  White 10
Garlic .... 17@18

VEGETABLES

Wholesale selling price:

Artichokes, Northern, doz .... 75@90
Beets, doz. .... 30@35
Beans, String .... 14@15
  Lima .... 5@6
Cabbage .... 65@75
Carrots, doz. .... 30@35
Cauliflower, doz .... 75@85
Celery, crate, northern .... 2.50@2.75
  Local .... 1.75@2.00
Cucumbers, hothouse .... 75@2.00
Egg Plant .... 14@15
Escarole, doz. 40
Horseradish, lb. .... 9@11
Leeks, doz. .... 35@40
Lettuce, crate .... 85@1.00
Mint, doz. .... 35@40
Mushrooms, Outdoors, lb. 25
Okra, lb. .... 9@10
Onions, Green, doz. bunches .... 15@20
Oyster Plant .... 35@40
Peas, lb. .... 13@15
Parsnips, doz. .... 30@35
Peppers—
  Bell, lb. .... 13@15
  Chili, lb. .... 6@8
  Pimientos .... 14@15
Pumpkins, lb. .... 1@1½
Radish, doz. .... 20@30
Rhubarb, box .... 80@1.00
Spinach, doz. .... 20@25
Squash—
  Summer, lug .... 1.25@1.40
  Chayote, lug 75
  Crookneck .... 50@60
  Hubbard, lb. .... 1¼@1½
Turnips .... 30@35
Tomatoes, lug .... 1.25@1.35

FRESH FRUIT

Wholesale selling price:

Apples—
  Bellflowers .... 75@1.00
  Jonathans .... 1.35@1.60
  Spitzenbergs .... 1.35@1.75
  Rome Beauties .... 1.25@1.75
  Pearmains .... 85@1.10
Bananas .... 3@3½
Berries—
  Strawberries, basket .... 5@10
  Blackberries .... 13@15
Raspberries .... 12@15
Casabas, doz. 1.25
Cranberries, bbl. .... 9.00@9.50
Figs, box .... 1.50@1.75
Grapes, lug .... 1.25@1.35
Guavas, bsk. .... 4@6
Pears, Winter Nelis, lug 1.50
Persimmons, lb. .... 5@8
Pineapples, lb. .... 5@6
Pomegranates, box .... 1.50@1.75
Quinces .... 65@75

CITRUS FRUIT

Wholesale selling price:

Lemons .... 1.00@2.00
Grapefruit, Seedless .... 2.00@2.25
Navels .... 1.50@1.75
Tangerines .... 1.65@1.85
Limes, basket .... 75@1.00

DRIED FRUITS

Wholesale prices to retailers are:

Evaporated Apples, Fancy, lb.
  boxes .... 6¼@8
Apricots .... 8¾@11½
Nectarines 12½
Peaches .... 5¾@6¾
Pears .... 10@11
Prunes .... 5¾@16
Plums 10

HONEY

Wholesale selling price:

Comb, Fancy, Water White 14
White 12
Light Amber 11
Extr. Water White 7
White 6½
Light Amber 5½
Beeswax 32

NUTS

Prices named by California Walnut Growers' Association are:

No. 1 .... 16½
Budded Walnuts 20
Jumbos 19
No. 2 12
Culls 9

Prices fixed by California Almond Growers' Exchange, f. o. b. California.

Almonds—
  Nonpareil 21
  I X L 20
  N P U 19
  Drake's Thinshell 15
Pecans 17
Peanuts—
  California, Raw 6
  Japan 7½
  Eastern 7½
Rice Corn .... 5.00@5.25

RICE

Wholesale selling price:

California .... 4.75@5.00
Broken 3.75

BEANS

Wholesale selling price:
Producer's price not far from one dollar under these quotations:

Limas .... 6.10@6.75
Bayous 6.25
Lady Washington .... 5.15@5.25
Pinks .... 4.50@4.75
Black Eyes .... 4.75@5.00
Lentils 10.00
Navy .... 5.25@5.35
Small White .... 5.50@5.75
Garbanzos .... 7.00@7.50

HAY

Buying prices f. o. b. cars Los Angeles:

Barley .... 10.00@11.00
Wheat Hay .... 10.00@11.00
Tame Oat .... 11.00@13.00
Alfalfa .... 9.00@11.00

GRAIN

Grains and feeds have taken a phenomenal advance, dictated by the general grain advance of the east, caused by war conditions. It is now plain that grain will now advance to prices never before known. Speculators are buying wheat everywhere.

Wholesale selling prices f. o. b. Los Angeles:

Corn, Yellow 2.10
Corn, White 2.20
Wheat .... 2.75@2.90
Oats, Red 2.45
Oats, White 2.10
Oats, Hulled 2.75
Millet 3.75
Popcorn .... 4.75@5.00
Egyptian Corn 2.15
Barley Seed 1.85
Barley, Hulled 2.10
Milo Maize 1.90
Cal. Seed Oats 2.05
Texas Seed Oats 2.45
Rye 2.30
Sunflower Seed 6.50

FEED STUFF

Wholesale selling prices f. o. b. Los Angeles:

Bran, Heavy 1.90
Alfalfa Meal 1.15
Alfalfa Molasses, per cwt 1.20
Beef Scraps 3.00
Beet Pulp 1.25
Cracked Corn, cwt 2.15
Crack Wheat, cwt 2.85
Cotton Seed Meal 1.80
Bloodmeal 3.60
Bone Meal 1.95
Meat Meal 3.00
Bone, Green 1.85
Charcoal 1.90
Oil Cake Meal 2.20
Fish Meal .... 3.15@3.25
Rolled Oats 2.15
Rolled Barley 1.80
Middlings 2.20
Feed Meal 2.20
Oat and Wheat Middlings 1.70

San Francisco Market

SAN FRANCISCO, Jan. 19, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Butter has advanced 2½ cents on extras. A slight increase on other grades.

Prices to trade, 4 cents above following quotations:

Extras 29
Prime Firsts 26
Firsts 24
Fancy Creamery 29½
Seconds 23

CHEESE

Wholesaler to retailer.

Oregon Y. Am 16
Young America .... 12½@13
California Flats .... 10@14
Cheddar 20
Oregon Twins 14½

EGGS AND POULTRY

Arrivals of eggs have been short in the San Francisco market and all offerings have been quickly snapped up. Some consignments brought considerably above the general quotation.

Prices to trade 3 cents higher than following quotations:

Extras 34
Storage Extras 31
Select Pullets 35½
Storage Select Pullets 21

Price to producer:

Hens, lb. .... 15@17
  Eastern .... 16@19
Fryers .... 17@18
Roosters, old 11
Roosters, young .... 16@17
Broilers .... 17@18
Ducks .... 15@17
Geese, pr. .... 2.00@3.00
Squabs .... 2.50@3.50
Belgian Hares, lb .... 9@10
Turkeys, live .... 16@19
  Dressed .... 20@24

LIVE STOCK

San Francisco prices, gross weight:

Steers .... 4@7¼
Cows and Heifers .... 3@6¼
Calves, lb., live weight .... 6@9½
Hogs .... 5@7½
Wethers .... 6@6½
Ewes .... 5¼@5¾
Milk Lambs .... 7@7½

POTATOES

Wholesale selling price:

Delta Burbanks .... 1.00@1.15
Salinas Burbanks .... 2.00@2.10
Oregons .... 1.65@1.75
Idaho .... 1.20@1.25
Sweets, cwt .... 1.65@1.75

ONIONS

Wholesale selling price:

Yellow, cwt. .... 90@1.00
Bermudas, crate .... 90@1.25
Garlic, new .... 19@20

VEGETABLES

Wholesale selling price:

Beans—
  Wax .... 5@7
  Strings .... 10@15
  Limas .... 10@12½
Brussels Sprouts, lb. .... 2@4
Cabbage, cwt .... 1.00@1.25
Carrots, sack .... 30@40
Celery, doz. .... 10@15
Cucumbers, lug .... 1.25@1.50
Egg Plant, lb. .... 8@10
Lettuce—
  Southern .... 75@1.15
  Delta .... 1.25@1.50
Peas, lb. .... 11@15
Peppers—
  Bell, lb. .... 10@12½
  Chili, lb. .... 5@6
Squash, sack .... 25@35
  Summer, crate .... 75@1.00
Tomatoes, crate .... 30@75
Imperial Valley .... 1.25@1.75

FRESH FRUIT

Apples—
  Newtown Pippins .... 50@90
Bananas, Hawaiian, bunch .... 1.25@1.75
Cranberries, bbl. .... 8.50@9.00
Grapes lug .... 80@1.00
Pears, Winter Nelis, wrapped,
  box .... 1.00@1.50
Pomegranates, box .... 50@1.00
Pineapples, doz. .... 2.75@3.25
Persimmons .... 50@1.00
Quinces, box .... 25@40
Strawberries, chest .... 3.50@5.00

CITRUS FRUIT

Wholesale selling price:

Grapefruit, Seedless, new crop .... 1.75@3.00
Lemons .... 1.50@2.50
Lemonettes .... 1.00@1.50
Limes, case .... 3.00@5.00
Navels .... 1.25@2.00
Tangerines, halves .... 75@1.40

DRIED FRUITS

Wholesale prices are:

PRUNES—1914 crop, bulk basis: 30-40s, 7c; 40-90s, 6½c; 90-100s, 6c. The above are for both Santa Clara prunes and stock from outside sections.

Other Fruits. 50-lb. boxes—	Standard	Choice	Extra Choice	Fncy
Evapt'd apples	....	5½c	5¾c	6 c
Apricots	9 c	9½c	10 c	11 c
Peaches	4 c	4¼c	4½c	5¾c
Pears	7 c	8 c	9 c	10 c

RAISINS

RAISINS—The following prices are f. o. b. Fresno, as given out by the Associated Raisin Company, for immediate shipment and are guaranteed against a decline till April 1st: Fancy seeded, 16-oz., 7¼c; 12-oz., 5⅞c; bulks, 6c; choice seeded, 16-oz., 6⅞c; 12-oz., 5⅝c; bulk, 5½c; Thompson seedless, No. 1, 16-oz. pkgs., 7⅝c; 12-oz., 6¼c; 50-lb. cs., 6½c; loose, Muscatels, 1-crown, 5½c; 2-crown, 5½c; 3-crown, 5⅞c; 4-crown, 6c; Sultanas, 50-lb cs., 5¾c; bulk, layers, 50-lb. bxs., $2.75; in 20-lb. bxs., 6-crown, $2.75; 5-crown $2.25; 4-crown, $160; 3-crown, 5-lb. bxs., $1.50; on all bulk stock, 50c additional. Cartons—Clusters, 20 to cs., No. 1, $1.70; No. 2, $2.10; No. 5, 4 to cs., $2.25. Local representatives of the association are asking about ¼c higher, while several of the largest independent packers are quoting ½c under these figures.

NUTS

ALMONDS — Prices fixed by Almond Growers' Exchange to the trade, f. o. b. California:

  Nonpareil 21
  I X L 20
  Ne Plus Ultra 19
Drakes 16

Wholesale selling price:

Peanuts—
  Unpolished .... 5@8
  Polished .... 6@6½
  Shelled, Jap .... 6¼@6¾
Italian Chestnuts .... 6½@7

BEANS

Wholesale selling price:

Limas .... 5.50@5.60
Lady Washington .... 3.60@3.75
Pink .... 4.15@4.25
Black Eyes .... 5.00@5.25
Cranberry .... 5.00@5.25
Small White .... 5.00@5.25
Garbanzos .... 5.75@6.00
Large White .... 4.95@5.05
Bayou .... 5.45@5.60
Manchurian Speckled Bayous .... 3.60@3.70
Manchurian Butters .... 3.90@4.10
Manchurian Cranberry .... 4.15@4.25
Red Mexican .... 5.60@6.70
Red Kidney .... 6.00@6.25
Horse Beans .... 3.00@4.00
Bayou .... 5.50@5.70

HONEY

Comb, Water White .... 14@16
Comb, Water White .... 14@18
Amber .... 10@12
Dark .... 7@10
Extracted White .... 7@9
Light Amber 5½
Dark .... 4@5½
Beeswax .... 27@32

HOPS
1914

Sacramento Valley .... 7@9½
Sonoma-Mendocino .... 9½@11½
Oregon Clusters .... 9½@11½

HAY

Under date of January 16, Scott, Magner & Miller say:

Receipts of hay for the past week were 2477 tons—about the same as the previous week. Demand exceedingly light. The Alfalfa market remains about the same with arrivals a little heavier. Straw is nominal owing to the cheaper grades of hay taking its place.

Fancy Wheat Hay, lt. bales .... 11.00@12.00
No. 1 Wheat or Wheat and
  Oat .... 9.00@10.50
  Oat .... 9.00@10.00
No. 2 Wheat or Wheat and
  Oat .... 6.00@8.50

WEATHER CONDITIONS

For Week Ending January 16, 1915

Report from the various stations of the United States Weather Bureau, by George H. Wilson, director, San Francisco:

	Rainfall Data			Temperature Data	
	Past Week	Seasonal to Date	Normal to Date	Maximum	Minimum
Eureka	1.90	23.13	20.59	56	32
Red Bluff	0.76	11.70	12.06	54	34
Sacramento	0.19	6.46	8.71	56	36
San Francisco	1.16	9.68	10.17	58	42
San Jose	0.47	7.69	7.39	58	30
Fresno	0.22	3.57	4.42	60	34
Independence	.00	0.52	4.35	56	20
San Luis Obispo	.48	7.83	8.31	68	38
Los Angeles	T	4.58	6.47	70	44
San Diego	T	4.18	4.25	68	42

T—Means trace.

Choice Tame Oat	10.50@12.00
Other Tame Oat	6.00@9.00
Barley	5.00@8.00
Wild Oat	6.00@8.00
Alfalfa	6.00@9.00
Stock Hay	4.50@5.00
Straw	30@45

GRAIN

Wholesale prices.

Alfalfa Seed	14@16
Wheat, Cal. Club	2.35@2.40
Corn, Eastern Yellow, blk	1.70@1.72½
Corn, Egyptian White	1.82½@1.85
Barley, Feed	1.50@1.53
Shipping and Brewing	1.26¾@1.27½
Oats, White	1.55@1.60
Oats, Red, Seed	1.35@1.45
Oats, Red, Feed	1.60@1.62½
Millet	3@3¼
Flax	6@6½
Rye	1.50@1.60
Sunflower	5@5½

FEED STUFF

Wholesale prices.

Alfalfa Meal, car lots	13.00@15.50
Bran, ton	29.50@30.00
Feed Cornmeal, ton	40.00@41.00
Cracked Corn	40.00@41.00
Rolled Barley, ton	32.00@32.50
Rolled Oats, ton	37.00@37.50
Middlings	32.00@33.00
Shorts	30.00@32.00
Oilcake Meal	36.00@37.50
Cocoanut Oilcake Meal	23.00@24.00

Citrus Fruit Market

LOS ANGELES, Jan. 20, 1915.

Very quiet conditions prevail, although it is possible the orange market is rather more hopeful than last week. There is an immense quantity of fine fruit to go forward, but it is of such high quality that if there is no panic or pressure to ship too heavily at one time fair returns should be secured. Fruit which was frozen on board cars in transit has been almost entirely cleaned up.

Lemons are rather better in general tone, but no great advance is anticipated until the heavy demand which will be caused by the warm weather of spring.

Shipments

Shipments of oranges to date from Southern California since November 1, 1,222 cars, lemons 639, total 6761. To same date last season, oranges 2980, lemons 314, total 3294. From Central California, oranges 4988, lemons 105, total 5093. To same date last season, oranges, 4057, lemons 25, total 4082. From Northern California counties, oranges 495, last season 395.

NEW YORK, Jan. 18.—Sixteen cars navels, two cars lemons sold. Market higher on navels and lemons, unchanged. Raining.

NAVELS—

	Avge.
Exeter, C. C., Exeter	$2.40
Strathmore, T. C., Strathmore	2.20
Alta Cresta, imp., A. H. Ex.	2.85
Robusta, imp., A. H. Ex.	2.70
Hobo, imp., A. H. Ex.	2.20
Alta Cresta, A. H. Ex.	2.80
Robusta, A. H. Ex.	2.45
Hobo, A. H. Ex.	2.10
Mt. Whitney, T. C., Success	2.25
Strathmore, T. C., Strathmore	2.80
Hesperides	1.60
State, T. C., Lisco	1.80
Capitol, T. C., L.	1.60
Red Label, C. C., Lindsay	1.90
Suburban, T. C., L.	1.95
Rainbow	1.70

LEMONS—

Dan Patch	$2.20
Pony	2.20
Whittier	2.55

LOS ANGELES, Jan. 18.—Three cars sold.

NAVELS—

	Avge.
Orange Banner, Sutherland F. Co.	$1.35
Some Good, Sutherland F. Co.	1.10
Hermes, G. & Willard	1.05
Carnation, Speich & Co.	1.25

BOSTON, Jan. 18.—Twelve cars oranges, one car lemons sold. Raining. Market is doing better on oranges, unchanged lemons.

NAVELS—

	Avge.
Yellow Hammer, S. C. Loomis	$1.60
Pocahontas, T. C., Zante	1.95
Chimes, C. C., Lindsay	2.05
Lindsay, C. C., Lindsay	2.35
Blue Label, C. C., Lindsay	2.25
Robusta, A. H., Pachappa	2.50
Hobo, A. H., Pachappa	2.15
Heart, Merryman F. L. & L. Co.	2.30
H. & M., Merryman F. L. & L. Co.	2.20
Washington, Merryman F. L. & L.	2.05
Diamond Mtn., Randolph F. Co.	2.05

LEMONS—

Dan Patch	$3.35
Pony	3.20
Val Verde	3.05
Val Vista	2.50
Morning Star	2.75

PHILADELPHIA, Jan. 18. — Three cars navels, one car lemons sold. Raining. Twenty-nine cars Floridas sold. Market declining. Oranges sold, 90 to $3.10; average, $1.55, Grapefruit, 55 to $2.00; average, $1.25.

NAVELS—

	Avge.
Oakleaf, T. C., Ponca	$1.70
Valley, T. C., Success	1.75
Full Value, T. C., Success	1.65
Heart, Merryman F. L. & L. Co.	2.00
Washington, Merryman F. L. & L.	1.70

LEMONS—

Victor, O. K., Etiwanda	$2.75
Crest	2.55

PITTSBURGH, Jan. 18. — Five cars navels, one mixed car sold. Raining.

NAVELS—

	Avge.
Mallard, Randolph F. Co.	$1.80
Valley, T. C., Success	1.65
Full Value, T. C., Success	1.65
King Campbell, C. C., Wahtoke	1.75
Button Willow, C. C., Wahtoke	1.60
Holsum, C. C., Wahtoke	1.65
Oakleaf, T. C., Porterville	1.65

LEMONS—

Buckeye, C. C., Lemon Cove	$2.85

CINCINNATI, Jan. 18—Cold. Market advancing on navels and lemons Market steady on Floridas. Sold one mixed car California citrus, five cars Florida oranges, two cars grapefruit. Florida oranges sold, $1.40 to $2.05; average, $1.75. Grapefruit, 80 to $2.05; average, $1.65.

NAVELS—

	Avge.
Full Value, T. C., Zante	$1.75

LEMONS—

Hiawatha, T. C., Zante	$3.05

ST. LOUIS, Jan. 18.——Cloudy, cold. Market easy on oranges. Seven cars navels sold.

NAVELS—

	Avge.
Red Label, C. C., Lindsay	$1.40
Happy Boy, C. C., Lindsay	1.30
Full Value, T. C., Zante	1.65
Forgetmenot, T. C., Porterville	1.70
Oakleaf, T. C., Porterville	1.65
Full Value, T. C., Porterville	1.25
Scotch Lassie Jean, T. C., Strath.	1.85

LEMONS—

Hiawatha, T. C., Zante	$2.45

CLEVELAND, Jan. 18. — Nine cars navels, one car lemons sold. Prices low on navels, account condition and quality. Advancing on lemons. Stormy. One car Floridas sold, averaging $1.70.

NAVELS—

	Avge.
Oakleaf, T. C., Ponca	$1.45
Dolores, C. C., Lindsay	1.60
Dolores, C. C., Lindsay	1.50
Rainbow, C. C., Lindsay	1.35
Valley, T. C., Success	1.80
Full Value, T. C., Success	1.50

LEMONS—

Lemon Cove	$3.10
Gateway	2.95

BULLETIN OF CALIFORNIA CURED FRUIT EXCHANGE

SAN FRANCISCO, Jan. 5, 1915.

We wish everybody a happy New Year and hope that the coming season will be a prosperous one for us all. The year 1914—just past—especially as far as dried fruits are concerned, will go down in history as one containing a great number of serious problems. Many things happened which had never happened before and for which we had no precedent. In the first place the European war, coming at a time when dried fruit packers were receiving fruit and getting ready to commence forwarding the apricot crop to Germany and other foreign countries, left everybody in a very uncertain state of mind as to what the outcome might be; with not only the possibilities of shipment and the financial and other abilities of export buyers practically wiped out, and the uncertainty as to what amount of fruit would be used by the foreign trade, the values of dried apricots declined very materially, and it looked for a while as if all the dried apricots which in former years had been exported would have to be consumed in this country (the major portion of the dried apricot crop produced in California has in past seasons been shipped to foreign countries), but after awhile things commenced to shape themselves around so that England and some of the other European countries commenced to buy dried fruit, but at a much lower range of prices than if conditions had remained as they were before the declaration of war. It looks now as if the dried fruit crop of 1914 will be entirely cleaned up before the 1915 crop comes in. Today apricots are held firmly at advancing prices and there is a slightly better demand.

Prunes in the earlier part of the season commanded a high price, but after the war commenced they dropped; they are now being held at fairly good prices, and on this commodity we are looking for good prices to be obtained after the buying season starts in again.

Exports have been heavier than at first anticipated, and domestic markets should take the balance of the crop now on hand. Many of the European markets which in former years bought fruit through Germany have been buying direct, and the matter of credits is shaping itself up in a very much better way than was expected some few months ago.

There is very little change in the raisin situation; the little new business which is being done is done at prices slightly under the prices of the Associated Raisin Company.

Dried peaches have been the lowest of all the commodities this year and have been somewhat of a drug on the market. The cotton situation in the South has affected this line very materially and while there is practically nothing doing in peach sales now there is an indication that prices will be better before long as this line is being held a good deal more firmly than it has been in the past.

The dried fruit tonnage in this state was very much heavier than last year, and considering the conditions which have existed, together with the increased tonnage we have, while the prices have not been as good as they might have been they might have been a great deal worse.

We quote you from the "California Fruit News," as to the tonnage of the crop of 1914, as compared to that of 1913; which is as follows:

	1913	1914
Apples	1,900 tons	4,000 tons
Apricots	10,500 tons	19,500 tons
Figs	5,000 tons	6,200 tons
Peaches	23,000 tons	32,000 tons
Prunes	48,000 tons	51,000 tons
Raisins	65,000 tons	90,000 tons
Various Others	2,000 tons	2,500 tons

We think these figures, generally, are correct, with possibly the exception of prunes, which may be a little high.

Dried fruit shipments by water have been very much ahead of last year owing to the opening of the Panama Canal. The larger percentage of dried fruit has been shipped by water instead of by rail. Reports on the movements of the German navy have been the cause of a great deal of anxiety to the water carriers, and things are not in quite as good shape in the way of shipping as they were a little while ago, but we feel that the note which the United States government has sent the British government will probably have an effect before long and that the result of it will be most advantageous to the Americans in doing business with neutral countries.

This being the time of the year when buyers are taking stock and generally winding up the year's business, orders will be slow until things get back into normal condition. The conditions in Europe will probably have a good deal of effect on the coming year's business, but we are looking generally for a better feeling all over the country and also for a quick revival of business. A nation-wide campaign to assist in the revival of business was launched in Omaha a few days ago; the movement proposes to quicken commerce and manufacturing by hastening purchases which must be made sooner or later. The general feeling of depression in this country has been caused not so much by actual need or want as by the thought that everything is in bad shape. There is plenty of money in the country, and if everyone would make up their minds that things are going to be good we would soon have plenty of business.

It looks as if in time our government will pass a law dealing with loans to farmers. Today's paper states that President Wilson has received pressing requests from different parts of the country that rural credit legislation be taken up during the present session of congress. He is considering the advisability of changing his plan and putting the subject over until next December; Chairman Glass of the house banking committee having told the president that it would not be advisable to take up the subject until time had been allowed for the working out of the farm loss features of the federal bank law. If this becomes a fact, after a while it will tend very much to relieve the necessities of the farmers all over the country. How much lower rate of interest, if any, they will be able to get money at we do not know, but unquestionably the government will be very particular in making loans, just the same as banks are now, and will not loan money indiscriminately, but only on good security.—CALIFORNIA CURED FRUIT EXCHANGE.

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The Farmer's Guide Huntington, Ind. Established 1889.	80,000 Weekly
The Nebraska Farmer Lincoln, Neb. Established 1859.	50,000 Weekly
Farm and Ranch Dallas, Tex. Established 1882.	90,000 Weekly
Field and Farm Denver, Colo. Established 1872.	30,000 Weekly
California Cultivator Los Angeles, Cal. (Rural California merged July 1, '14) Established 1877.	21,000 Weekly
The Washington Farmer (Formerly The Ranch) Seattle, Wash. Established 1881.	20,000 Semi-Mo.
The Oregon Farmer (Formerly Oregon Agriculturist) Portland, Oregon. Established 1891.	15,000 Semi-Mo.
The Idaho Farmer Boise, Idaho.	10,000 Monthly

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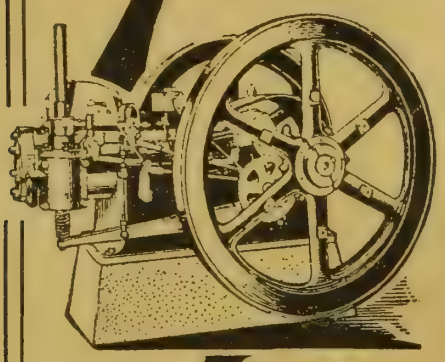

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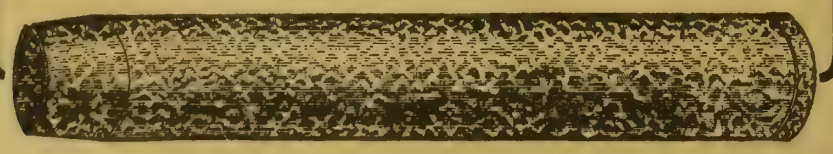

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LOS ANGELES January 28, 1915 SAN FRANCISCO

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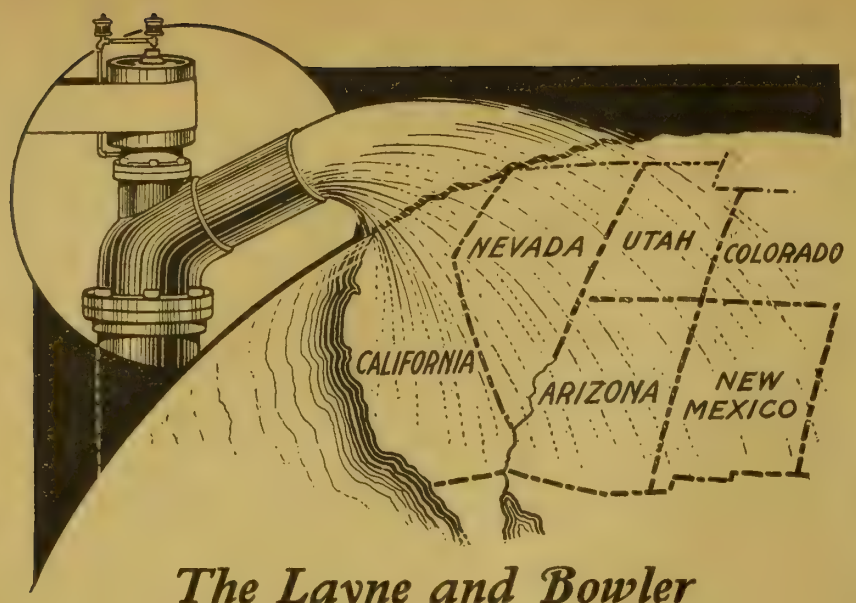

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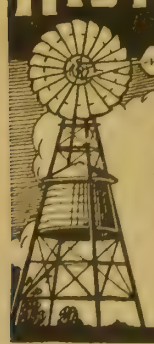

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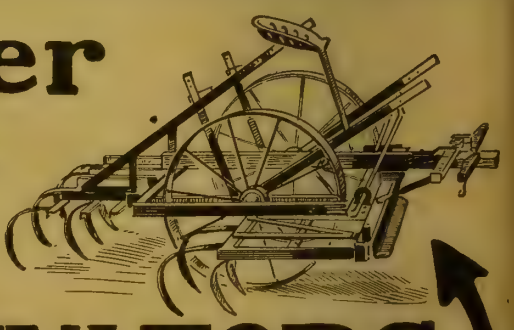

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Vol. XLIV No. 4 LOS ANGELES: THURSDAY, JANUARY 28, 1915 One Dollar Yearly

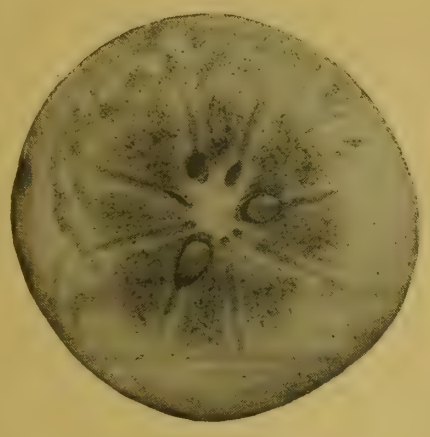
What About the Persimmon?

Interesting Items Gathered for Cultivator Readers by I. J. Condit. Varieties Described and Methods of Handling Fruit in Japan Given

DURING the past two months I have been greatly impressed with the woeful lack of knowledge on the part of the general public regarding the proper use of one of our most delicious fruits, the Japanese persimmon. I have succeeded in educating several relatives and friends up to the point of eating only thoroughly ripe persimmons and now they are enthusiastic in their praise. Instead of regarding it as a bitter, puckery fruit fit only to use in perpetrating jokes upon the unwary friend or tourist, they consider it a fine delicacy and are beginning to distinguish between the poor, stringy varieties and the rich, juicy ones. There is not the least doubt in my mind that there are thousands of Californians who simply need a good introduction to the quality of a ripe persimmon to make them also not only its admirers but its frequent purchasers. The old idea that persimmons are not edible until after a heavy frost is no longer a correct one since there are many trees of the native American species in the southern forests, which ripen their fruits before there is any sign of frost, while in California the Japanese varieties are largely picked and marketed before frost occurrence. Astringent varieties should be perfectly soft and mushy before any attempt is made to eat them. Since it is impracticable for the grower to ship the fruit when soft, it must be picked and shipped when still firm and allowed to ripen on the fruit stands or in the home of the consumer.

The kaki or Japanese persimmon was introduced into California about 1870 and is to be found to a greater or less extent in nearly every county in the state. The tree is easily grown, is free from serious diseases and insect pests, and in most cases exceedingly prolific. The fruit is very attractive in appearance, ships well to both local and distant markets, and is almost universally liked if eaten in the proper condition. Why then has the persimmon remained one of our minor fruits rather than taken its place among the leading fruits as it has in Japan? Various reasons may be assigned for its lack of popularity, chief among which are the following: The general lack of knowledge among consumers as to the value of the fruit and its proper condition for eating; the failure of the growers and marketing agencies to advertise the fruit and educate the public as to its use; the grower's lack of attention to the subject of varieties, pollination, natural and artificial ripening; the failure of growers to develop the industry in by-products, such as dried persimmons. I hope to be able in the following paragraphs to discuss some of these points which will be of value to persimmon growers and to others who are interested in the development of the industry.

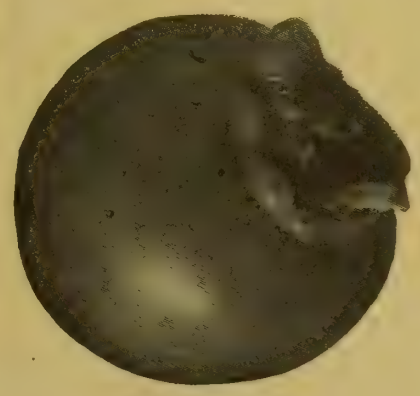
The varieties of Diospyros kaki, to which the Japanese and Chinese persimmons belong, have been variously classified in different countries. In Japan they are grouped into sweet and astringent varieties; in Florida into light-fleshed, mixed-flesh and dark-fleshed varieties. Both of these classifications are unsatisfactory since the color of the flesh is known to be affected by pollination. Some varieties are dark-fleshed and sweet when they contain seeds, but light-fleshed and astringent if seedless. The accompanying photographs show the effect of seeds upon the color of the flesh.



Saburoza Persimmon, Recent Introduction into California.
Maru Type Persimmon, Center Darkened by Presence of Seeds, Outer Section Light-fleshed.

A very satisfactory classification has recently been made by Professor Hume of Florida who has lately returned from a study of persimmons in Japan. Those varieties which undergo no change in color when pollinated are referred to as pollination constants, while those which are light-colored when seedless and dark-colored when seedy are called pollination variants. Examples of the former are Costata, Hachiya, Ormond, Tamopan, and Tsuru. Examples of the latter are Hyakume, Okame, Yeddo Ichi, Yemon and Zengi.

Certain varieties of Diospyros kaki bear both staminate and pistillate flowers. Some bear staminate flowers regularly every time the tree blooms, while others produce them one season and not another, in fact are very irregular in this respect. The grower can easily distinguish one kind of flower from the other. The pistillate flowers which produce the fruit are large, from one-half to three-fourths of an inch long, and bear very large calyx lobes at the base; the staminate flowers are smaller, do not have such large calyx lobes, and produce pollen from the eight stamens. Our best Japanese persimmons such as Hachiya and Tanenashi produce only pistillate flowers. Two sorts have been found which bear staminate flowers regularly, the New Sien and Siang, both of which were secured in China. In Florida where some varieties fail to bear regular crops it has been found profitable to plant a few pollenizers, or staminate varieties, among the other trees, or to insert a few buds of such a variety in a fruiting tree. This insures sufficient pollen to cause the fruit to set but reduces the number of seeds to a minimum. Since dark flesh is always accompanied by the presence of seeds, and since this dark flesh is always non-astringent, it is important if a dark-fleshed variety is being grown to insure good pollination of the fruiting trees. A few years ago Mr. Avery of Newcastle, who fancies a dark-fleshed persimmon, obtained from Florida 100 trees of the Yeddo Ichi, a normally dark-fleshed variety. These have been bearing now several seasons but the fruit is not uniformly dark-fleshed, being entirely light when seedless, dark near the seeds when one or two seeds are found, and entirely dark-fleshed when several seeds are present. Five or six seeds are not very objectionable and my opinion is that the quality of many dark-fleshed persimmons is much superior to that of some seedless light-fleshed varieties.



The Yeddo Ichi, One-half Dark Fleshed Account of the Presence of Seeds.

It is a well known fact that some varieties of persimmons in California bear mostly in alternate years. This has been true in Japan for one Japanese writer says that trees which are unpruned and the fruit of which is unthinned have the habit of bearing in alternate years. It is probable that if California growers would practice thinning of the fruit before it is half grown, more regular crops would be assured. Thinning increases the size of the fruits left on the tree, and increased size means better prices.

The astringency of the unripe persimmons is due to the presence of soluble tannin in cells of the fruit. The effect of this tannin is not noticeable the instant a piece of the fruit touches the tongue as it requires a short time for the tannin to dissolve in the saliva; its puckery effect is then pronounced, more so in some varieties than in others, and a second taste of such a persimmon is not usually attempted. As the fruit matures, however, the tannin becomes more and more insoluble until in a perfectly ripe specimen it is no longer perceptible.

Good varieties which are dark-fleshed and non-astringent when mature if a sufficient number of seeds are present are, Yeddo Ichi, Taber's 129, Hyakume, Zengi and Daidai. The Tamopan is a Chinese variety introduced by the department of agriculture and is described as being non-astringent so that it can be eaten even when firm. It has fruited in at least two localities in California, but in both cases the fruit has remained astringent until soft. I understand it has proved a good variety in Florida.

Artificial ripening of persimmons has been practiced in Japan for many years. The first reference in American literature to the Japanese method has been supposed to be that of Professor Tamari in the Transactions of the Michigan Horticultural

(Continued on Page 102)

Citrus and Tropical Fruits

JELLY FROM CULL CITRUS FRUITS

Written for California Cultivator
By W. V. Cruess and J. E. Quiroga

THE production of jelly from any fruit grown in such quantities as the citrus fruits does not offer anything approaching an adequate outlet for the cull fruit. However there is little doubt that there would be a fair demand for orange or lemon jelly of good and uniform quality. The enology laboratory of the university has produced such a jelly from many different lots of oranges and in several cases from lemons. The results of the investigations are given in what follows.

For any fruit to be suitable for jelly making, it must first contain pectin, a substance that gives jelly consistency to any true jelly. Oranges contain an abundance of pectin, although in overripe oranges the amount is a great deal less than in ripe or underripe fruit. Lemons, so far as tested, jelly even more readily than oranges, indicating a higher pectin content. The second requisite is acid. Oranges usually contain enough acid, but with overripe fruit the acid must be augmented by addition of lemon juice. The third quality is flavor. Neither oranges nor lemons are lacking in this quality.

Preparation of Fruit for Extraction of Pectin

Pectin is more soluble in hot than in cold water and dissolves more rapidly the smaller the pieces of fruit. The first step then is making the fruit into small pieces so that the pectin can be gotten into solution. The skin, and especially the white inner skin, contains most of the pectin. Therefore the fruit and particularly the skin must be sliced very thin or crushed. On a small scale a food chopper or sausage grinder set for coarse cutting is satisfactory; for large scale operations an apple grater would no doubt answer.

Extraction of Pectin

The crushed or sliced oranges must be boiled to soften the fruit and extract the pectin. If cooked over a direct fire a small amount of water must be added to prevent burning of fruit on the bottom of the pot. The water and juice must be brought to a boil and boiled slowly till fruit is soft, usually 45 to 60 minutes for oranges; lemons are tougher and take longer than oranges. Too long boiling or too rapid boiling destroys the pectin and consequently injures the setting power of the jelly.

Press the juice from the boiled material while still hot. Pressing should be done slowly through heavy cloths or canvas to keep the particles of pulp from getting into the juice. With fruit high in pectin water may be added in small amount to the pressed pulp; reboiled and repressed and the first and second pressings mixed. As a regular procedure this second pressing is not recommended.

Lemons are crushed and pressed cold to remove the juice. The peels are then covered with water and treated as above. The juice can be used for bottling or blending with orange jelly stock to give it acid. The jelly stock from the lemon skins is treated in the same manner as orange jelly stock.

Clearing Jelly Stock

The ordinary method of clearing jelly stock is by hot filtration through heavy flannel bags. This is a slow and laborious process, though effective. Laboratory experiments have shown that the juice from the pressed oranges and lemons clears of its own accord by letting it stand 24 to 36 hours to settle. The clearer upper liquid can then be drawn off and used as directed below. It is well to emphasize this method of clearing; it has been found to apply to berry juices as well and very probably will apply equally well to any fruit jelly stock. The important precaution to observe is; do not let it stand too long or the pectin will gradually precipitate and be lost in the sediment. The sediment can be strained through flannel or bag filters in the ordinary way while the clear supernatant liquid is used without filtration.

Adjusting Acidity

The acidity of the expressed and settled liquid should be above .7 per cent and below two per cent. The United States department of agriculture has given direction for making the acid test. (See Cultivator of October 29, 1914, page 411.) Many oranges will have enough acid; but for safety in cases where it is not convenient or possible to make an acid test the juice from two lemons

The Use Of Hercules Dynamite On Farm, Orchard and Ranch

THE series of bulletins on dynamite which will appear in this publication are published with one aim in view—to give you intelligent and accurate information with regard to the large place dynamite can be made to fill in your work.

Every statement made with regard to the use of Hercules Dynamite will be absolutely accurate and based on results obtained in actual field work. The various diagrams and plans will show the best methods of using dynamite. The illustrations showing the results obtained from the employment of Hercules Dynamite will be copied from actual photographs.

We are always glad to give any information or assistance to those interested in the use of dynamite. Thousands of men whose interests are the same as yours are saving time, labor, and money by its use. What is equally important, they are getting better results. We urge that in justice to yourself and your work, you send for a book which we have published, entitled, "Progressive Cultivation." Use the coupon in the corner of this announcement.

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Please send me a free copy of your book, "Progressive Cultivation." I am interested in Dynamite for

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Tree Planting

The two illustrations above show fully the value of using dynamite in planting trees. These drawings are exact copies of photographs of two trees planted at the same time and in the same orchard. The one on the left was planted in a spaded hole, the other in a dynamited hole. The growth and development of the latter is almost twice that of the former. This difference always shows when Hercules Dynamite is used.

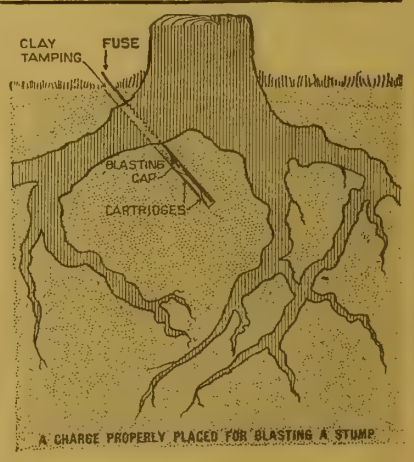
The ground is thoroughly broken up. The roots have a chance to spread in a natural manner. Also the work of planting is done more quickly and at less expense. In "Progressive Cultivation" are given interesting details with regard to the use of Hercules Dynamite for tree planting. Are you familiar with the method and its results?

Stump Blasting

Every man who has had experience in pulling stumps *without* the aid of dynamite knows only too well the amount of labor and time involved.

When you have land to clear, use Hercules Dynamite. You not only save labor and time—and, as a result, money—but you also thoroughly break up the subsoil and very effectively prepare the land for cultivation.

The diagram given shows the best way of removing one kind of stump, that with matted, spreading roots. When dynamiting a stump with a tap root the charge should be placed differently to get the best results. "Progressive Cultivation" tells just how stumps of various kinds can be most readily removed.

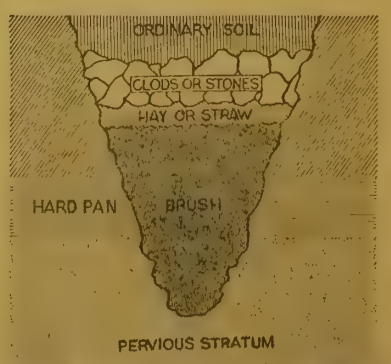


A CHARGE PROPERLY PLACED FOR BLASTING A STUMP

Drainage Work

The draining of swamps and ponds can be done better with Hercules Dynamite than by any other means. There are several ways in which dynamite may be used. We have room to illustrate only one of them — the crater method. By this method the hard soil forming the bed of the swamp is broken up and the water drains off through the loose stratum below.

In "Progressive Cultivation" full details with regard to drainage work with dynamite are given.



BLASTED CRATER FOR DRAINING SWAMPS AND PONDS

The Old Reliable

San Dimas Citrus Nurseries

Established 1890
Incorporated 1913

Citrus Trees Exclusively

All Leading Varieties

REMEMBER, MR. PLANTER

Practically anybody can grow a citrus tree, but it takes years of experience to produce a tree that will prove a money-maker when it comes into bearing. Nice-appearing nursery trees are desirable and promising, but do not always prove to be good bearing trees in the long run. Plant for profit and not for appearance only. Our trees are straight, thrifty, well rooted and have strong, full heads, but the main consideration is that: Our buds are carefully selected from heavy fruiting trees and will prove true-to-name revenue producers.

OUR TWENTY-FIVE YEARS

of experience in the growing and handling of citrus nursery trees gives the buyer the advantage of starting out RIGHT, thus avoiding disappointment at the end of four or five years' labor in bringing the young orchard into bearing.

ANOTHER POINT TO CONSIDER

Growing a good tree is only part of having it do well after planting. Many a good tree is ruined in the taking up from the nursery and shipping. We give the best of service in the proper handling and delivering of our trees.

WRITE,

'phone or call on us before buying your trees. Tell us your wants and we shall be glad to give you the benefit of our wide experience as to planting, soil conditions, fertilizers, etc.

Our illustrated new booklet on citrus culture mailed to any address upon receipt of 25 cents.

QUOTATIONS GLADLY GIVEN

San Dimas Citrus Nurseries

(INCORPORATED)

Established in 1890 by R. M. Teague

San Dimas

California

U. S. A.

Teague trees are started right, grown right, and shipped right.

to one dozen oranges should be added. Jelly stock made by boiling lemon peels with just enough water to cover them contains enough acid; lemon peels boiled in the lemon juice give a liquid too high in acid. Thus the juice from lemons may be used to acidify the orange jelly stock, while the peels may be extracted with water for lemon jelly.

Experiments showed that an acidity of less than four-tenths per cent in the final jelly gave poor or negative results and that acidities above one and five-tenths per cent in the final jelly gave rapid setting, but later softening and "stringiness" in the jelly. It must be remembered that after the sugar is added the jelly stock increases approximately to double its first volume. Hence the acidity of the original stock decreases by about one-half on adding sufficient sugar for jelly making.

Addition of Sugar

A fruit extract prepared as above will not set to a jelly until the concentration of the material dissolved in it reaches a certain point. The most practical way of increasing the dissolved material is to add sugar. The amount of sugar used is governed by the following factors:

First: Enough must be used to cause jellying of the pectin. Above 55 per cent Balling or 30 Baume.

Second: Enough must be used to prevent fermentation. Above 55 per cent Balling or 30 Baume.

Third: Too much can not be used or crystals will form in the jelly. Not above 67 Balling or 36.6 Baume. The addition of one and one-half volumes of sugar to one volume of jelly stock gives the desired concentration. Sixty per cent Balling or 33 Baume gives the best results. The test is made by dissolving the sugar by warming the juice till sugar disappears, pouring solution into a cylinder of metal or glass approximately 15 inches by 1½ inches; inserting Balling or Baume sugar tester and reading amount of sugar indicated at surface of the syrup. A range of 58 to 62 Balling and 32 to 34 Baume is permissible. The sugar testers are made to be registered at 60 degrees Fahrenheit. Therefore the temperature of the material must be taken when sugar test is made. For each degree Fahrenheit above 60 degrees add .055 per cent to reading of sugar tester, or approximately ½ per cent for each 10 degrees Fahrenheit above 60 degrees Fahrenheit. Example: .Temperature 120 degrees Fahrenheit; sugar 55 per cent. Correction, 6x½ equals 3 per cent. Corrected reading equals 55 plus 3 equals 58. For Baume sugar tester add ¼ per cent for each 10 degrees Fahrenheit above 60 degrees Fahrenheit.

Boiling

Heat gradually to boiling. Boil slowly three to four minutes, skimming constantly to remove albuminbids coagulated by the heating.

To test success of operation allow the liquid to drip from a cold cook spoon. If drops congeal the material will probably jelly.

In Glass

Pour into glasses through a thin cloth. While still hot melt enough high grade paraffin to cover each glass with a layer of melted paraffin one-eighth inch thick. Let cool and jelly should set sufficiently to hold its shape when emptied out of the glass one week after making. The paraffin prevents mold growths and

(Continued on Page 119)

SAFETY FIRST

in purchasing

CITRUS TREES

Will save years of labor and expense.

DON'T BUY CHEAP STOCK

We are selling

Guaranteed Citrus Trees

at reasonable prices.

SUBSTANTIATED BY 20 YEARS IN BUSINESS

Write, wire or call, you take no chances

POLLARD BROTHERS

Mission and Los Robles ***SOUTH PASADENA, CAL.***

FRED L. BORUFF'S

Mission Olive Nursery

"NATURE GROWN TREES"

One, two and three years old. Variety and quality guaranteed.

"The olive is the best paying fruit grown in California"

FRED L. BORUFF **San Fernando, Cal.**

North Whittier Heights Citrus Nurseries

— HOME OF —

High Grade Citrus Trees of all Varieties at Reasonable Prices

20 Years Experience Growing Nursery Stock

Our nursery is located in a clean district, therefore our trees are absolutely free from insect pests.

These trees are excelled by none, for the reason that our stock of one-year-old buds are grown on new soil, and the greatest of care has been taken in the selection of buds which were taken from our own groves.

Lemons, Oranges and Grapefruit ⅝ and up, guaranteed to be true to name.

If it's Citrus Trees we can supply your demand. Before buying write or call and inspect our stock.

POLLARD & MARTIN, **Puente, Cal.**

Orange and Lemon Trees

Big — Clean — Thoroughbred Trees

GROWN IN A CLEAN DISTRICT

We can save you money. Write for prices.

McMillan-Graffen Nurseries

Established 1900 **SPADRA, CAL.**

EXTRA FANCY CITRUS STOCK

Late Valencias **Eureka Lemons**
Eureka Lemons **Marsh Seedless Grape Fruit**

— grown on famous —

LEMON HEIGHTS, TUSTIN

All selected buds from proven prolific bearers, budded on sour stock, trees all standard size, straight, clean, thrifty, finest large block in California.

Write or telephone for prices or appointment to see trees to

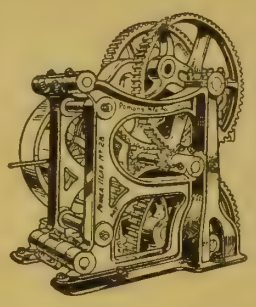
Tustin Packing Co. **Tustin, Cal.**

First Class Citrus Seed Bed Stock

Nothing better in the market Clean and Thrifty
Genuine Florida Sour Stock. Sweet Stock grown from carefully selected California seed. Before buying see us. Prices right.

Locke Nurseries, Chas. H. Harle, Mgr.
Correspondence Solicited 27 N. Olive St., Alhambra, Cal.

Pomona Deep Well Pumps



—are built on strictly mechanical lines, provided with twin "stepped" gears, with two bearing faces, machine cut, and by our new "Walking Beam" motion; the up-stroke, or working stroke, is a slow, almost absolutely vertical pull, while the down-stroke is quicker, and the slight side movement is on the down or light stroke, this feature greatly reducing the wear on cylinders, plungers and leathers as compared with the old style of plunger pump.

Write for Catalog No. 54 C —giving full information.

Pomona Circular Valves

OUR Circular Valves are the only valves so constructed as to permit the cross bar to be entirely removed, leaving an absolutely clear passage, yet when replaced, which is done instantly, are as solid as though permanently attached. Can be adjusted to allow the passage of any volume of water up to the capacity of the pipe line or stand pipe. This is done by merely turning a thumbscrew.

Full details of Gates and Valves will be found in our Valve Booklet. Send for it.

Pomona Mfg. Co., Pomona, Cal.

Los Angeles Office:—930 Investment Bldg., 8th and Broadway.

Kirkman's Reliable Trees

Make Horticulture Profitable

Our stock of fruit trees in several of the leading varieties will be entirely exhausted before February 1st. We hope to be able to supply at least all of our old customers with what they will need. Write us at once please, letting us know what varieties you expect to plant. We want to supply you if we can.

Kirkman Nurseries

2519 Tulare St. **FRESNO, CAL.**

The Alpha Combination Power Spray Outfit

is capable of a continuous high pressure maintenance.
Completely equipped ready for use, with 100, 150, 200-gal. tank, on an all-steel frame and platform, ready to be mounted on Farm Trucks.
A Thoroughly Dependable Outfit.

Send for Circular 3 A

De Laval Dairy Supply Co.
San Francisco Seattle

Alfalfa Seed

Every field where Seed we offer for sale was grown in 1914 was thoroughly inspected by us for dodder, noxious weeds, etc., before it was harvested.
Everything we offer has been government tested to make our assurance doubly sure, both as to germination and foul weeds.
We are actually offering California's best product.
If you are looking for cheap, unreliable stuff, you will have to look elsewhere, but if you want good seed at an honest price we can serve you.
Samples, prices, etc., on application.

V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.

The only exclusive Alfalfa Seed Dealers in the West.

Deciduous Fruits

FIG PLANTING IN CENTRAL CALIFORNIA

Written for California Cultivator
By Sacramento Valley Contributor

"FOR today, tomorrow and your children's children, plant figs." Is not this a good proposition for the prospective planter of fruit trees in the Sacramento and San Joaquin valleys?

There are many who are in close touch with the fruit situation who agree that it is.

As has been said many times before, and as can well be said frequently for the benefit of those who intend going into the fruit business in California, particularly those from the East who are setting out young orchards, the wisest one in the business, the one who is in the best position to know, may be wrong, for only the future itself can tell what the future will bring forth.

But there are a number of favorable things to be said for fig growing in this great central valley of California. The area of land in the United States well adapted to fig growing is not large. There is this California territory, part of Arizona and a strip along the gulf of Mexico. But frost is a factor that interferes with the growing of the crop in the last named territory.

And in the rest of the world, while there is a considerable acreage adapted to the growing of the crop, the extension of industries in the old world is not as rapid as it is in the new, active parts of America, and the competition from that source is not to be looked upon seriously.

Then the demand for good figs and fig products in the world is growing very rapidly. The fig is a food and in common with all of our California dried fruits filled with sugar from our rich soil in combination with the air and an abundance of sunshine. The demand for it is sure to grow.

And demand for a product should fix a fair price for it to the grower. If it doesn't it is up to the grower or growers to see that it does.

Then the next thing, after demand, to make a favorable business opportunity of the fig is ability to grow a product of good quality and of ample per acre tonnage.

All of which is answered by the bearing trees from Redding to Bakersfield.

No better figs are grown on earth than in this territory, and nowhere is the yield per acre any greater.

WHAT ABOUT THE PERSIMMON?

(Continued from Page 99)

Society for 1886. In the California Horticulturist for March 3, 1877, however, it is stated that the most luscious Japanese persimmons are ripened by air tight enclosure in casks containing sake (a kind of beer made of rice) which in two or three weeks perfect a remarkable flavor." A description of the Japanese method of drying persimmons is also given. Dr. Knapp, who introduced some Japanese persimmons into the United States in 1899, also made reference to this method of processing but, curiously enough, little attention seems to have been paid to these early accounts by American growers. Mr. George Roeding of Fresno was probably the first one to use this method of ripening persimmons in the United States. In 1905 he reported that he was astonished to see how completely the bitterness had left the persimmons although they were just as hard as when put in the tub 11 days before.

During the seasons from 1907 to 1910 the whole subject of the growth and ripening of persimmons was being investigated by members of the bureau of chemistry at Washington. It was first found that butter tubs whose walls were saturated with dilute alcohol were found to serve as well as sake tubs soaked with sake. Some trouble was experienced however in softening of the fruit and it was evident that such softening must be controlled if processing was to be successful on a commercial scale. Experiments were therefore started with carbon dioxid with the belief that this gas could have little effect on the vital processes of the fruit as it was continually being formed by the fruit itself. All of the experiments were carried out with a practically pure atmosphere of carbon dioxid at normal atmospheric pressure.

The results of these experiments showed that if persimmons are kept in carbon dioxid during processing they tend to remain firm, the lack of oxygen apparently retarding the life processes which result in softening. Fruits processed in carbon dioxid gas for from three to five days became non-astringent while remaining firm. The presence of alcohol at times hastened the ripening process but the fruits lost somewhat in the quality of crispness and in two instances showed superficial injury. The rate of softening of persimmons was on the whole slightly but distinctly accelerated by processing, although in the case of Okame this softening was controlled by cold storage. Processing by keeping the fruit under water or other liquids was unsuccessful as the processing did not occur rapidly and the fruit was often badly injured. Persimmons processed readily in carbon dioxid after a cold storage interval of 27 days but softened rapidly after processing.

In the year 1911 Professor F. E. Lloyd, then of the Alabama Polytechnic Institute, showed that the operation of processing persimmons was practicable and could be carried out with churn barrels at a small cost. It was found that the successful use of the carbon dioxid depends first of all upon the proper handling of the fruit. The slightest bruises were quickly made conspicuous when the fruit was treated and became centers of softening. If processed in bulk the fruit can best be packed in layers of excelsior, which was found to absorb superfluous moisture sufficiently to prevent cracking of the fruit. During the same year H. C. Gore of the bureau of chemistry perfected a metal apparatus by which the processing could be performed on a commercial scale. It consisted of

a metal container into which carbon dioxid was passed from a steel cylinder such as those used at soda fountains. All of the varieties tried became non-astringent in from one and one-half to seven days, depending upon the variety. The fruits were processed on a large scale in Florida and were subjected to shipping tests with the exception of two varieties, Hyakume and Yemon. With one exception (yellow-fleshed Zengi) processing greatly injured the naturally excellent shipping qualities of the fruit. Tanenashi was less seriously affected than many of the others. Zengi was practically unaffected in shipping quality by the treatment. Processing was found to be practicable therefore only for the local market. A detailed account of these experiments may be found in Bulletins 141 and 155, bureau of chemistry, United States department of agriculture, Washington, D. C.

In Japan persimmons are largely dried, the product forming a staple article of food which is used much as we use dried figs. For this purpose sound persimmons of certain varieties (the Hachiya and Tanenashi are largely used) are picked with a T-shaped piece of twig attached to each fruit and peeled by hand with a small special knife. The fruits are then suspended on strong strings two of which have been twisted together; beginning at the bottom the workman slips each fruit between the strings continuing until the whole string is full of fruit. The string is then hung in the sun and air, which cause the persimmons to dry in about three weeks. The peelings are dried separately in airy baskets and later packed in with the dried fruit.

New varieties of persimmons, both American and Japanese, are appearing from time to time, the former being improved types of those found growing wild in the central and southern states, while the latter are imported directly from Japan and China by the department of agriculture, by nurserymen and by individual growers. A variety recently introduced from Japan and known as Saburoza is shown in the accompanying illustration. The exact date of its introduction into the United States is not known. My first acquaintance with the variety was made when some specimens were received from W. L. Whepley of Lemon Cove in October, 1914. He bought the trees from the Fancher Creek Nurseries a few years ago and when the first fruit was produced it proved to be entirely distinct from any other variety fruiting in California, having a natural trademark in the form of four prominent protuberances or "seats" as the Japanese call them, just beneath the calyx lobes. In November I found the same variety in the orchard of Ira Avery at Newcastle. It was identified as the Saburoza by S. Fujii, a senior student in the college of agriculture, who is writing his thesis on the subject of the persimmon. It is described in Japanese publications as an astringent variety widely grown in the provinces of Fukui, Ishikawa and in the northern part of Shiga in Japan. It is said to have originated in either Fukui or Ishikawa; judging from various circumstances, however, Fukui seems to be the true home. It is widely shipped as Taru-kaki (sake-barrel persimmons) but the flesh is said to be coarse and deficient in sweetness and juiciness, and therefore the quality does not rank high. The tree is a very thrifty grower in Japan and very prolific.

The California specimens are of an unusually fine deep-red color and are certainly not deficient in juiciness and sweetness as the Japanese description states. The description of specimens sent by Mr. Whepley is as follows:

Weight, 140 grams; diameter, 2⅝ inches, distance from base to apex, 2⅛ inches; shape, roundish, apex and base somewhat flattened; cavity, sunken, bordered by four regular protuberances each less than ¼ inch high, and about ¾ inch long; skin, thin, tender; surface, smooth, free from blemish, overspread with a grayish bloom, especially near the base; color, very attractive, deep tomato-red, uniform; flesh, soft, melting, slightly stringy, dark-colored when seedy, sweet, rich and of good quality; seeds, brown, about ¾ inch long.

VINEYARD PRACTICE

About 200 raisin growers met at Fowler recently to hear a talk by Frank Henry, vineyardist of Fresno County on pruning and cultivating vines to get two or three times the crop ordinarily obtained. Henry expects to go to Australia next month to make a further study of fruit growing.

Henry said that the only successful system for the grower should be to aim towards getting quality first by all means and the quantity would usually follow whenever first-class quality was obtained. He called attention to the fact that the market is always ready for goods of high quality, whereas often there is little or no market for poor goods even if grown in large quantity.

Emphasizes Two Points

He laid stress on two points in cultivation, that the soil should be taken away from around the vine stump to prevent starting of roots near the surface only to dry out later in the

(Continued on Page 119)

This picture shows a few of our perfectly formed, thrifty, vigorous apple trees in nursery row.

Apple Trees

OUR STOCK of apples this season is more complete in varieties than it has ever been and and we do not hesitate to say, as far as the quality of the trees is concerned, that there is nothing grown that is superior to them. Our trees are far better than northern or eastern grown trees and are freshly dug, carefully handled, and placed in the hands of the planter in perfect condition, and at the time he wants them.

We can supply such leading varieties as Spitzenberg, Baldwin, Stayman Winesap, Rome Beauty, White Winter Pearmain, Yellow Belleflower, King David, etc.

We are offering special inducement on our apple trees and it will certainly be worth your while to figure with us before you place your orders. Write us fully and let us know what your plans are.

We Grow Everything that Grows

There is practically nothing in the line of citrus and deciduous fruit and ornamental trees, vines, plants, etc., that we cannot supply you. This is the only nursery on the Pacific Coast that can supply practically everything you may wish and fill your orders complete. Send us your list for prices and suggestions.

Illustrated Price Catalog Free

Our 1915 illustrated price catalog is more complete than any that we have heretofore issued. It lists and prices all stock grown by us—something over 2,000 varieties. A copy will be sent free to any address upon request.

FANCHER CREEK NURSERIES, INC.

Geo. C. Roeding, Pres. & Mgr. **Box 12, FRESNO, CAL.** Paid up Capital $200,000.00

Morse's Garden Guide for 1915 is just off the press. It's a book every one should have. **Mailed Free**

C. C. MORSE & CO.
GARDEN-FIELD AND FARM **SEEDS** 749 FRONT ST. SAN FRANCISCO

Morse's Seeds both flower and vegetable are on sale everywhere—they are fresh and dependable because fully tested before packed.

Seed Combine

Yes, there is one, deny it as they may. The profits on most of their seeds are too large. They will tell you that we can't sell the best seeds at our prices but our seeds ARE the VERY BEST and we pay as much for them as they do which our invoices will prove. Don't you pay their big profits. Our Slogan: Seeds at LOW PRICE and NO PRICE can buy better. Try us. Send for Price List.

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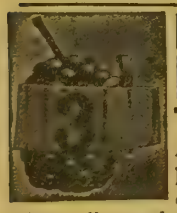

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THE CALIFORNIA GARDEN

Written for California Cultivator
By Ernest Braunton

IF I lived in the country there should be a large rock garden somewhere on the premises, even if nothing better could be done than pile up and scatter small rocks over a small area, as we do in the cities. But if I had a canyon, ravine, gully, wash, call it what you will, I would have a real rock garden. And after getting it once established it would care for itself, for I would have a natural or wild rock garden that would be just a riot of rocks and dry-garden plants that would not be figuratively calling for water and care during our hot summer. Rocks should be large, small, on hills, banks, and flat ground, in holes, corners, nooks—everywhere—no orderliness or design but just careless disposition—no strained effects but as near as possible to what I think nature would do with them. I would get all the rocks I could use and still have soil enough to give the scene a good touch of plant life.

For plants I would use any that would grow. Vile weeds would be rooted out but wild tobacco, bush lotus, humming-bird flower, the tiny flat milkweed or Euphorbia, or any natives standing summer drouth well would be encouraged. In addition to these I would introduce everything of like nature I could find. If the garden was of small size or summer watering possible I would add to these, stonecrops, ice plants and sedums, hen and chickens, live-forevers, etc. Visits to the neighboring hills, mountains and canyons would disclose a wealth of plants for rocky situations in both shade and sun, yet where little soil or water was available. Ferneries are not considered here as coming under rock gardens, but if any class of plants is to be specified I would say it should be that hardy, drouth-resistant class known as Alpines. In England rock gardening is a fad quite common, but do not let us despair by reason of a dry climate. Let us have California rock gardens.

Climatic Conditions

Mrs. Ely, in her book entitled "A Woman's Hardy Garden," says: "Except by the seacoast our dry summers, with burning sun and in many places frequent absence of dew, are terribly hard on a garden."

And this on the Atlantic coast! What would she do if contending with a summer in California? All this is prefatory to stating our text, which is given us by good Eastern authorities who write that summers are too dry and hot for outdoor roses except those grown in partial shade. This is much more true of California and yet even here we may have summer roses and excellent ones too if we will but plant them in the shade of large trees or in hothouses. The possibilities of the hothouse in summer are so great that I believe the time will come when its value for private gardens will far outshine all other values combined. Down in Mexico and Central and South America all large gardens have their hothouses for the growing of summer flowering plants; not in pots, but in Mother Earth. In this way may we get summer roses, dahlias, chrysanthemums, carnations, and a host of flowers we now consider out of season during summer. This method is not necessarily expensive as regards care nor is it fighting natural forces. It is merely assisting nature and requires no more care than do the same plants out in the open garden during what we term the cool weeks of autumn or of spring.

Fertilize Little but Often

Two cases of damage to flowering plants by excessive fertilization have been brought to my notice of late. In one commercial fertilizer was used and in the other, by far the worst, chicken manure was put close about the roots in large quantities. Chicken manure fresh from the coops, where winter rains have not lessened its strength, is a powerful stimulant and should be used with caution. There is little use going into detail advising the use of absorbents, etc. The best and most economical way of using manures is in a pure state, remembering you are playing with fire. Do not condense in one place but scatter well and mix well into soil and use little often rather than much infrequently.

White Poinsettias

An occasional inquiry comes in respecting White Poinsettias but we do not recommend their purchase except as curiosities. More than a dozen years ago I secured one, but it was disappointing in that it was constitutionally weak as are all white sports from natural reds and the bracts were not white, but of a vague creamy-grey, often with a tinge of pink. They will never rival the common scarlet.

Lily of the Valley

A neighbor of mine has had fine success this year with lily of the valley in ordinary garden soil and under rather ordinary conditions, except in one respect. The garden faces northeast and along the southeast side is a skirt-board which forms the bottom of line fence, sticking above the soil about ten inches. Behind this and but three or four inches away the bulbs were planted. There the sun never reaches the roots and only a few inches of the top are exposed to sunlight at any time. Such conditions are ideal for many plants. When clematis roots are in cool shade and the tops reach sunlight these plants thrive splendidly everywhere.

Substitute for Box

In place of box for borders, hedges, or vase plants, use a privet that in local market is found under the name of Ligustrum nepalense. It has small box-like leaves, is hardier than the box under any treatment or conditions, is subject to fewer pests and diseases and if injured will more quickly replace damaged parts. It is more easily grown, transplanted, and maintained, and is cheaper; also handsome. Why then stick to box? Do not be a slave to established precedent. Personally I do not now care for box, for we have better plants for any and all purposes.

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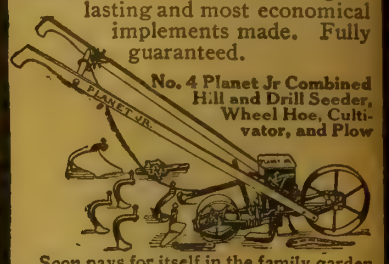

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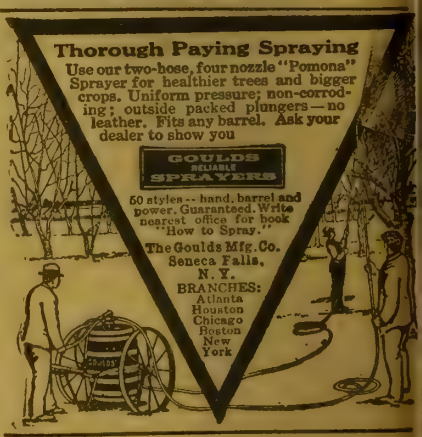

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Prepare for Fertilizing

After one more good soaking rain use fertilizer freely on both garden and lawn, especially stable manure, all the richness of which cannot be so quickly washed away as that of commercial fertilizers. Do not allow stable manure to stay too long upon grass or it may result in killing some roots directly and others indirectly through burning or bleaching away the grass, leaving tender roots exposed to a possibly fierce sun in case of a hot spell. After watering manure coverings well, rake off and work the rakings into the garden soil or use for mulch elsewhere.

Study Plant Literature

Read all you can on the subject of the garden—books, magazines, plant departments, catalogs—anything available. All are helpful, no matter how much practice you may have had. I never knew but one good gardener who could not read. He lives in Los Angeles. But his wife and children have read to him patiently all he has taken home, and he has taken home everything in garden literature he could buy, borrow, or obtain free. He is well posted and successfully passed a recent civil service examination wherein the written part was set down from his dictation. Books made him what he is; they will perfect anyone in any calling. Study all phases of gardening and you cannot help but succeed.

War Affects Prices

Reports from large Eastern centers show conclusively that some prices of plants are affected by the war in Europe. This is the case with my favorite, the gladiolus. Wholesale prices are a little lower than ever before and this should result in a wider planting, somewhat this year and more next, for prices will not go up for at least one year. Plant some of these bulbs now or within the next few weeks. Also plant them deeply. In light soils put them down six inches. They grow better and will not need staking. Bulbs put in shallow will result in tops falling over when soil is very wet.

Small Fruits Vegetables

CHILI CULTURE

By Fabian Garcia, New Mexico College of Agriculture

UNDER good care on good soil and with a good stand, an acre may produce as high as 15,000 pounds of green chili; while last season some of the strains tested produced at the rate of over 8,000 pounds of fresh, ripe chili per acre. Upon drying this was reduced to slightly over 2,100 pounds, or to about 27 per cent. In other words, there was about three-fourths of the weight of the fresh red chili water. Two thousand pounds of dried red chili may be considered a good yield; particularly so if the price of this product remains as it has during the last few years at ten to fifteen cents a pound wholesale.

Best to Transplant

In growing this crop two methods are in common practice. It can either be started from seed planted in the field or from plants transplanted to the field, which have been started in cold frames or hotbeds. Everything considered and wherever it is possible the transplanting method is the better. If this method is to be followed the seed may be started in a cold frame or hotbed about the last of January or first of February. By about April 1 the little plants are usually large enough for transplanting. In transplanting to the field two to three plants are set to each hill. The hills are two feet in the row, by three and one-fourth to four feet between the rows.

Preparation of the Land

After the land has been thoroughly prepared the rows may be marked off; usually by plowing out a small furrow with a small plow which is used for irrigating the plants, the transplanting being done on the side of this small furrow. As the plants grow and the middles are cultivated the dirt is pushed over towards them so that by the time they begin to bear they are practically in the middle of a ridge. It is considered a good plan to cultivate in such a way as to throw the dirt towards the plants as they grow. The later irrigations are then given through the furrows or between the ridges. The chili plant will produce as long as it is kept growing vigorously. If it lacks water it will stop growth and quit bearing.

The more common method of growing the crop is by planting the seed in the field. The same distance between the plants and between the rows as have been given for the transplanting method may be used when the seed is planted in the field. About a dozen seeds should be enough at each hill. They should not be planted any deeper than tomato seed. When the crop is growing from seed in the field it is planted on ridges at the edge of the water mark. Sometimes it will require one or two irrigations to complete germination. Frequently the winds are very severe on the little plants which are just coming up. Sometimes field mice will dig out the little seeds, so that in order to have a fairly good stand it is necessary to reseed. If all seeds germinate the hills should be thinned out to two or three plants. Better and larger pods may be had from two to three plants to the hill than from half a dozen or more.

"THE TRIPLE ENTENTE"

Commenting on the power of the American press, Peter Radford, lecturer of the National Farmers' Union, states that "the press, the church and the school form the triple alliance of progress that guides the destiny of every community, state and nation."

"Without them civilization would wither and die," says Mr. Radford, "and through them life may attain its greatest blessing, power and knowledge. The farmers of this nation are greatly indebted to this social triumvirate for its uplifting influence, and on behalf of the American plowmen I want to thank those engaged in these high callings for their able and efficient service to the farmers of this nation."

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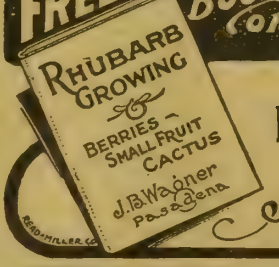

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General Agriculture

JAPANESE PLANT IMMIGRANT

A PLANT immigrant from Japan that seems likely to prove a most desirable addition to American agriculture is the adsuki bean, which has been successfully grown on the government's farm at Arlington, Virginia, and at many other places. Its most valuable feature lies in its large yield of seed. Owing to its texture the bean is easily ground into meal or flour and has proven far superior to any other bean for that purpose. Its flavor is delicate and it lacks any objectionable "beany" taste. The adsuki bean is a most popular food in Japan and there seems no reason why a food so rich in protein should not become popular in the United States.

The first adsuki bean brought to this country most probably was the "red-seeded bean" which Commodore Perry brought back in 1854 after his famous trip to the Far East, when he first established communication between this country and Japan. It has not been, however, until comparatively recently that the bean was experimented with in a scientific manner in America. In 1891 the Kansas experiment station had the beans submitted to several housekeepers for trial, and their recommendations of it were in general most favorable. The United States department of agriculture is now giving a detailed description of its experiments with the bean in a new bulletin (No. 119), "Five Oriental Species of Beans."

The average yield per acre of the vest varieties of the adsuki bean at the government's farm has been about 25 bushels. The bean is a summer annual requiring about the same climatic conditions as the common bean. The plants are bushy in habit, growing from one and a half to two feet high, according to variety and soil. The beans are not only prolific but ripen evenly and do not shatter readily. It has been evident that these beans cannot compete with either cowpeas or soy beans as hay producers. Their initial growth is slow and their total yield of herbage inferior.

In Japan the adsuki commands a higher price than any other bean, the varieties with maroon-colored seeds being most largely used. In every Japanese city are shops where adsuki beans and adsuki bean meal are sold and among the most common cakes and confections are those made wholly or in part from adsuki bean meal.

Adsuki bean meal is sometimes prepared simply by grinding the dry beans and then removing the seed coats with sieves. More commonly, however, a wet process is employed. The wet process seems to vary somewhat in different parts of Japan, but consists essentially of four stages: Boiling the beans until soft, usually after a preliminary soaking; crushing the cooked beans; removing the skins by forcing the mass through sieves or by putting the bean paste in cold water, when the skins are easily separated; drying the bean paste.

A modification of the above process is to remove the seed coat from the soaked and parboiled beans before they are crushed. In boiling the red color of the seed coats dissolves, and on this account the water is sometimes changed once or twice. The final product is somewhat reddish, however. The bean meal in whatever way prepared is eaten in soups and gruels of various kinds, often sweetened. It is also used for making various kinds of cakes and confections.

Popped Adsuki Popular

Adsuki beans are also eaten popped like corn as a coffee substitute, and candied by boiling in sugar, the last product being called amanatto. The flour is also used for shampoos and to make facial cream. The use of beans to make sweetmeats seems to be purely a Japanese invention, as there are no similar foods used by Europeans or Americans.

IMPORTANT SOURCES OF ELEMENTS IN COMMERCIAL FERTILIZERS

Present agricultural practice prescribes the use of three chemical elements as a "soil amendment," a "stimulant for plant growth," or a "plant food," as it is variously put. These three elements when applied to the soil in which a crop is growing have been found by practice to afford an increased crop yield. They are phosphorus, potassium and nitrogen, spoken of by the respective trade terms of phosphoric acid, potash and ammoniates.

In the commercial fertilizers phosphoric acid is found in the form of calcium phosphate which is bone phosphate or rock phosphate, usually treated with sulphuric acid to render it soluble. Potash is found as a salt or salts of potassium, either sulphate or chloride and the ammoniates as the inorganic salt of ammonia, ammonium sulphate, the inorganic salts of nitric acid, sodium nitrate, and inorganic compounds of nitrogen, calcium cyanamid, or the organic compounds of nitrogen, contained in animal or vegetable refuse matter, cottonseed meal, abattoir tankage or fish scrap.

The usual commercial fertilizers contain these three elements and have the designation of complete fertilizers. These are sold under vari-

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"The trees came into bearing three years after they were planted, and they have done so remarkably well that it is always a pleasure for me to recommend any of my friends, in case they want trees, to buy Roeding & Wood stock.

"As I have stated before, the quality of my fruit has been the very best, but this season, now that the trees are practically at an age where you might say they are in full bearing, I am not only very proud of my orchard, as there is none better in the country, but I am confident that I will receive returns from the fine crop of golden globes that I am getting that will repay me handsomely for the care that I have given this orchard. **I estimate my crop this season at six to seven thousand packed boxes.**

"Yours very truly,

"(Signed) L. L. THOMAS"

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ous brand names, the various brands frequently being recommended for particular crops. The proportion of the three essential ingredients is varied; as a usual thing that of the phosphoric acid in considerably higher than the other two, which are present in about the same proportion. Thus for example, a "6-2-2 mixture" contains six per cent phosphoric acid, two per cent ammonia and two per cent potash. Its selling price in the retail market is based on its analysis. Little attention is paid to the source of these ingredients so long as the essential compounds are available or readily may be decomposed or made soluble for the use of the plants.

The nation's supply of these three common ingredients of fertilizer may be summarized as follows: Of phosphoric acid there is an abundant supply in the large deposits of phosphate rock of Florida and Tennessee and the enormous deposits of Idaho, Montana and Wyoming.

Of potash, now obtained exclusively from the German mines, there is little known in this country outside of the desiccated residues in Searles Lake, California, and the giant kelps of the Pacific littoral. In the latter there is much more than enough to supply the present demands of the fertilizer trade of the United States, the present annual consumption of potash being about 1,250,000 tons, of varied composition. At present the kelps are not supplying any of this, since it has not been determined by actual experimentation on a commercial scale that they can be used economically as a source of potash. Estimates based on costs of similar operations indicate that they can be so used.

Of ammoniates there is a large source in the ammonia produced as a byproduct in the distillation of coal for the production of gas or coke, or both. This source is but partially developed, as by the methods most commonly practiced in this country this possible byproduct is not recovered. The amount of ammonia now going to waste is almost large enough to supply all of the ammoniates now demanded by the fertilizer trade. The abattoirs supply a large amount of tankage and dried blood of high fertilizer value; but of these possible byproducts there is still an enormous loss through the lack of organization and cooperation in the small scale slaughter of animals for food.

TIPS TO AUTO OWNERS

Drive your car steady and true. Slewing and skidding are evidences of bad driving just as much as allowing a horse to stumble or fall is evidence of unskillful horsemanship.

Many a walk home has been avoided by making a hurried examination of the engine, the carburetor and other working parts before the car was started.

Study the roads you cover. Deep, hard ruts make hard going and wear the sides of the tire. Watch for large, loose stones. A simple turning of the steering wheel will save the tires numerous scratches in the course of a year.

Plug small cuts down to fabric to prevent wetting and sand separation of thread.

Quick headway and hard brake-stop driving is destructive to tires just as "crack the whip" start and sudden stop ruins horses' tendons and ankles.

An excellent way of reducing the wear on the coil vibrator points with battery ignition is to reverse the direction of the current flow through the system.

Sometimes the bolts securing the flywheel to the flange on crankshaft work a trifle loose and as a result there comes an irregular knock hard to distinguish from a loose connecting-rod big end. This flywheel knock will be more noticeable at slow motor speeds or when the engine is being accelerated or retarded.

A small operation, such as placing a spark plug in its appointed position, has possibilities for going wrong. For instance, it is possible by accidental contact with the cylinder wheel to knock the points out of adjustment, the result being misfiring or the entire refusal of the motor to start.

The body of the car should be washed with clear water only and the sponge used absolutely free from grit of any kind, otherwise the finish will be marred and the lustre destroyed.

Extreme care should be taken to avoid getting dents in the bodies of metallic body cars, as it is practically impossible ever to get these out without destroying the finish.—Better Farming.

SUDAN GRASS

Sudan grass belongs to the sorghum family, and is considered by some authorities to be the wild, original form of the cultivated sorghums. It is a tall annual grass, being somewhat like Johnson grass in general appearance; but it lacks the rootstalks of the latter, and never becomes a weed. Under favorable conditions it may attain a height of six to ten feet. Its growth is dependent to some extent upon the method of seeding and the amount of moisture in the soil. If sown broadcast it does not grow so high as when planted in rows which permit of cultivation.

Sudan Grass is particularly well adapted to the dry land sections as it produces good yields of hay, and under average conditions should produce two cuttings of hay in a season. It is very drouth resistant and will succeed where it is possible to grow any other sorghum.

In feeding value, Sudan Grass can be compared with the millets, making a large crop of hay during the warm weather. Hay made from Sudan grass is preferable to millet hay as it can be fed to all classes of livestock without injury. The stalks are fine and can be readily cured into hay.

The crop may be grown either drilled, in cultivated rows or broadcasted. If drilled or broadcasted, from ten to fifteen pounds of seed is sown per acre, while if planted in cultivated rows, the rows being about thirty inches apart, two to three pounds of seed should be used per acre.—James D. Marshall, Colorado Agricultural College.

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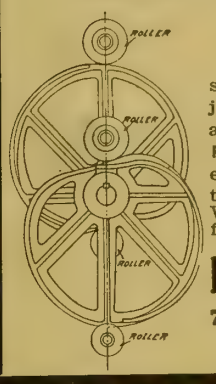
With Heart-Shaped Cams of Everchanging Radius—Giving a Steady, Even Pressure to the Water Delivery



In ordinary pumps the radius of the cam remains the same. This causes the plunger to vary in speed, causing jar, vibration and strain which greatly lowers the efficiency and lessens the life of the pump. But with the Luitwieler Pump there are none of these troubles. The cam has an even changing radius, resulting in a perfectly even application. Less power is required, and the efficiency is greater. We have yet to hear of a "worn out Luitwieler." Write for Catalog No. 12.

LUITWEILER PUMPING ENGINE CO.

709 North Main St. **LOS ANGELES, CAL.**

San Francisco Agents: Simons Machinery Co., 117 New Montgomery St.

Seek-No-Further

ESTABLISHED SINCE 1889

Wilsons

We've been pleasing planters for 26 continuous years.

THE FRESNO NURSERY CO. INC. TRADE MARK FRESNO QUALITY SERVICE FROM THE ROOTS UP

Nursery Stock

Fair and **Square Treatment** of our Patrons has built up our business.

The Class.

We grow and sell the best NURSERY STOCK money can buy. Our trees and GRAPE VINES are of the best strain, healthy, well rooted. Our packing methods perfect, insuring safe arrival. If you are in the market for APPLES, PEARS, PEACHES, PRUNES, PLUMS, CHERRIES, APRICOTS, FIGS, CITRUS TREES, GRAFTED WALNUTS, OLIVES and GRAPE VINES, write us and submit a list of your requirements for quotations. Large 52-page Catalog mailed for the asking. We also grow and sell

PALMS, ROSES, ELMS, BALM OF GILEAD and Hardy Ornamentals.

This is an ideal planting season. Write us your wants, we do the rest. ***Address***

The Fresno Nursery Co., Inc.

1824 Tulare Street, Fresno, Cal.

"Behind each tree is our guarantee"

Our name and guarantee stands back of every tree leaving our nursery. We specialize on foothill grown stock for hardiness, good, well branched roots, freedom from root knot and disease. They are superior to and unequalled by those grown in any other soil or location.

TRUE TO NAME

THE SILVA-BERGTHOLDT CO. CALIFORNIA FRUITS NEWCASTLE, CAL. TRADE MARK REGISTERED

REMEMBER
When you purchase
Silva-Bergtholdt Trees
you buy from a firm who are fruit growers and shippers as well as nurserymen.
Our buds are selected for propagating only from parent trees having the best record for quality of fruit and productiveness, thus insuring a pedigreed tree. Our years of experience, knowledge and observation in horticulture are at your service. We show you how to succeed.

Write to-day for our Fall Catalogue
giving accurate description of each variety and valuable suggestions as to tree planting.

Order now while the assortment is still fairly complete.

The best varieties are selling rapidly. Don't wait too long.

ALMONDS
Plant Almond trees for profit. California has a monopoly of the American market, which demands four times the present supply. We have an extra fine lot of trees in all the standard varieties on Bitter Almond and Peach root.

WALNUTS
Mayette—The true Wiltz strain for productiveness, freedom from blight, and quality, has no equal in any of the other standard varieties.
Franquette — The true vrooman strain, next to the Wiltz Mayette. The best Walnut for Northern and Central California. Our scions of Mayette and Franquette are absolutely of true strain, cut from selected trees.

CLINGSTONE PEACHES
California Canned Clingstones have a monopoly of the markets of the world for the reason that Eastern grown Clingstones can be canned only for pie fruit.
Tuscan — Are our improved round Tuscan; firmer; more symmetrical; more productive; not subject to windfall and split-pit and preferred by all canners to the Oblong Tuscan commonly propagated.
Phillips—We cut our buds from a block of trees that have proven of an exceptionally good strain of this variety.
Levi—A fine late Cling and desired by many growers to prolong the canning season. Very productive.

Our trees received first prize and gold medal at the State Fair.

OLIVES
Our Mission Olives are worked on Picholine root. The Picholine is a stronger growing and a deeper feeding root system than one grown from cuttings. Plant Olives only on Picholine root.

PRUNES
Prunes are a staple money maker. Our parent trees of French, Imperial, Sugar and Robe de Sargeant have been selected for quality, productiveness, and size of fruit.

PEARS
The California Bartlett monopolizes the markets of this country and Europe. The opening of the Canal route reducing the cost of their transportation East and for Export by one-half, will create a demand for the California Bartlett and California grown Fall Pears that the present planting cannot supply. We have a fine block of Bartlett, Comice, Winter Nelis, Anjou, and other varieties. Buds are cut from selected parent trees.

CHERRIES
The first and best fruit of the summer season, grown only in California during their season of ripening and more profitable even than Oranges in Riverside County. Don't miss this fruit in your planting.

APRICOTS
Apricots being another fruit grown successfully only in California. Have a monopoly of the American market, and canned and dried the export demand is unlimited. We have a fine lot of trees in the standard varieties—Royal, Blenheim, Moorpark and Tilton on Peach and Apricot root. They are selling fast.

Write to-day for our catalogue, price list and full information about planting—it's free.

THE SILVA-BERGTHOLDT CO. CALIFORNIA FRUITS NEWCASTLE, CAL. TRADE MARK REGISTERED

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Grafted Walnut Trees *On Black Root*
Placentia Perfection ∴ Neffs Prolific
Select Pedigreed Scions
FRANK B. McMILLAN, - - Alhambra, Cal.

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Placentia Perfection — Eureka — Franquette — Mayette
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Grafted on Native California Black Root
We have 35 acres in bearing. Write us for sizes and prices
RUEHL - WHEELER NURSERY, San Jose, Calif.

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Irrigation Forestry

WATER FOR DOMESTIC USE

A PURE water supply for home, farm and stock purposes is imperative for every household but it is a curious fact that until recent years the water problem was not given the serious consideration that the public health demanded. This fact has formerly been especially true in small cities, towns and villages, and throughout the farming districts. While there should be no excuse for this fact, there unquestionably have been reasons for it.

One reason has been the ignorance of the average man regarding the conditions affecting the water supply, and what constitutes pure water. Another reason has been that the population has increased so rapidly, people have not realized the effect this increase was having upon the water supply by reason of its effect upon the soil through which practically all water used in domestic supplies must pass. One would hate to presume that any man once familiar with the conditions affecting the water supply at his home would for the sake of a few paltry dollars risk the life of his family, his neighbors and himself.

Surface Supplies Considered Safe

Years ago before the country was so thickly settled and before the forests had practically disappeared spring water was depended upon for the supply in the majority of cases.

The pioneers invariably located their homesteads adjacent to a spring, and when a spring was not convenient, adjacent to a creek or river, and used these supplies for their domestic water. When a spring or a creek was not available wells were dug, usually to a shallow depth of 15 or 25 feet, and in the earlier days the supply of water furnished by the dug well was in many cases practically a pure supply.

One can readily understand that in a new land where animal life is comparatively rare, where there are no yards that are made more or less filthy by the excrement of domestic animals and where the increased population, throwing off its filth, does not exist, such a condition will furnish a surface supply that is comparatively good.

Surface Supplies Become Contaminated

With the increase in population came the natural increase in animal life, livestock, barns, privy vaults, outbuildings, etc., and the soil surrounding the water supplies, especially the shallow wells which were usually located convenient to both the house and the barn, and in a low spot, became contaminated.

All who read this have seen and can call to mind one or more, probably many, of the old fashioned dug wells or even springs that were situated in an ideal location for collecting through drainage practically all of the impurities from the house, privy vault, barn and pigpens, for nature naturally locates springs in positions where these conditions will exist, and man, when compelled to use shallow wells or surface water supplies naturally follows the laws of nature.

Water, being the best solvent known, when coming in contact with dead vegetation, dead animal life, refuse, etc., dissolves it and carries all manner of impurities in solution; naturally surface drainage carries these impurities into the soil and through the soil to the water supply.

All diseases that can be traced to, and which are carried by water, increase accordingly. Contaminated or impure water may not make itself known by any taste or smell. Nothing but careful analysis will determine whether water is pure or not. Every now and then there is an outbreak of typhoid or some kindred disease and the question arises, whence has this disease come? A careful search will usually trace it to some shallow well or surface water supply.

Typhoid Fever

It hardly seems necessary to point out to the average intelligent man the danger which lies in a water supply secured from a dug, shallow well or surface water supply.

Typhoid fever cannot be contracted without taking into one's system germs that have been voided by a typhoid patient. These germs get into the body through the mouth, pass through the stomach into the intestines, and are carried through the body by the blood. They leave the body through the bowels and are in the urine. Sometimes infection is carried by contact or through vegetables and milk; but the common channel of typhoid transmission is through our drinking water supply.

It is conservatively estimated by eminent medical authorities that 75 per cent of all primary typhoid fever cases are caused by impure drinking water. Lewis Edwin Theiss makes the following statement: "Typhoid fever alone causes an actual loss in the United States of $200,000,000 a year." This estimate is without question too conservative.

"Even malaria, which is commonly carried by mosquitoes, may also be conveyed by polluted water. This was shown by an experience related by Prof. W. A. Mason of the Rensselaer Polytechnic Institute that befell the people of Hawkinsville, Georgia, a town in a malarial district. Chills and fever were so customary that people expected the disease every fall. But a change in the water supply from surface water to artesian well water completely freed the town of malaria."

Quoting further from the same article we take the following: "Quit taking chances with your drinking water. Right now, wherever you live, you may be drinking water from a supply which has filth poured into it through one side while through another it is pumped out for you to drink. As a result one disease alone, typhoid, needlessly fastens itself on 250,000 American men and women every year. And 370,000 babies less than five years old are annually sacrificed to impure water.

"Criminal negligence is the sole and only cause of such a condition. We dig a cesspool and well in the same yard, and the contents of the one seep

through the earth into the other. We place a privy vault a few feet from our well hole, and the rains wash the filth from the former into the latter. We defile the surface of the ground so that every rainstorm sweeps the defilement into our source of supply. Did you ever stand at the edge of a barnyard and watch the rain falling from the roof of barn and pigpen to the manure piles below, slowly accumulating pools of reddish black and draining away into some one's drinking water? Or have you ever stood by a river bank and watched a sewer belching forth its infinitely more harmful human corruption? The idea of drinking such nauseating stuff is not pleasant; but that is exactly what millions of us are doing."

Effect of Pure Water

Mr. Allen Hazen, an eminent American engineer, says in his book, "Clean Water and How to Get it"; "The reduction in the number of deaths in five cities, brought about through water purification, amounted to 440." Improved general sanitary conditions, he says, were responsible for 137 of the 440 decrease. The typhoid reduction in the number of deaths from other causes amounted to 232—three times the typhoid reduction. If this ratio of deaths due to water holds good generally then our typhoid deaths are only a small part of the deaths due to bad water.

Water used for domestic purposes should never under any circumstances be used from any strata above hardpan and it is much safer and more dependable to go on through the hardpan and cap rock to the water-bearing rock or water-bearing sand or gravel beneath the rock strata.

Either the hand pump, elevated storage tank or pressure system, when supplied from a deep drilled well, obtains the water from the never-failing stratum in the rock or in the gravel beneath the rock, furnishes a pure, wholesome, sparkling water that has been purified and freed from bacteria by filtration through the sands and rocks of the earth and is a much better investment from every point of view than any other form of supply.

Pure Water Supply Through Drilled Well

In practically every part of the world it is possible to obtain a pure and wholesome supply of water. To prove this fact it is only necessary to refer to our own great desert lands which a few years ago were considered worthless but are now being reclaimed by irrigation through drilled wells. In many cases artesian or flowing wells are found in these same deserts. The depths at which these pure and unfailing supplies of water are found vary in different localities, but it is apparent that nature has practically everywhere provided us with an ample supply which we should take advantage of. The drilled well is conceded to be the only satisfactory and successful method of obtaining a pure and unfailing supply of water in all places.

Get a Drilled Well of Your Own

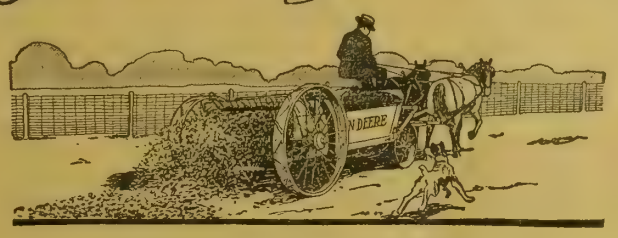
If you do not have one, sink a well on the place now. The sooner you do it the safer will be your health and the health of your family and neighbors. Be sure it isn't a shallow well. Go down to the inexhaustible pure water for your supply. It never goes dry when you need it most. It does not bring illness and death into the family and it furnishes the coolest, purest and best water the earth can supply.

HOW FARMERS SHOULD ORGANIZE

The department of agriculture is continually receiving inquiries from all sections asking how farmers ought to organize. The answer to such a general question must necessarily be that it depends partly upon the particular needs of a given community and partly upon the capacity which farmers have to establish and manage the work of a suitable organization. There should be a strong local feeling of the need of some improvement and that certain definite aims or purposes can be more fully realized with the aid of organized interest and activity than through individual effort alone. It is folly to expect that mere organization, as such, will achieve a given object, unless the farmers organize in the right way and equip their organization so that it will carry on its work efficiently. Having decided that an associated effort is warranted by the needs of the community, a study should be made of the kind of organization that would be most helpful and the ways and means of making its work effective. While this calls for intelligent, enthusiastic and self-sacrificing leadership, it is best that this be furnished locally. Organizations may need outside advice, but they should not be promoted by outsiders. The farmer's advance must come as the result of his own efforts; his progress must develop from within rather than from without. The organization that is given him is of far less value to him than the one which he himself creates. In the matter of securing advice it is generally wise to make application to the agricultural college or the proper government official. In asking for this advice a full statement of the local situation should be given—the territory to be included, number of farmers interested, class and amount of work to be undertaken, previous cooperative experience, and any other local features that will give a definite idea of the problems that must be met in outlining a plan of organization for the betterment of the community.

A long whip never made a man a good driver.

John Deere Implements



John Deere Spreader

The Spreader with the Beater on the Axle

The beater—the business part of the spreader—and all its driving parts, is mounted on the rear axle. This is a patented feature. You can't get it on any other spreader. The beater on the axle means there are no clutches to give trouble, less than half the parts heretofore used on the simplest spreader, big drive wheels and a low down spreader without stub axles. Only hip high to the top.

Write for more facts. Also ask for "Farm Manures and Fertilizers", a valuable textbook you can get free.

John Deere Wheel Plows

With Quick Detachable Shares
Unscrew One Nut—That's All

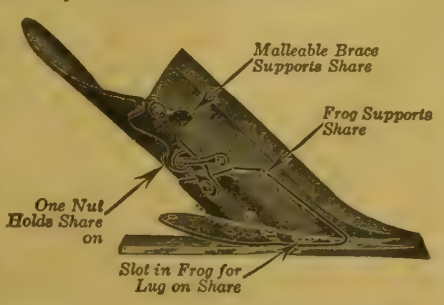
John Deere Wheel Plows, known the country over as "Quality Plows" are now fitted with John Deere Quick Detachable Shares—an exclusive John Deere feature.

Here are some advantages of these shares:

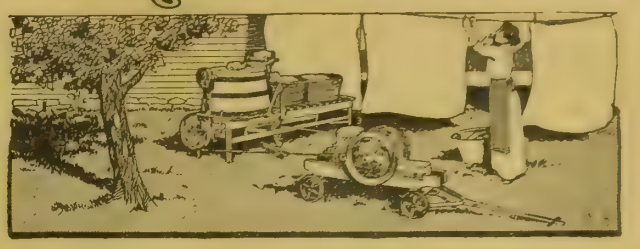
1. No trouble to change shares.
2. Eighty per cent of time saved.
3. No danger of damaging share.
4. Share is drawn up closer.
5. Share is stronger—not weakened by bolt holes.
6. Resharpened or sprung shares can be drawn into place—no drift punch necessary.
7. No unequal strain on share.
8. No danger of injury to hands in taking share off.

We have beautifully illustrated booklets on the following plows with John Deere Quick Detachable Shares:

New Deere Sulky and Gang (High Lift Frame Plows)
John Deere Stag Sulky and Gang (Low Lift Frameless Plows)
John Deere Two-Way Sulky (Side Hill or Irrigated Land)
John Deere Engine Gangs (For Traction Engines)



Mention the booklet above that you want and we will send it to you free.



R. & V. Gasolene Engines

New Triumph One Horse Engine. Just the engine for light work about house and barn, such as running washing machine, pumping water and operating other small machines. Saves every member of the family work and worry.

A reliable, efficient, low priced but high grade engine. Easy to start, smooth running, requires no attention when in operation, economical in use of fuel and perfectly safe in and around buildings. All working parts are back of the fly wheel out of the way—a neat outfit in every respect.

R. & V. Triumph Engines for All Farm Machinery

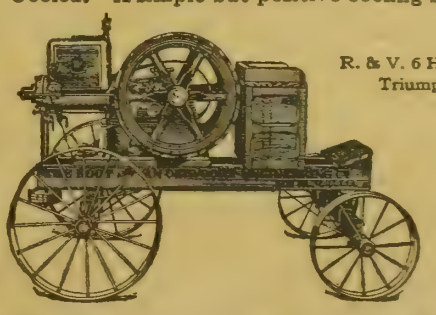
The R. & V. Triumph line of engines is also made in 2, 4, 6, 8, 10, 12 and 16 H.P. sizes, stationary and portable. Every farm can use one or more of these engines to advantage.

They are dependable gasolene engines—always develop rated horse power.

R. & V. 4 H.P. Triumph

An extra ring over the piston pin prevents scoring and ruining cylinder. This is an unusual precaution for lengthening the life of a gasolene engine. This careful attention to details is followed in constructing every part of the R. & V. Triumph.

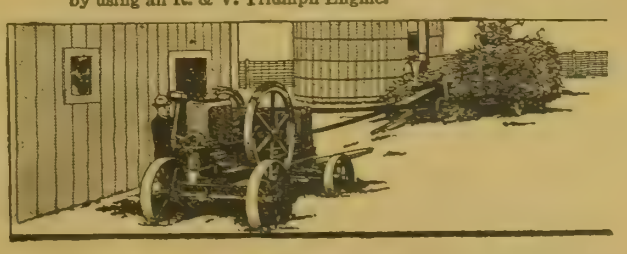
Hopper Cooled. A simple but positive cooling system.



R. & V. 6 H. P. Triumph

The gasolene tank for every R. & V. Triumph Engine is most conveniently and safely located—on practically all of the stationary engines it is in the sub-base.

Write for free booklet "Letting Gasolene Do It." This book tells how you can save time every day in the week by using an R. & V. Triumph Engine.



Better Farm Implements and How to Use Them

FREE BOOK Illustrates and describes the most complete line of farm implements. Tells how to adjust and use farm tools under varying conditions. It is a practical encyclopedia of farm implements worth dollars to you—a 168 page text book.

It tells about John Deere Implements: Steel plows, cultivators and harrows; corn planters, discs harrows and beet tools; farm and mountain wagons; manure spreaders; portable and stationary grain elevators and corn shellers; hay loaders, stackers, sweep rakes, mowers and side-delivery rakes, motor hay presses; grain drills and seeders; full line of chilled plows; grain binders and corn binders; hit-and-miss and volume-governing gasolene engines.

To get this book, free, state what special implements you are interested in and ask for the book as Package No. X111

John Deere, Publicity Department, Moline, Illinois

JOHN DEERE
MOLINE, ILL.
THE TRADE MARK OF QUALITY MADE FAMOUS BY GOOD IMPLEMENTS

Established 1888. Twenty-fifth Year.

The California Cultivator

Rural California combined with the California Cultivator

A Journal of Horticulture and Agriculture

By
THE CULTIVATOR PUBLISHING CO., Inc.
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Thursday, Jan. 28, 1915

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We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

LET GASOLINE DO IT

An eastern correspondent has written suggesting that at this time when agents of European nations are picking up all the American horses they can purchase the farmer take advantage of the opportunity to dispose of his horses and let gasoline do it. One point raised is that it is possible the work may be done more economically with the tractor and other farm powers, but it will reduce the consumption of oats and other farm produce by horses and give the country a greater quantity of food stuffs to export. There appears to be no immediate danger of superseding the trusty draft horse when it comes to farming operations, but we doubt not the present time will see a greater increase in the use of farm power.

CHEAP COTTON

Cotton growers have been watching the markets, especially the manipulations of the cotton market by the "exchange." When May cotton was selling at seven cents the growers took their pencils and found by a little figuring that the cost of production was approximately nine cents per pound. Some of the shrewder ones concluded to stop growing cotton and buy futures on the stock exchange for two cents less than the cost of production and make some easy money. New York gamblers have made money from the cotton growers since cotton was grown; perhaps now the growers can turn the tables and make money from the gamblers. We suggest, however, that the growers wake very early in the morning, seven days in the week. The gambler has the privilege of setting the price; the grower has been denied that satisfaction.

More seriously, the whole miserable matter is proof that our markets are not controlled nor manipulated in the interests of the producers, but entirely for the benefit of large moneyed interests which are willing to make their living in the same way as does the common gambler.

FINE FRUIT

Not an orange has been frozen in California this year. The finest fruit ever has gone forward; some of it has brought fair returns to the grower; some, indifferent returns; and some, because of weather conditions east of the Rockies, has been drowned in red ink. Two years ago our own weather conditions caused serious losses. So it appears that either coming or going the orange grower is in danger of "getting his." The finest fruit has gone from California only to be caught on a siding in some Eastern blizzard-swept plain and frozen as hard as rocks, in spite of refrigerator cars. Of course some cars found roundhouses and a degree of protection, but with 600 or 800 cars in transit or on Eastern tracks, it was impossible that any large proportion of it could be protected. Compared with the total of forty or more thousand carloads, the loss will be small, but it will fall heavily on some. It is to be hoped that financial conditions will improve so that the bulk of the crop which is yet to go will command fair prices.

BETTER ROADS

America has had the reputation of having about the worst roads in the world. The perfection of European roads has been dinned into our ears until it has seemed we were always wallowing in the mire or riding over the bumps and ruts. But if the campaign of the last few years is continued it will not be long until America will show the finest road system of any section in the world. The best of it is that of all the states California, in proportion to her wealth, is doing the greatest amount of road building. In addiion to the work being conducted by the state highway commission, almost every county has voted or is considering voting on large bond issues for good road building. The feeling that this agitation has been in the interests of the automobile dealers and the automobile owners is subsiding, for the producer is finding that the benefits accrue to him to even a greater extent than to the pleasure seeker. His harness is repaired less; his horses travel on smaller feed and carry larger loads. In other words, the cost of getting products to market is vastly lessened, and as this truth is appreciated the farmer will appeal for more good roads and be willing to pay his share. Perhaps he has paid more than his share in the past, but it will be observed that nearly all municipalities are willing to help finance the building of county roads. Every city is benefited by cheap and better transportation facilities.

SERIOUS DISEASE

Stock breeders of many Eastern states have suffered serious loss because of the foot-and-mouth disease. The greatest loss of all, however, has been suffered in the state of Illinois. In that one state over 500 entire herds, many of them of pure-bred stock, have been slaughtered. In some of these herds strains of blood which breeders had labored almost a lifetime to build up have been destroyed. The compensation is merely nominal, for while the department of agriculture and the state are supposed to divide the loss, they have established values on a meat basis, and owing to local complications the state has not been able to make any appropriations. The federal government has paid only in promises. Sometime it is presumed that the government will make good in the payment of half of the meat value, but the wheels of the federal government move exceeding slow.

But the greatest loss comes from inability to move any stock. No matter how much stock ready for market the farmer may have, the quarantine regulations have been so strict that he has been prevented from selling a dollar's worth. On the other hand, he has fed many a dollar's worth of high-priced feeds. These severe losses have caused a restive condition among the stockmen and farmers, especially in view of the fact that the disease has not shown any very serious results to the stock, all attacks have been light. But the agricultural department of Illinois issues a statement that the disease is a far more serious one than any other affecting animals, including tuberculosis, cholera and others of the most deadly. There is only one position for our federal department to take in the matter—and that it has been taking consistently—to quarantine and slaughter until the disease is absolutely stamped out. It has been done before and it must be again. California and all other states which are as yet free from the disease must maintain an effective quarantine.

GET READY

The Fresno Republican raises the point that California needs fewer colonists or else more colonization enterprises. The state has been appealing for new settlers since it became a state, yet in all that time no preparation has been made for the class which is needed here more than any other. Every chamber of commerce or promotion organization within the boundaries of the state has appealed for the man with means but has made no offers to place the man with only his bare hands, intelligence and integrity. The Republican calls attention to an instance where an official of a promotion organization was appealing for settlers. He was asked, "How many people can you use in your county?" and he answered immediately, "Five thousand." The reply was made to this that there were only an even dozen seeking an opening. Then the question came back, "How much money have the twelve?" They were without any, and for them the promotion agent had no use.

These twelve men are looking for a chance to earn money, but for them there is no opportunity in this state. California has the natural resources to create opportunities for just such people; its banks are filled with idle capital; it has brainy men who are able to make right conditions for these laborers to create wealth for themselves and for the state. There have been one or two development propositions which offered opportunity for the man with a little means, but none for the man without. In other states, Oregon for instance, banks have united and made purchases of pure-bred livestock which have been turned over to farmers on nominal payments, other payments to be made monthly or as could be arranged. Canada is providing high-priced, pure-bred stock for its colonists, to be paid for by fees during a period of years. The greater proportion of California's farming lands is held in ranches of 1,000 acres or more. This means limited population and limited prosperity. If we want the millions which the state can support we must plan to receive them rather than make our plans to receive only the wealthy or the well-to-do.

Agricultural Notes

The foot and mouth disease is now reported as under control in every state in the Union save Illinois.

The engineers who made preliminary surveys for a government railroad in Alaska have returned and have made an informal report to President Wilson.

The railroads will not now accept freight for delivery to steamships in European trade unless the shipper already has a reservation on the steamer for it. This is to prevent further piling up of freight on wharves and in warehouses.

A state trade-mark for butter is the objective of the dairy interests of Iowa, and the matter will probably be brought up before the legislature. The idea is to have a trade-mark which can be used on all butter having a score of at least 93 points, according to the system adopted by the state.

The "Made in the U. S. A." campaign is being taken up seriously by the chamber of commerce of the United States and by local chambers throughout the country. The Detroit chamber of commerce has offered a prize for the best design for a label to carry the legend "Made in the U. S. A."

The Rural Organization Service is the latest division of the United States department of agriculture. Dr. Thomas N. Carver of Harvard University has been named as the head of the new service. Its functions include studies of markets and distribution of farm produce and also the social welfare of country people.

A piano manufacturing concern in Chicago has found out that it can ship in carload lots to New York and then by the canal to the Pacific Coast cheaper than by rail from Chicago to the same point of destination; and that shipments of household furniture from Rockford, Illinois, have moved to Pacific Coast points by the same route.

Senator LaFollette has introduced in congress a resolution aiming to nullify the action of the interstate commerce commission in its recent order allowing a general increase of five per cent in freight rates. The resolution declares that the commission did not make sufficiently thorough inquiry, and that the increase was made without good reasons.

The first prize winner of the recently closed North Dakota Pork Production contest is a girl. The object of the contest was to prove that a marketable hog can be produced in about seven months. The 24 boys and girls winning prizes in the contest produced hogs averaging 210 pounds at an average price of two and three-fourths cents a pound. The winner of first prize produced 3,811 pounds of pork from a litter of 14 Durocs in 209 days.

The United States geological survey is national in scope as well as in name. In the year ending June 30, 1914, geological investigations were conducted in 47 states, Alaska, Hawaii, and the Canal Zone; topographic surveys were made in 35 states, Alaska, Hawaii; and stream measurements were continued in 39 states, Alaska and Hawaii. The total area covered by the geologists in reconnaissance and detailed surveys was more than 75,000 square miles.

Agricultural News Notes of the Pacific Coast

Northern California

Mt. Lassen is having another eruption.

The rice mills at Biggs, Butte County, are running full time.

Yolo County is to make exhibits of its oranges at the P. P. I. E.

One Sutter County farmer will plant 100 acres of English walnuts.

California shipped 12,000 carloads of vegetables out of the state during 1914.

The farm center at Combsville, Napa County, held an interesting session last week.

Farmers about Dixon, Solano County, are making considerable clear side money on sheep.

Raisin growers of Sutter County have decided to joint the California raisin association.

Rice growers of Butte County are being urged to be more careful in regard to quality of seed.

California grape producers are working to secure a law which will take saloons out of local politics.

The acreage of rhubarb has been materially increased in the section about Hayward, Alameda County.

The total shipments of fresh deciduous fruits from California during 1914 aggregated 16,146 cars.

California farmers have opportunity to secure seed of Sudan grass by applying to their congressmen.

Petaluma is to be made branch live stock headquarters for stock which will be exhiibted at the Panama-Pacific Exposition.

Fruit standardization was discussed between legislators and Gravenstein growers of Sonoma County at Sacramento last week.

An expert of the bureau of animal industry, department of agriculture, is investigating hog cholera conditions in Napa County.

The Davis center of the Yolo County farm bureau met at the public library and discussed matters of interest to farmers last week.

University farm experts are reporting feeding experiments with hogs which will give valuable information to hog raisers of the state.

A dried fruit company at Winters, Yolo County, is creating a large business and has secured a special concession at the Panama-Pacific Exposition.

Dairymen of Marin County are working in opposition to the petition of Wells Fargo Express Company for increase in rate on butter and eggs to San Francisco.

It is announced that the cannery at Gridley, Butte County, will be in operation again this year, and better fitted than ever for a great pack of Butte County fruit.

Dairymen at Gridley, Butte County, report the past year to have been the greatest in their history. The Gridley section aggregates close up to 100,000 pounds monthly shipments.

The Solano Farms subdivision project which was helped by funds from the United Railways of San Francisco has received the ruling that no more money should be invested in the project.

Central California

Tulare County shipped practically 3000 carloads of oranges.

Arizona cattle are being received in Fresno County for feeding.

A farmers' institute was recently held at Clovis, Fresno County.

The rains have been favorable to sugar beets planted in the San Joaquin

An olive grover at Terra Bella, Tulare County, reports return from an acre of olives of $1300.

Plans are being made for the formation of a cooperative canning company with headquarters at Tulare.

The Pomona grange of Tulare County recently met at Tulare and installed officers for the coming year.

A representative of the Australian government has been studying irrigation problems in Tulare County.

The orange testing laboratory which has been maintained in Tulare County has been closed for the season.

February 19 has been fixed as the date on which the Western Fruit Jobbers' Association will visit Fresno.

Prof. Bioletti of the state university recently gave a vine pruning demonstration at Reedley, Fresno County.

Committees are busy planning out details of the Raisin Day celebration which as usual will be on April 30.

Dinuba, Tulare County, will exhibit a bunch of bananas of her own growing at the Panama-Pacific Exposition.

A shipment of over $20,000 worth of beef steers was recently made from the ranch of the Porterville Alfalfa Company.

A farmers' institute was held at Orosi last week. Addresses were made by several professors in the state university.

The biennial election of the Alta irrigation district will be held February 3. The district comprises parts of Fresno and Tulare Counties.

Grazing permits will be issued for the Sequoia national forest for the coming season for 30,000 head of cattle, 3000 swine, 11,000 sheep and goats.

The Porterville Poultry and Pet Stock Association is already holding meetings and planning for its next show which will be held in December.

Shipments of raisins from California during December were some 500 tons short of last year same month. The aggregate this year was 3600 tons.

The sixth annual institute held by the farmers of the Kerman district closed last week. There were attendants from all portions of western Fresno County.

Swine raisers of the Dos Palos section hold a meeting this week to discuss practices in hog raising. Addresses will be made by Professor J. I. Thompson, Dr. Tweedy, Dr. Roadhouse and others.

Mrs. Ames of Armona, Kings County, has a native black walnut tree budded to English walnut which has shown a wonderful growth. It was grafted four years ago, and now has a spread of 40 feet. The last season's crop was 125 pounds of nuts.

Southern California

Imperial Valley cotton growers are hoping for a ten-cent price for cotton in the next few months.

Orchardists in the Covina, Los Angeles County, section are appealing for protection from flood waters.

The Azusa Valley water company recently met in annual session. W. R. Powell was elected president.

Most Southern California orange growers are holding back shipments until prices are more satisfactory.

Los Angeles County potato growers are disposing of a large surplus stock since prices have been advancing.

Poultrymen of Southern California met recently in Los Angeles and organized an egg marketing organization.

Azusa, Los Angeles County, is troubled with cattle thieves who gather in valuable young heifers and butcher and sell the meat.

Irwindale, Los Angeles County, has organized a citrus growers' association to affiliate with the California Fruit Growers' Exchange.

President Cuttle of the Tri-Counties Reforestation Committee advocates enactment of a law making a game refuge of the entire Angeles national forest.

A packing house of the Fontana Fruit Exchange, located at Rialto, will cost $30,000 and is promised to be one of the finest fruit packing houses in the state.

At the last annual meeting of the Covina Irrigation Company Manager Elliott terminated his work at the head of the company after 26 years' management.

Entomologists from the state university will investigate more thoroughly than ever the best methods of exterminating the melon aphis of the Imperial Valley.

The Yucaipa Orchard Company held its annual meeting recently. This company has planted 120 acres to apples in the section of Yucaipa, San Bernardino County.

The Orange County Farmers' Mutual Fire Insurance Company recently met in annual session and elected Charles W. McNaught of Santa Ana as secretary and executive officer.

The Industrial Exhibit at the coming National Orange Show at San Bernardino, February 17-24, will be remarkably complete in all implements used in the cultivation of citrus orchards.

Dr. Webber of the Southern California Citrus Experiment Station and his entire force are active in planning for great work to be accomplished on the new site recently selected at Riverside.

At the recent annual meeting of the Tri-Counties Reforestation Committee the following officers were elected: President, Francis Cuttle, Riverside, recording secretary, H. W. Sherwood of Orange County.

In his annual report Francis Cuttle, president of the Tri-Counties Reforestation Committee, states that for 200 days last winter an average of 4448 inches of water from the Santa Ana River was spread over the gravel beds.

The Coast

The Palouse Poultry and Pet Stock Association held its annual show last week.

The spring planting of wheat in Western Washington will be the largest ever.

The wool clip of Montana is reported to be much smaller than that of last year.

Poultry fanciers at Colville, Washington, closed a successful exhibition last Saturday.

The Utah Sheep Shearing Association met in annual session in Salt Lake City last week.

Eastern Washington reports the snowfall as sufficiently heavy to protect fall-sown wheat.

At the present rate of increase the swine industry of Idaho will soon lead all other live stock interests.

Seattle retailers report that as oranges advance in price they are able to demand higher prices for apples.

Farmers' week at the University of Idaho brings out a bigger attendance this year than any preceding year.

Poultrymen at Coeur d'Alene, Idaho, held their show and annual meeting last week. A. O. Laabs is secretary of the association.

The state horticultural association of Idaho recently met at Boise and elected J. H. Lowell president and W. E. Wood secretary.

The Wenatchee-North Central Washington Growers' League has been organized and growers are pledging the marketing of their crops entirely to the league.

The eleventh annual gathering of the Utah state horticultural society at Salt Lake City last week elected officers for the coming year and listened to addresses on horticultural subjects.

The Washington State Wool Growers' Association recently met at North Yakima in annual meeting and elected A. J. Splawn of North Yakima, president, and S. B. Nelson, of Pullman, secretary.

The farmers' union recently met at Spokane and voted to establish a banking institution in that city which should be known as the Farmers' Bank and Trust Company, capitalized at $100,000.

Northwest apple growers are discussing the matter of standardization of fruit boxes and a more liberal advertising campaign which will force a great quantity of its fruit into the hands of consumers.

The annual meeting of the Utah Wool Growers' Association was held in Salt Lake last Monday. The association passed a resolution asking the legislature to place bounties on wild animals which have done very severe damage to cattle interests during the last year.

The new freight rates on live stock from Arizona points to California destinations were established by the interstate commerce committion last week. The rates on beef range from $56 a car for 250 miles to $135 for 1,000 miles. The rates on sheep and goats are approximately one-third lower. Additional charges are allowed not to exceed $2.50 for branch line haul, and $5 a haul over two or more lines.

THRESHING SUDAN GRASS SEED ON W. J. STALCUP FARM, NEAR LUBBOCK

Pure–Dependable–Guaranteed $UDAN GRASS $EED

THERE'S no such thing as saving money on seed. Low-price seed is low-grade seed and every nickel saved in the price will cost you a hundred fold in the harvest. It's the most foolish form of economy — and it's mighty poor farming, because low-grade seed is adulterated and will sow your land with Johnson grass and other pests reducing its value by thousands of dollars.

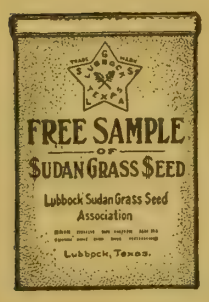
¶ Lubbock County is recognized as one of the best producing centers of Sudan Grass Seed in the U. S. and the Lubbock Sudan Grass Seed Association is composed of actual seed growers, representing about 95% of the total acreage of the crop in Lubbock County. The chief purpose of the Association is to maintain the absolute purity of the seed crop grown by its members and to supply it direct to farmers.

¶ Every pound of Lubbock Association seed is guaranteed to be strictly free from Johnson Grass and of unquestionable germinating power. During the whole growing season, the Association fields were under constant supervision by inspectors, directed by V. L. Cory, Superintendent of State Agricultural Experimental Station at Lubbock. Only seed from such land as was officially approved and certified to by these inspectors was accepted by the Association as suitable for sale.

WARNING! We are the only authorized agents for selling Lubbock Association Guaranteed Seed Be sure that all seed you buy has our name and trade-mark stamped on every bag.

Ask Your Dealer for Lubbock Sudan Grass Seed Association PURE SEED.

Put up in 1-2-5-10-25-50 and 100-lb. packages. Retail price delivered, $1.00 per lb. Experienced Salesmen Wanted—write for terms.



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LARROWE'S Dried Beet Pulp

Puts Silage in the Background

Thousands of dairymen are now feeding this palatable milk producing feed and banking their extra profits. It solves the problem of providing an all-the-year succulent feed for dairy cows.

Order a single sack from your feed dealer and prove its worth by feeding to one cow whose milk record you know.

YOU DON'T NEED A SILO

One ton of Larrowe's Dried Beet Pulp contains as much nutriment as five tons of silage and in addition is clean, healthful and succulent. It is a wonderful milk producer; convenient; economical; always ready at any season. It saves the expense of building a silo, the cost of filling it and the necessity of growing a crop suitable for silage.

LARROWE'S DRIED BEET PULP
Just Like Roots
Makes More Milk

—the ideal feed not only for dairy cows, but also for hogs, goats, sheep, poultry and horses. It is wonderfully rich in carbohydrates; makes a splendid combination with alfalfa. Larrowe's Dried Beet Pulp can be had either plain or with molasses.

Considering the present high price of bran and mill feeds and that Larrowe's Dried Beet Pulp can be substituted for them, pound for pound, and get more milk, now is a good time to commence feeding Larrowe's Dried Beet Pulp. Order from your feed dealer today.

WRITE FOR A FREE COPY OF OUR BOOKLET, "PROFITABLE FEEDING"
It gives valuable information about feeds and feeding and tells how you can get more milk from your cows at no extra cost.

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See Announcement at Head of Editorial Page

Live Stock and Dairy

GRADE OR PUREBRED IN DAIRYING

THERE are at least four legitimate objects to be held in view when purebred stock is introduced into the flock or herd, says a writer in an eastern exchange. These are briefly: To increase the production, to improve the quality of the product, to secure uniformity in the product, to gratify the eye by pleasing color and symmetry of outline. Many farmers will say that they cannot afford to consider the fourth point, but it should be remembered that many wealthy buyers of pure bred stock are as much influenced by the beauty as by the utility of the breeds or individuals which they select. It is a well known fact also that beauty will add to the selling price of any good animal at the average farm auction sale. If a man is producing beef from a herd of native, mongrel, or low-grade cattle, the introduction of a good purebred bull of pronounced beef type will accomplish all four of these ends. In this case the product is the living animal as it goes to market, and uniformity in size, formation, quality and finish will add materially to the value of a carload of fat cattle. As this condition can be better secured in a herd of purebreds than in any herd of grades, it follows that the purebred has a positive, practical value above the grade for beef purposes, and it is probable that a very large part of our beef, pork and mutton will finally come from purebred herds.

The situation with reference to the dairy herd is, however, entirely different. The products of the various animals are not marketed separately, but are blended into a single article—a can of milk or cream, or a tub of butter, as the case may be. The individuality of the various units of the herd is wholly lost, and the purchaser of the goods has no concern whatever as to the variations in size, form, age or color of the cows producing them. For these reasons we cannot urge the practical dairyman to invest in a registered herd with the same assurance that we feel when presenting the case to a beef raiser. The dairyman can look to an infusion of better blood to increase the milk or butter yield of his herd and within certain limits to improve the quality of either or both. But the dairy cow when past her usefulness in the herd has a rather low beef value at best, and a registered Holstein or Jersey, full of years and honor, is worth no more at the block than her half sister which is a grade. In fact the annual average cash profit per cow will be practically the same from two herds yielding like quantities of milk or butter if one be a registered and the other a grade herd. The difference will lie wholly in the selling value of the calves, and this is a matter of geographical location to a very large extent. Furthermore many dairymen who sell milk are anxious to rid themselves of the calves as soon as possible and do not combine dairying and stockraising very successfully. If these men keep bull calves beyond the age at which they can be sold for veal it is questionable whether they will ever dispose of them at a profit, no matter what their breeding may be.

What then is the sensible policy for the farmer who is largely dependent upon his dairy herd and who owns chiefly native or low-grade cows? My suggestions are not at all radical. He may have some cows which do not yield him a dollar of profit in a season and yet his situation may be like that of my neighbor who justified the purchase of a rather unpromising cow at a local auction by saying: "My contract calls for so many gallons of milk per week this winter and if I can't get it out of good cows I've got to get it out of poor ones:" I do not approve the policy of attempting to do so much on a farm that part of it must be done at a loss and am sure that any man can afford to take time and trouble to weigh the milk of each cow often enough to know which are being kept for nothing. If the Babcock test cannot be readily applied it is quite possible to set samples of the milk of each cow and by comparing the cream yields arrive at some approximately correct conclusions as to the relative desirability of the members of the herd.

When unprofitable cows are located they should be disposed of as soon as they can be brought to marketable condition or as soon as better ones can be found to take their places. But if careful tests show that the herd is composed of a fairly uniform lot of very moderate producers giving only half the net income per cow that modern dairy teachers tell us we should obtain, I would be the last to urge the owner to sell his entire herd and invest the money in registered stock, putting in perhaps eight cows in place of 24 sold and expecting to make three times the profit per cow that was formerly secured. The average small farmer cannot afford the risk involved in making such a change for the death or injury of one cow would then mean the loss of too large a part of his working capital. The only logical course for this man is to secure at once a good registered bull or bull calf of the breed best suited to his needs and raise as many heifers per year as possible, meanwhile losing no opportunity to replace a poor cow with a better one. Not all bulls of the same breed have equal values as sires of dairy cows, but it is an exceptionally poor one which does not earn many times his cost when used in a grade herd.

WHAT IS BABY BEEF?

"What is meant by the term "baby beef" and what kind of cattle are used in baby beef production?" was a question which was put to Professor G. W. Barnes, farm advisor on livestock of the agricultural extension service of the University of Arizona college of agriculture. He answered that fat cattle between the ages of one and two years, weighing between 800 and 1,100 pounds, are used. They must be well bred and of fine quality. Such cattle can be finished quicker and are the only class of cattle which can be used in the production of baby beef. The cattle to be used for this purpose should not be allowed to lose their baby flesh or baby fat. They must be

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A Safe, Speedy and Positive Cure for Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a Human Remedy for Rheumatism, Sprains, Sore Throat, etc., it is invaluable. Every bottle of Caustic Balsam sold is Warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

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WATER PIPE

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Originators of the Famous O. I. C. Swine 1863

Two O. I. C. Hogs Weigh 2806 lbs.

Why lose profits breeding and feeding scrub hogs? Two of our O. I. C. Hogs weigh 2806 lbs. Will ship you sample pair of these famous hogs on time and give agency to first applicant. We are originators, most extensive breeders and shippers of thoroughbred hogs in the world. All foreign shipments

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We have bred the O. I. C. Hogs for 51 years and have never lost a hog with cholera or any other contagious disease.

Write—Today—for Free Book, "The Hog from Birth to Sale"

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ABSORBINE
TRADE MARK REG. U.S. PAT. OFF.

Will reduce Inflamed, Strained, Swollen Tendons, Ligaments, Muscles or Bruises. Stops the lameness and pain from a Splint, Side Bone or Bone Spavin. No blister, no hair gone. Horse can be used. $2 a bottle delivered. Describe your case for special instructions and Book 2 K Free.

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LOSSES SURELY PREVENTED by Cutter's Blackleg Pills. Low-priced, fresh, reliable; preferred by Western stockmen because they protect where other vaccines fail. Write for booklet and testimonials.
10-dose pkge. Blackleg Pills $1.00
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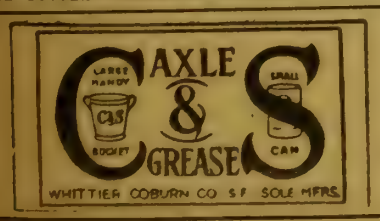
Use any injector, but Cutter's best.

The superiority of Cutter products is due to over 15 years of specializing in vaccines and serums only. Insist on Cutter's. If unobtainable, order direct.
THE CUTTER LABORATORY, Berkeley, California.



A dirty milker is worse than a dirty cook. To wet the hands with the milk when milking is a dirty habit.

kept fleshy from start to finish, for when they once become run down it is a difficult proposition to have them finished for market under 18 months. They must be fed a liberal ration of fat-producing feeds, especially grains. Heavier grain feeding is required for baby beef than for older beef. This is so because calves and yearlings have a tendency to grow rather than to fatten, and it is due to this tendency that we must feed liberal rations of grain to overcome the growing and have the individual put on flesh. When beginning to feed baby beeves they should receive large quantities of alfalfa or cowpea hay or other such rough feeds as will increase their digestive capacity so they can handle large quantities of grain. If heifer calves instead of steers are to be fed they will finish more quickly and should be marketed earlier. The younger the prime heifers are at the time of marketing, the less discrimination in price will the butcher make between heifers and steers. The most common mistake is that of marketing before the individual is ready or ripe.

FAMILIARITY WITH DANGER

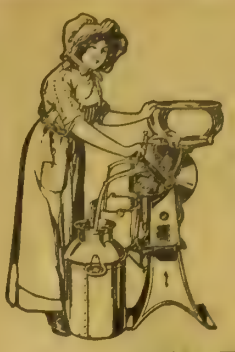
The other day a farmer who has been accustomed to handling dairy cattle all his life was crushed to death by the herd bull on his farm when he went out into the pasture to bring the cows in at night. There is always danger in handling a bull, particularly one of the high strung dairy breeds. Familiarity with danger makes us careless, and every year some men here or there are killed just in this way. No man who is to be successful in handling dairy cattle should be afraid of the herd bull, but should simply be cautious and never give him the chance to get the upper hand. The disposition of a bull is such that if he gets his head against something he wants to push, regardless of what it is he is pushing against, he may destroy his best friend. Most of these tragedies can be avoided.—Orange Judd Farmer.

ADVANCED REGISTRY YEAR BOOK

The secretary of advanced registry of the Holstein-Friesian Cattle Association writes that the 1,070 page blue book containing official records of Holstein-Friesian cows for the year 1914 is now ready for delivery. As there are 6,000 active members of the association and only 5,000 copies of the blue book printed, it is urged that every breeder who wishes to keep the annual year book file complete should order at once. The price is $2. The book may be secured of the secretary at Delavan, Wisconsin.

When pigs are born hairless they are undeveloped, and one may suspect that the sow has been inadequately fed or pampered and given too little exercise. In some instances the cause has been lack of lime in the feed and drinking water, and free use of lime-water in the rations of pregnant sows has ended the trouble. In one district where the drinking water was soft from lack of lime, all the pigs came hairless, and the owner at our advice put lime into the watering tanks and troughs and the trouble subsided. Give pregnant sows plenty of alfalfa hay and roots along with slop of mixed nitrogenous feeds, adding lime-water as advised, or adding a little tankage or bone-meal to the feed.—Farm Journal.

Old ewes, and inferior ones, should be fattened and sold for mutton.



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DE LAVAL
CREAM SEPARATOR

ON THE CONTRARY YOU may buy a De Laval NOW and save half its cost by May. If, for any reason, you can't conveniently pay cash you can buy a De Laval on such liberal terms that it will actually pay for itself.

AS TO YOUR NEED OF A separator, if you have the milk of even a single cow to cream you are wasting quantity and quality of product every day you go without one. This waste is usually greatest in cold weather and with cows old in lactation, and it counts most, of course, when butter prices are high.

THEN WITH A SEPARATOR there is always the sweet, warm skim-milk and saving of time and labor in addition.

WHEN IT COMES TO A choice of separators De Laval superiority is now universally recognized. Those who "know" buy the De Laval to begin with. Those who don't "know" replace their other separator with a De Laval later—thousands of users do that every year. If you already have some other machine the sooner you exchange it for a De Laval the better.

WHY NOT START 1915 right in dairying? SEE and TRY a DE LAVAL NOW when you have plenty of time to investigate thoroughly. The nearest DE LAVAL agent will be glad to set up a machine for you and give you a free trial.

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EXACTLY AS YOU WANT THEM.
ALL SIZES AND DIMENSIONS

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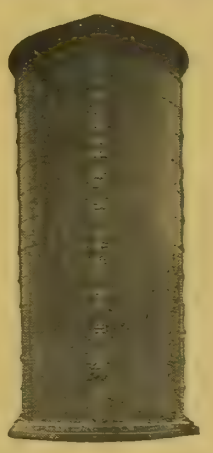
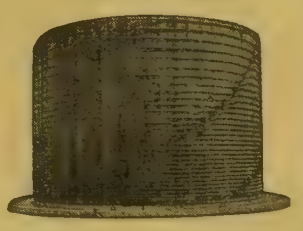


TANKS



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For water supply—irrigation or power. Cheaper than any other pipe of equal size or capacity. Longer lived than any metal pipe except cast iron.

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WOOL COUNTS

When you read the London wool reports you frequently see wool referred to as 46s, 50s, 64s and so forth, in fact all foreign wool literature is couched in these terms. The United States is the only country that grades wool as ½, ⅜, ¼ blood, etc. In place of such terms the foreigner uses figures to indicate the fineness of the wool. The finer the wool the higher the number that is given it. These numbers are supposed to indicate the number of yards per pound that a certain quality of wool will spin. Yarn is bought and sold by the pound according to the fineness of the thread. Yarn number 1 is the coarsest and is supposed to contain a thread 560 yards long to each pound. Yarn number 2 is not so coarse and contains twice 560 yards of thread to each pound or 1,120 yards. Yarn number 60 would contain 60 times 560 yards of thread to each pound. And so on, each yarn number representing the number of times 560 yards that it contains.

Now it is from these yarn numbers that wool gets its number. A wool that will spin a yarn of 50s fineness is designated a 50s wool. Of course the fineness and strength of fiber determines the number of the yarn that a certain wool will produce. Wool is not always spun into as fine a yarn as it might be but long experience has enabled the wool handler to tell from a piece of wool just about how fine a yarn it would produce. It is possible, however, to convert our somewhat cumbersome wool terms into the more accurate terms used in foreign market. Oour braid wools would in London, be numbered as from 30s to 38s. Our quarter bloods from 40s to 49s; our three-eighth bloods from 50s to 56s; our one-half bloods from 58s to 60s; our Merinos from 60s on up, depending on their fineness. Now of course all the numbers between 40s and 49s are not used or between any of the designations here given but our wool would fall in the classes here given. Our fine Territory Merinos would average about 64s and that is about the average of the Merino wool grown in other parts of the world including Australia. We produce a considerable amount of wool that grades as high as 70s and a small amount that runs as high as 80s. Australia produces a large amount that runs from 70s to 80s and a small amount that grades up even to 100s. There is not much demand for wool, however, finer than 90s. The price of these scoured wools depends on their fineness. Let us look at the Boston market. Today a Sydney 80s is quoted in Boston top price at 67 cents per scoured pound, a 70s at 63 cents; a 64s at 59 cents; a 60s at 54 cents.

As we have before explained, a wool that will spin into 64s yarn is designated a 64s wool no matter how much of it may be required to make the pound of yarn. It is interesting to learn how long a thread a certain fine wool will produce. Take a 70s yarn, this means that such a yarn contains a thread seventy times 560 yards long or 39,200 yards, equal to 22¼ miles. How much grease wool would it take to make this pound of yarn? The amount varies somewhat depending on the shrinkage but probably three and one-half pounds would be sufficient. Then each pound of grease wool would spin into a thread about seven miles long. If we estimate the average fineness of all American wool to be about 60s and that we produce 132,000,000 pounds of scoured wool then this would spin into a thread 2,142,000,000 miles long or sufficient to circle the earth 85,680 times.—National Wool Grower.

LOCOED

In the veterinary department last week, under the title "Faulty Eyesight," Dr. Petrie prescribed for a horse which pulls back on entering the stable and shows pain when pressure is exerted on the back of head or top of neck. The horse had been on desert pasture. Subscribers have written, suggesting that in their opinion this is a case of loco. We have seen horses affected in this way, and they surely had symptoms similar to those described by the Inyo-Kern writer. We give the communications, for they have suggestions from men who have had much California experience. Dr. Petrie will comment in his department next week.

T. F. Kerr, Lakeside

Dr. Petrie is probably not familiar with the effect of "loco" weed or "rattle weed" poison on horses. These horses had undoubtedly been eating either "loco" or "rattle weed." They should be kept where they cannot get it, and fed a good grain ration. If allowed to run where they can find the poisonous weeds they will soon be past all cure and entirely useless. The "rattle weed" destroys much more quickly, but horses are not so likely to eat it as they are the "loco," which works more slowly and is less deadly. The bad effects will gradually disappear if they are kept away from the weed.

J. F. Williamson, Coalinga

It isn't eyesight that ails these horses; they have got rattle weed and are in bad shape. They will finally go blind and die unless kept off the range where they can get it. It is a light-blue colored plant that grows in the desert parts of California, has pods like a pea vine and a light yellow blossom in the spring. If the Inyo-Kern subscriber will ask any oldtimer in his neighborhood they can tell him what ails his horses.

Ira H. Howard, Germantown

These horses have undoubtedly had access to pasture containing some variety of loco or rattle weed within the last six months, or it is in the hay. If you will write to these parties you will find that in addition to the symptoms given, partial blindness, etc., there is more or less constipation, drooling of saliva, white of the eye is pink, and the hearing is very acute, so that the animal will start and tremble at any sudden sound. They will also hold the head in a peculiar, slanting position when standing still. This disease is quite common in some parts of the country. Have seen at least three kinds of rattle weed. In general, it is well to be suspicious of any weed in the pasture that has a pod like a pea. It usually takes several months from the time it is first eaten till it affects the actions of the animal. Cattle are also affected sometimes, but as their nervous system is not so highly developed, they are affected in a lesser degree.

Stock usually avoid the large perennial loco weed, but the smaller varieties are mixed with the grass, so that it is hard to avoid it. The veterinarians here give a powder in the feed, an arsenic preparation I think. A mild physic or laxative in the feed is necessary. Good bright alfalfa hay is good for them, and green grass is still better. In the cases given, if they have only been affected a short time and are properly taken care of, they should be almost as good as ever in a few months, but may never quite recover. This information would have been worth a good many dollars to me last year, as I killed two horses that seemed to be worthless that might have been saved.

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Hair Ball

A neighbor lost a heifer only a few months old. He found a ball two and one-half inches in diameter, composed mostly of hair, in her stomach. Did this cause her death and if so what can he do to prevent others being affected the same way?—Subscriber, Visalia.

Hair balls are caused by cattle licking themselves and swallowing the hair. It accumulates in a mass and forms a very hard ball. There is no way to prevent it and it occurs so seldom that the owner is not likely to ever see another case of it. Hair balls do little or no harm

unless large enough to obstruct the passage of other food. Usually they pass out before becoming large enough to do any harm.

Pawing a Habit

What causes a horse to paw and stamp a great deal with the front feet when he shows no nervousness otherwise? I have looked for lice but find none.—Subscriber, Victorville.

Pawing usually indicates pain or some irritation of the feet or the skin just above the feet, but as you describe it I should judge that it is due to a habit. Take a chain about a foot long, put a strap through the end link and buckle the strap around the ankle of the foot that he uses most when pawing. He will inflict his own punishment and soon forget the habit.

Dry Murrain

What is the disease that is called dry murrain?—Subscriber, Visalia.

The term dry murrain has been applied to diseases of cattle that cause inflammation of one or more of the compartments of the stomach. The inflammation stops digestion. The food dries and will not pass. It might be caused by poison or any irritating or astringent substance and is only a symptom of the result of some disease. The term is not used now in scientific journals.

A Cicatrix

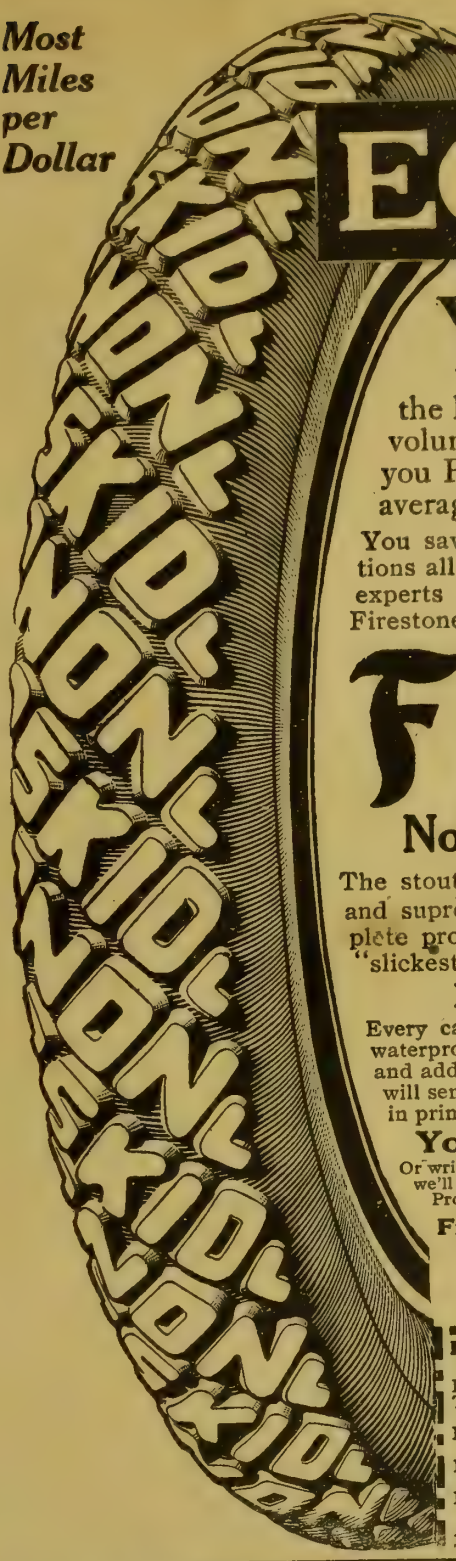
About three months ago in breaking a horse it fell and snagged itself on the inside of its hock. The wound has been a long time healing and it is leaving quite a large callus place. What is the best to reduce the callus and cause the hair to grow?—Subscriber, Arroyo Grande.

Have your druggist prepare the following ointment: Tincture of iodine one ounce, iodine crystals one dram, lard oil two ounces and vaseline two ounces. Mix and apply once a day. Rub in well.

Quittor

Three years ago my horse had a gravel pass through the hind foot, coming out just below the fetlock. He was laid up about two months during which time I used warm water with a little carbolic acid in it and could inject it through the passage of the gravel. He recovered from his lameness but a year after it commenced to suppurate again and act as it did at first. The swelling around the top of the foot did not entirely disappear. I treated him as before with like results but recently it has started again worse than before. I have had two veterinarians treat him with no results. They prescribed an injection of peroxide of hydrogen followed by a lysol solution, one tablespoon to the quart of water. He got some better but now there is a constant flow of matter with some lameness and swelling.—Subscriber, Vacaville.

Probably a false membrane has formed around the pus cavity and that will have to be gotten rid of first. Get this from your druggist. Chloride of zinc one dram and water eight ounces. Mix. Wash out the cavity with warm water, fill it with the solution and plug up both ends with some cotton soaked in the solution. After four or five days wash it out again with warm water with a little soap in it. Keep the outside clean and do not put anything through the opening unless pus appears. If the canal goes straight through it will heal easily but if there are branches that run off to the side it may need to be cut open to find just where to put the medicine to reach the ends of all the branches. A good blister around the top of the foot would also help some.



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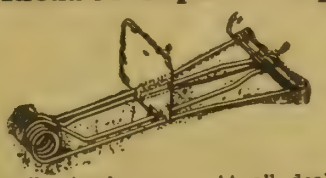

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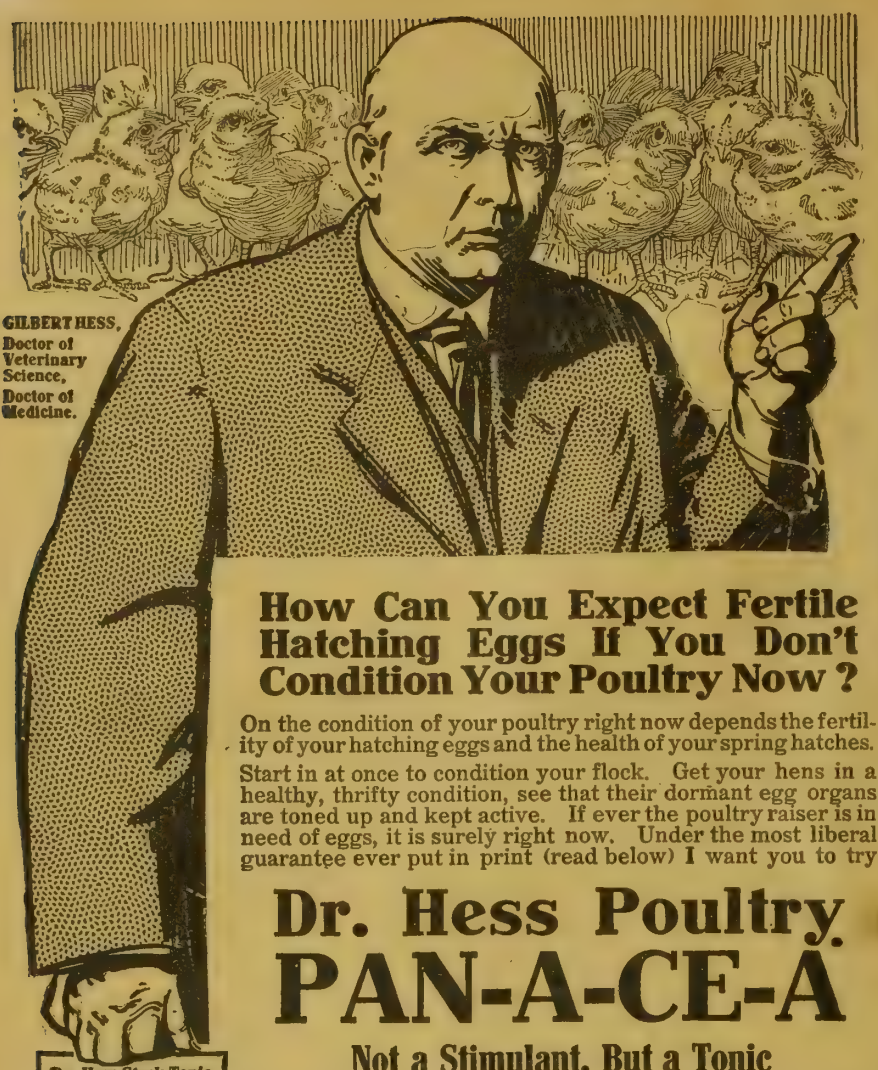

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THE BEST GREEN FEED

Written for California Cultivator by Jean A. Koethen

THE value of green feed for poultry does not seem to be wholly understood even by experts. We are told that it is necessary "chiefly for its hygienic or physiological effect and not for the amount of nutriment which may be supplied therefrom," yet who questions that some nutriment, varying according to the amount of protein and carbohydrates contained in each, is to be derived from even the lightest and most watery of greens? "Back East," where the hens get little green feed besides sprouted oats during the winter months, the natural laying season is said to date from the time when grass appears on the hillsides, and many a hen no doubt does her best laying with weeds for the succulent portion of her ration.

I like to put it in this way to myself: The hen's body, like her egg and like the human body, contains a very large per cent of water, about two-thirds, it is generally stated. Professor Jaffa says every dozen eggs contain about a pint of water. Even an unlimited supply of the purest drinking water is insufficient for the needs of both body and egg, for the hen, great drinker that she is, will hardly drink all that is necessary for all purposes. Green feed furnishes the additional water needed and in a more palatable shape and contains, beside certain mineral salts which help to keep the system in order, and more or less protain, ash and carbohydrates. The heavy layer is necessarily a heavy eater, and she requires an extra amount of water for flushing the system. Of course, hens will lay for a time with little or no green feed, but it seems inevitable that liver trouble or an overfat condition of the abdominal organs should ultimately end their productivity. What fruit and green vegetables are to the human family greens of some sort are to the hen. We who have acquired the California appetite for fruit and know the craving which comes in early spring when fresh fruit is scarce can easily realize the feeling of the hen when she is asked to lay eggs on a diet of dry grain. And if it is hard to do without green, how much harder must it be for hens to live confined within sight of green which they are not allowed to touch. Keeping hens under such conditions seems to be perilously near criminal cruelty. I presume some hens require more green than others, and all require more in hot weather than in cold and more in a warm, dry climate than in a cold, wet one, but all need more or less at all times, and a supply must be provided.

The values of the different greens may be placed in a sliding scale with alfalfa and clover at the top and beets and pie melons at the bottom, though it must be always remembered that green is green, and that the value of these greens lies more in their greenness than in the protein and ash which they contain. Professor Jaffa (Bulletin 164) gives these figures for the water and protein content of the more common greens:

	Water. Per Cent.	Crude Protein. Per Cent.
Alfalfa	80	4.94
Sugar beet leaves	88.75	1.91
Cabbage	90.50	2.40
Lettuce	94.70	1.20
Red clover	70.80	4.40
Pie melons	94.50	.77
Thousand-headed kale	85.15	2.63
Oats (sprouted 5 days)	51.46	4.77
Barley (sprouted 5 days	54.66	5.92

The sprouted oats and barley make up for their lack of water by a much higher content of carbohydrates, that of barley being 32.93 per cent, while that of oats is 32.58, which means that these sprouted grains are more valuable for the other nourishment they supply than as green feed. Professor Jaffa is careful to state that sprouting adds nothing in the way of nutriment to these grains, but he does not say, what is perhaps too obvious to need saying, that the greater palatability which results from sprouting is almost as good as additional nutriment, because the hens will eat twice as much of the sprouted grain as they will of the same thing dry.

Professor Dryden (Oregon Agricultural College Bulletin 157), in giving the number of pounds of the different feeds a hen requires in a year, makes 20 pounds of kale the equivalent of 15 pounds of alfalfa, vetch or clover. This, he says, is on account of the greater amount of water in kale, but he recommends as "probably the most profitable crop to grow for winter forage" in Western Oregon and the Pacific Coast generally, thousand-headed kale, an acre of which "may be made to produce 40 tons of green forage." For winter green food, "kale is transplanted in July from seed sown in May or June. For summer forage it is planted early in the season. It is possible in Western Oregon to have green kale the year round. For a flock of 100 hens about 200 plants will furnish green food enough for a year where the soil has plenty of fertility and moisture. The plants should average 20 pounds each. The chickens will eat about half the weight of the plant, the balance being stalk which they do not use. Cattle will eat most of the stalk. Planted in July the kale may be fed from October to April. Planted early in the spring from seed sown in the fall, it will be ready for use in the summer. In the early part of the season the lower leaves may be stripped off and the rest of the plant will continue to grow. The plants are set about three feet apart each way. A very small piece of ground, therefore, will grow enough kale for 100 hens. A strip of good land 16 feet wide and 100 feet long should furnish enough green food in the form of kale for 100 hens. At that rate an acre of kale will furnish green food for 2500 hens throughout the year. Kale may also be utilized for shade for fowls. Where they are yarded, by having double yards it is possible where kale grows the year round to make it furnish both green and shade all the year. It will also keep the yards in sanitary condition, turning manure and filth into revenue."

What Professor Dryden says of the possibilities of kale in Western Ore-

gon is even more true of California. I have had kale planted early in the spring of one year last till the same time the following spring, and I do not know how much longer it would have lasted if I had not pulled it up. Of course the leaves grow tough and strong in time, and mine, when I pulled it up, was not only tough and strong, but "buggy." The hens seemed to like the bugs though so there was no loss.

Kale is well adapted to a locality where water must be economized. Once it gets a good start—and it should be planted very early in order to utilize the winter rains—it will grow through the summer with very little water. I have been told that it will manage very well with no water at all, but this I have not tried. I have never tried transplanting kale as early as January but I am going to try it this year. If the rains come as they are likely to come I see no reason why kale should not grow as well as rape and barley.

The worst thing that can be said against kale is that the hens are not very fond of it and will not eat it if they can get anything they like better. Perhaps this is not really an objection for hens like children can be taught to eat anything that is good for them. On the desk before me as I write is a picture of one of the houses at the Oregon station. On one side hangs a thousand-headed kale plant which reaches nearly from the roof to the ground, and a lot of hens are pecking at this as if they enjoyed it. If hens will do this in Oregon I don't doubt they will do it in California.

For rapid winter growth and easy raising there is nothing like rape. It is especially adapted for use in empty pens where a crop must be quickly grown. I planted several pens two weeks ago with rape mixed with barley, and the leaves are already peeping through. My only reason for using barley was that I wanted as heavy a crop as possible in order to purify the ground, and rape does not seem to grow as closely as barley and oats. I think that where hens are kept on the double-yard system a crop of rape sufficient to purify the ground could be grown in three months and it would furnish forage for the hens for some time. Rape is sown broadcast like the grains. I spade up the pen, sow the rape and rake it over and let the rain do the rest.

Professor James E. Rice of Cornell recommends for yards where the stock can be turned in a combination of oats, peas, red clover and rape. "The oats and peas," he says, "furnish a rapid growth of green food a good deal of which will be tramped down, and some will go to seed, but it will serve to protect the clover and rape which will make good food for late summer and fall pasturage. Three pecks of oats, two pecks of peas, one pint of rape seed and five quarts of red clover will be a good proportion for seeding."

For yards into which fowls must soon be turned there is nothing better than oats and barley. They grow rapidly, give excellent green feed while young and tender and furnish shade and good picking for the baby chicks after they are grown. Many poultrymen plant these grains just for green feed and then cut the young, tender blades in the clover cutter.

Another green which I have found very satisfactory for spring use is mustard. When it grows wild in the neighborhood I go out and gather it by the armful for my hens and I don't cook it, as did one amateur poultryman I heard of. The hens are nearly as fond of it as they are of lettuce, and I am sure it stimulates egg production. Last year I planted some and this year shall plant more. The fact that the hens are ravenous for it is sufficient proof to me that it is good for them.

The mangel beet is another green I am trying this year for the first time—that is to say, I have planted some in spare corners. The root is very valuable food, having a nutritive ratio of 1:5, and is very highly recommended for winter use. How much value there is in the tops I shall not know till I have tried them. Other years I have found the half-sugar beet tops excellent, but they require more water than rape and kale, and water is so expensive in our section that I must keep up a constant search for things that will do well with little.

Sprouted grains are excellent feed and a fair substitue for other greens when the others are not to be had, but they do not take the place of the succulent leaves of the green forage plants unless the birds can run at large on them and nibble all day. Then they become one of the best. This, however, is not what we mean by sprouted grains. In the fall when green food was scarce I sprouted oats and barley in a box covered with a wet burlap sack placed in the sun. Now that the rains have come, and the soil of the runs is damp, I bury the grain, dry, in the ground, and after four or five days turn it up with the spade. By planting a little in each yard every day I keep the hens supplied with something to dig for, and how they do crowd round when they see the tiny, succulent, white sprouts! I think they like the grain better when it is sprouted in this way than when they get it in a block from the boxes, and I get quite a little fun digging it up for them. For a large number of hens this method would be impossible, but for a back yard flock it is a very good way. For one thing it keeps the hens interested, and this I suspect is more important than some of us have guessed. For another it keeps the soil of the pens soft and clean. For a third it coaxes the hens to eat a good deal of oats and barley and saves something on the wheat bill.

Green feeds differ a little in their effect on the egg itself. "Clover, alfalfa, grass, rape, kale and vetch," Professor Dryden says, "will give good color to the yolk of the egg; beets will not. Alfalfa and clover will give eggs good quality and flavor. Kale, cabbages and rape will give a slightly undesirable flavor to the eggs if fed heavily, but not enough to injure their selling value materially, if at all. If fed regularly, however, so the fowls may eat at will, there is no evidence that an undesirable flavor will be imparted to the egg."

Lettuce and chard I have not mentioned because, while they are two of the very best green feeds, I doubt if conditions in California warrant their use to any great extent. Both require a great deal of water, and I have found it cheaper to buy chicken lettuce at ten cents a sack from my Japanese vegetable boy than to try to raise it myself. It is worth while to raise a little for young chicks, but for hens kale, vetch, rape, mustard, beet tops and the various grains are cheaper. We are coming rapidly, I hope, to the time when every one who raises poultry in confinement will have some sort

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of double-yard system so that the hens may be moved back and forth while quick growing greens like rape, kale and the various grains are grown in the empty pens. Such a system is especially adapted to this climate and gives the best results in every way. It is said that in the Australian egg-laying contests, where some remarkable records were made, credit was given largely to the grass range on which all the hens were kept. Grass range is not possible here but there are other things that may take its place.

FEDERATED POULTRYMEN

For nearly a year the Cooperative Association, through its officers, has tried to educate the poultrymen of Southern California to realize that the method of marketing eggs has been suicidal. There were times when the price of ranch eggs was 13 cents higher in San Francisco than in Los Angeles on the same day.

Such a condition of affairs brought forcibly to the attention of the poultry growers that something was really radically wrong. After calling two meetings last fall, when nothing definite was agreed on, a committee of three went to Petaluma to study methods of marketing at that point. More than ever it was apparent that the plans first proposed were the only feasible ones.

Steps were at once taken to agitate the matter once more. At a general meeting it was agreed that the chairman should appoint a representative poultryman from as many different districts as possible to act as temporary committee on ways and means. These men met from time to time, and through their efforts an option on 200,000 hens was secured, after which a meeting of all the signers was called at Los Angeles for the purpose of perfecting the organization and also to elect five trustees to manage the affairs of the organization, to be known as the Federated Poultrymen of Southern California. The following have been elected trustees: J. M. Davison, Arlington; M. A. Schofield, Gardena; Cornele G. Ross, Pomona; B. R. Holloway, Van Nuys; Frank B. Smith, Santa Anita; chairman and president of the federation, M. A. Schofield; secretary, Frank B. Smith.

These trustees are authorized to sell the combined product to the best advantage, involving now the eggs laid by 250,000 hens, which sale, it is hoped will be consummated the present week.—M. A. Schofield.

FARMERS GREAT CHURCH BUILDERS

The American farmer is the greatest church builder the world has ever known, according to an article recently given out by Peter Radford, lecturer of the National Farmers' Union.

"The farmer is the custodian of the nation's morality," says the article; "upon his shoulders rests the ark of the covenant and he is more responsive to religious influences than any other class of citizenship."

It is pointed out that the farmers of the United States have built 120,000 churches at a cost of $750,000,000, and the annual contribution of the nation toward all church institutions approximates $200,000,000 per annum. An average of 23 churches per day is the record of the American farmer in building churches. There are 20,000,000 rural church communicants and 54 per cent of the total membership of all churches reside in the country.

Mr. Radford further states that "the farm is the power-house of all progress and the birthplace of all that is noble. The Garden of Eden was in the country and the man who would get close to God must first get close to nature."

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Secure Present Prices on Spring orders for citrus trees and spineless cactus. Luther Burbank and Mediterranean Spineless Cactus Plantations, Robinson Citrus Nurseries, R.F.D. 35 A, San Dimas, Cal.

The Walnut Nursery has a fine lot of grafted walnut trees again this season, Chase, Eureka, Mayette and Placentia Perfection. Order now and get the best. W. A. Litten, Prop., R. F. D. No. 2, Whittier, Cal. Home phone 7868.

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Seedless Grapefruit—I have for sale for the coming season a limited number of fine, clean trees propagated from a tree brought from Florida. I believe that this is a type of Marsh's Seedless superior to anything on the market. Send for circular. Inspection invited. G. W. Sherwood, Fullerton, Cal.

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Special inducements; government land, railways, free schools; cheap irrigation; 31 years to pay for farms adapted to alfalfa, corn, grains, fruit, etc.; climate like California; ample markets; reduced passages; special excursion being arranged. Free particulars from F. T. A. Fricke, Government Representative from Victoria, 687 Market St., San Francisco, Cal., Box X.

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For Sale—Half mile from Exeter 40 acres, 10 acres four-year-old oranges, balance alfalfa, good 10 H. P. electric pumping plant. One-third cash, good terms on balance. Address Box 236, Exeter, Cal.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

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MISCELLANEOUS

Owner of established Rice Selling Agency Company with broad charter for general export and import business, desires to exchange same for ranch valued at $3000 and upwards. Fine opportunity for city man on ranch to re-enter commercial activity or for a farmer's son to acquire a city business. Present owner wants to go on a ranch. No agents—principals only. Box R, Cultivator.

Free for Six Months—My special offer to introduce my magazine "INVESTING FOR PROFIT." It is worth $10 a copy to anyone who has been getting poorer while the rich, richer. It demonstrates the REAL earning power of money, and shows how anyone, no matter how poor, CAN acquire riches. INVESTING FOR PROFIT is the only progressive financial journal published. It shows how $100 grows to $2200. Write NOW and I'll send it six months free. H. L. Barber, 430, 28 W. Jackson Blvd., Chicago.

"Smith's Pay the Freight"—To reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St., San Francisco.

Corporation Interest Free—To all who list lands for sale with us. Western Hemisphere Townsite Company, Desk B, Marshalltown, Iowa.

1915—Earn your trip to the Fair. Send 15c for samples and particulars. B. Neff, 932 South Main street, Los Angeles, Cal.

Telegraphy—Stenography, bookkeeping, English branches. Positions guaranteed. Mackay Business College, Los Angeles.

Landscape Gardening—Plans drawn and work personally superintended. C. U. Chandler, Ontario, Cal.

TURKEYS

Turkeys—Bourbon Red, White Holland, Mammoth Black and Slate. In separate wire-covered yards. Range alternately. Males, $7.00 to $12.00; females, $5.00 and $6.00; eggs, $5.00 per dozen. My winnings at Los Angeles show this month were: Hollands, 1st old pair, 1st young pair and 3rd hen; Bourbons, 1st old male, 2nd hen; Blacks, 1st old pair, 1st cockerel, 2nd pullet; Slate, 1st old male, 2nd hen. Mrs. B. Hocking, Guasti, Cal.

Thoroughbred Mamomth White Holland Turkeys from strong, vigorous prize winning birds, thoroughly domesticated; the stay at home kind. Eggs in season. Orders given prompt attention. Prices on application. Mrs. E. H. Broadwell, Crows Landing, Cal.

Mammoth White Holland Turkeys—A few fine toms for sale. Also eggs in season from two very select pens. Orders given prompt attention. Prices on application. Address H. McKusick, Box 733, Calexico, Imperial County, Cal.

20 Giant Bronze Turkey Toms—From prize winning stock. Weight from 25 to 30 pounds at nine months. Price $8 and $10 each. Mrs. Nellie Hart, Holtville, Cal.

Mammoth Bronze Turkeys. Largest and best flock in the world. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

SEEDS AND PLANTS

Rhubarb Plants—Burbank's Crimson Winter and Wagner's Improved Giant Crimson Winter. We will soon be subdividing again. Now is the time to order. Burbank's, 75c per dozen; Wagner's, $1.50. Special low price on Burbank's by the thousand for early orders, $40.00 per 1000. Wagner's, $80.00 per 1000. Greatest profit per acre of any standard crop. Reginald Bland, San Luis Rey, San Diego Co., Cal.

For Sale—Non-irrigated, San Fernando Valley Grown Seeds. Black Seeded Chilean and Angeleno Melon, 80c per lb.; Improved Hybrid, Golden Beauty and Pineapple Casaba, $1.50 per lb. First class seeds direct from the grower. M. C. Sutton, Van Nuys, Cal.

FREE FREE FREE

Splendid budded rose tree (any color) given to purchasers of following set of trees. Three Golden Drop, 3 Industry, 3 Crown Bob, Gooseberries, 3 Currants, 3 Early and 3 Late Red Raspberry; $1.00 the bundle; 10c for postage. J. Saunders, tree specialist, Yucaipa, Cal.

Sudan Grass—Pure, officially inspected, recleaned Sudan Grass Seed. Prepaid 5 pounds, $2.50; 10 pounds prepaid, $4.50; 50 to 100 pounds, F.O.B. Lubbock, 25c a pound. Cash with order. We guarantee purity. Dee Turner Pure Seed Co., Lubbock, Texas.

Sudan Grass—Government inspected. 2 lbs., $1.50; 5 lbs., $2.50; 10 lbs., $4.00, prepaid. Special prices on larger quantities. Also headquarters for Feterita, White Maize and Black Kaffir. Amarillo Seed Co., Amarillo, Texas.

Sudan Grass Seed—We have a limited quantity of inspected seed that we are closing out at prices that will interest you. Write for our prices; it will pay you. Kimbro & Parks, Lubbock, Texas.

For Sale—2500 Pierce-Isabella rooted grape cuttings, commonly known as California Concords. Fine hardy plants. Address, Barbour Ranch, San Gabriel, Cal.

Berry Plants, Rhubarb, Cacti—It will be worth your while to send me a postal right now if you are interested. Louis F. Scribner, P. 2, Pasadena, Cal.

Sudan Grass, Kudzu, Imp. Alfalfa, Spineless Cactus—The big four forage plants. Prices O. K. Write, J. L. Lawson, San Jose, Cal.

Strawberry Plants—$2.50 per 1000; Magoon, Marshall, Klondyke, Early Ozark and Clark's Seedling. J. W. Vinacke, Canby, Oregon.

Rhubarb—Crimson Winter, $3.00 per hundred; Wagner's Giant, $5.00 per hundred. Good, strong, one-year plants. Currier Bulb Co., Seabright, Cal.

For Sale—Feterita, 10c per pound. Tepary beans 11c per pound; discount on quantities. H. R. Hanna, San Marcos, Cal.

For Sale—10,000 Burbank cactus leaves of highest type. For information and prices write to John Zuur, Santa Rosa, Cal.

Alfalfa Seed—Pure and fine, $12.00 per hundred by the sack. Enquire of H. S. Garrison, grower, Murrietta, Cal.

For Sale—Beldi Barley, clean for seed. H. Pile, Ramona, Cal.

Himalaya Berry Tips—$2.50 per 100; $15 per 1000. A Cooley, Sunnyvale, Cal.

LIVE STOCK

Ohio Improved Chester White (O. I. C.) Entire herd immunized against hog cholera. Nothing but immunized stock sent out. Extra fine lot of fall pigs, both sexes, ready for shipment during December and January. Three herd boars used. All stock crated and registered. Make reservations now. C. B. Cunningham, Mills, Sacramento Co., Cal.

20 Prize Winning Mules—All mare mules won first and specials at Royal American, Kansas City 1913, also Indiana State Fair 1914. Good enough to show at Panama Exposition. Address W. R. Crackel, New Rosslyn Hotel, Los Angeles.

Grape Wild Farm Thoroughbreds—Guernsey Bulls of A. R. Breeding. BERKSHIRE HOGS. Finest herd in the state All ages for sale. A. B. Humphrey, proprietor. Mayhews, Sacramento Co., California.

For Sale—Young registered Berkshire boars and sows; fine, strong stock. Boars ready for service—January. Stanislaus Ranch Co., Crows Landing, Cal.

Thoroughbred Berkshire Boars of all ages; two grade Holstein Bull Calves from seven gallon cows and registered bull; born Aug. 11, 1914, Jan. 10, 1915. $45, $20. Riccomi Bros., Mountain View, Cal.

For Sale—A few fine good Toggenberg Milch Goats; write for description and tell me what you want. C. H. Brown, Box 444, Chandler, Ariz.

Glenview Poland Chins—Stock for sale Chas. R. Hanna, R. F. D. No. 8, Riverside, Cal.

M. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale.

RABBITS

Wilson's Mammoth Flemish Giants mature quicker and grow larger than any other. Our stock won two first prizes at the big Los Angeles show. $2.00 and up. Wilson Bros., 362 West Manchester avenue, Los Angeles, Cal.

Caldwell's Royal Red New Zealands at L. A. show won 15 prizes, including two silver cups. Get wise. Investigate. Catalog on request. Caldwell Bros., Box 613 R, Los Angeles.

HORTICULTURAL PRINTING

Catalogues for the seed and nursery trade. The live stock and poultry industries are a specialty with us. Two thousand illustrations to select from. Write for prices and samples. The Kruckeberg Press, 237 Franklin St., Los Angeles

GEESE

Thoroughbred Toulouse Geese—Large stock. One, two and three-year-old Breeders for sale. $7.00 per pair, $10 per trio. Snapshot photo on request. E. Nelson, El Monte, Cal.

BEES

Beekeeping Pays Big—Price list, construction books, etc., free. Apiaries Co., Box 14, Nordhoff,

WANTED

Wanted—2 more berry growers to come to SANTA CRUZ, CAL., to grow berry plants for us under contract for 5 years; will also buy all the fresh berries when we put up our new berry drier in 1916. We will guarantee that you will double your money each year. We need 1,000,000 berry plants grown each season, and also use 100 tons of berries for our drier. Send for particulars to SANTA CRUZ BULB & PLANT CO., 3 NEW ST., SANTA CRUZ, CAL.

Wanted—Practical man that understands desert land culture, well boring and general farming, one to take charge and handle large acreage and accept nominal wages and percentage of crops for his labors. Must be practical worker and come recommended. Apply to H. M. L., Room 612, No. 110 Sutter street, San Francisco, Cal.

Wanted—A reliable party to put out large acreage to Burbank Cactus on half shares. For information write to John Zuur, Santa Rosa, Cal.

Wanted—Contract for grafting walnut trees. Am in a position to handle all orders promptly in a satisfactory manner. Oliver C. Geyer, 214 S. Almansor street, Alhambra, Cal.

Wanted—About 50,000 sweet potato plants for April delivery. Quote best prices and give references. Lancaster Feed & Fuel Co., Lancaster, Cal.

Position Wanted—As foreman of ranch by practical farmer, experienced general ranching and bookkeeping; reference. Box C, Cultivator Office.

Wanted—To hear from owner of good farm or unimproved land for sale. C. C. Buckingham, Houston, Texas.

JELLY FROM CITRUS FRUIT

(Continued from Page 101)

checks evaporation which would result in the formation of crystals at the surface.

Summary of Process

Palatable orange jelly has been made as follows: 1: Slice thin or crush oranges. 2: Place in pot with enough water to prevent burning. 3: Heat slowly to boiling and boil till soft. (45 to 60 minutes). 4: Press through heavy cloths. 5: Let stand 24 to 36 hours. 6: Draw off or decant clear liquid; filter sediment through heavy cloth. 7: Add clear juice of two lemons to jelly stock from one dozen oranges. 8: Add sugar and dissolve by warming. Adjust to 58 to 62 Balling or 32 to 34 Baume. One and one-half volumes sugar to one volume of stock gives this result approximately. 9: Heat to boiling, boil three to four minutes and skim. 10: Pour into glasses and cover with melted paraffin.

Lemon Jelly—1: Slice or crush. 2: Press out juice. 3: To pulp and peels after pressing add just enough water to cover. Proceed from this point as with oranges.

Yields—Yields in laboratory tests when calculated to yields per ton basis were 150 to 300 gallons jelly per ton or 2000 to 4000 small glasses per ton.

Bitterness—Oranges at the beginning of the season give a slightly bitter jelly; thoroughly ripe fruit does not give a bitter flavor.

Flavor—A great deal of the orange flavor is lost during boiling; orange oil or extract can be used to advantage by adding it to the jelly ofter it has cooled to 150 degrees Fahrenh... or lower.

VINEYARD PRACTIC...

(Continued from Pa...

season, and especially ... should be so treated ... sunburn of grapes aro... of the vines, which ... greatest hindrance ... crops by the ... said his ... was th... new ... es...

vation, as often as 16 or 17 times through the season, and also on pruning as late as possible in the spring just before the new growth starts on the vines, and thought it of great importance to have heavy irrigation in the fall just after the first heavy frost in order that the vines may have plenty of moisture during the period they are dormant, with which to prepare for a strong new growth in the spring, and gave illustrations from practical experience.

Cut Out Old Wood

All old wood should be cut out as far as possible and new wood brought up from the stump of the vine every year, according to his ideas, to an extent very different from the ideas of most vineyardists at present. With Thompson Seedless, for instance, he is positive that by pinching back the tips of the new canes at a point just below where the last fruit bud comes out they could be increased in their crops to a normal average of four tons per acre instead of the one ton or less which is now quite common. To pinch off buds in this way he estimated might cost $6.00 per acre, but that was immaterial for the crop could be doubled or quadrupled. This pinching process must be carried on within about 14 days before the vines bloom and could be kept up at intervals later in the season, and if well done would, on Muscats particularly, produce a very large crop so quickly following the first crop that they could all be picked at one time and all be larger grapes and make better raisins than by our present methods.

As to sulphuring vines, he was very strong in his belief that far more sulphur should be used than most growers are now using, that 30 sacks per 100 acres was little enough, and that sulphuring should be done at least evry 10 or 12 days, starting before the buds come out in the spring and continuing six or eight times during the season. He gave effective illustrations from various vineyards named of the profit of a great amount of sulphuring as compared with its stingy use, and for this reason favored the old gunnysack method of spreading sulphur rather than the use of the modern sulphuring machine which encourages the operator to the use of little sulphur in order to save refilling often.

Destroy Mildew Wood

He was as radical about cutting off all mildew wood as he was about sulphuring for the prevention of mildew and stated cases where he had cut off all the new wood of Muscat vines early in the summer when they were badly affected and had started out a complete new growth with great ad... for both the cur... ting mildew

ESTABLISHED REX 1896

For Citrus Spraying

REX LIME and SULPHUR SOLUTION

Minimizes Scale Troubles, Controls Red Spider, Destroys Fungous Growth, Tones and Vitalizes the Trees.

For Deciduous Spraying

REX LIME and SULPHUR SOLUTION

Kills the Insects, Destroys the Eggs, Deadens the Fungus Spores, Is a Tonic, Fertilizer and Vitalizer for the Trees. Is the best general clean-up Spray there is. Most efficient and used in larger volume for Peach Leaf Curl and Twig Borers year after year.

For Vineyards

REX LIME and SULPHUR SOLUTION

Sprayed on vineyards during dormant season, destroys the fungus spores and equals any spray in controlling mildew.

The Rex Companies Specialize Spray Materials and our chemists devote their entire time to this work. Eighteen years of continuous Spray business means that Rex Sprays have the virtue. They are the standard.

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WRITE FOR BULLETINS

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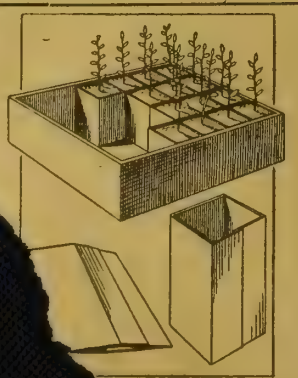


Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Trees Near Line

Would like to ask the legal department regarding eucalyptus trees near line. What steps must I take to have them removed? Can I claim part of the wood? I have no use of land for at least 20 feet from the trees.—Subscriber, Hynes.

If the trees are on the line they may be removed by consent of both parties only. If entirely on the land of the neighbor then one is helpless to have them removed unless they may be declared a nuisance, which it would be difficult to do. The owner of adjoining property is within his rights when he cuts a trench along by his line, stopping the feeding of the roots on his land. If, however, these trees have damaged the land, as indicated, to the extent of 20 feet and the owner can show definitely a certain cash loss, this can possibly be recovered. We do not know that this has ever been tried, however. This query is not referred to the legal department for the reason that similar ones have been answered many times practically as above.

Garlic

Would like instruction as to culture of garlic?—Subscriber, Days Creek, Ore.

Would refer our subscriber to the issue of the Cultivator of February 26, 1914, containing cultural directions by Mr. Murdock.

Grafting Muscats

Is it advisable to graft two-year-old Muscat vines into Thompson Seedless?—N. D. E., Del Rey.

Whether or not it is advisable to graft two-year-old Muscat vines into Thompson Seedless will depend on the circumstances. If your grape vines are very vigorous and if there is a complete stand and if you have only a few vines to graft and an expert man to do the work it may be advisable to do so, but on the other hand if you have in your county the phylloxera which may infest your vineyard at any time, I certainly would not waste any money on grafting the Muscat vines. If the variety is unsuitable to your locality and if your grape vines are only two years old it certainly would be more convenient to plant either Sultanina grafted on a resistant stock or the Sultanina on its own roots. We must not lose sight of the fact that no matter how experienced a man may be along the line of this work, not every grafted vine is going to make a complete union in the first place and secondly not every grape vine will grow, hence we have to either regraft or in certain cases dig out the vine and replant. If the vineyard was mine I certainly would not hesitate for one moment to dig out the Muscat vines and plant Thompson Seedless, either bench grafts or Thompson Seedless on their own roots.—F.

[illegible] in Dinuba

[illegible] should one plant potatoes in [illegible]tion?—Subscriber, Dinuba.

Your neighbors and your nearest weather bureau station can answer this better than can one at a distance. Potatoes are planted in California from December until the next December, depending upon the locality. As a rule, the early spring crop is planted in late January and through February and early March but there are sections where it would be of little use to plant potatoes any earlier than one would in some eastern and northern states. On warm sandy loam where there is good drainage it would probably be safe to plant potatoes in the Dinuba section any time during the next month or surely in March.

Lime-Sulphur Solution

I wish to spray peach and apricot orchard with Rex solution but do not know how to mix it. What proportion of lime, sulphur and salt should one use? Can I mix it strong and dilute? —Subscriber, Selma.

The term "Rex" solution is used to apply to a commercial wash put up by a large concern in this state and it is complete with the addition of water and without the addition of any lime, sulphur, or salt. Doubtless the container in which it is sold gives proportions in which it may be used but we imagine for dormant trees it is about one gallon of the solution to ten gallons of water. The lime, sulphur and salt solution may be mixed at home if desired but in modern practice salt is seldom added as the lime sulphur solution is usually considered adequate. As to information regarding the mixing of this wash would refer to the special spray number of the Cultivator which was issued September 11, 1913.

Dressing for Wounds

I have just pruned my olive trees, having cut off the tops quite severely, and consequently have left quite a large surface of fresh open wood on some cuts. Should these be treated in any way to cover the wound?—Subscriber, Oakland.

Where a wound is large it is best to cover with an antiseptic or a paint of some kind in order to prevent moisture from aiding the entrance of fungus spores. Some paint the cut surface with bluestone or with Bordeaux but the result is not permanent unless followed with an application of grafting wax, tar, or similar substance. A good lead and oil paint, if the oil is not permitted to come in contact with the bark of the tree, is entirely satisfactory. The wax and shellacs are somewhat inclined to pull off and crack. Common coal tar is perhaps one of the best but this, like the oil in the paint, must not be allowed to come in contact with the bark. Perhaps the most common of all, so far as general use is concerned, is the ordinary grafting wax consisting of two pounds resin, two pounds beeswax, one-fourth pound tallow, with a little linseed oil.

Eucalyptus Leaves for Mulch

Can the leaves and litter from a eucalyptus gum be profitably used as a fertilizer or mulch for an orange grove? If the latter, how and when best applied? If the former, how best decomposed and applied?—Subscriber, San Diego.

There is no reason why these leaves

should not be applied directly to the soil, either left on the surface as a mulch or plowed under, assuming they are to be used in an orchard. The newer horticulture seems to demand for California soils the incorporation of anything in them which will loosen up and allow the water to get into the lower depths. Some go so far as to plow under the smaller orchard brush, old boots, tin cans, or anything of a similar nature. We would certainly not miss the opportunity to plow under eucalyptus leaves or similar material.

Walnut Trees Not Bearing

I have two large walnut trees in my yard which give me but few nuts. What kind of fertilizer should I use to induce them to bear?—Subscriber, Rialto.

It is difficult to say with any degree of certainty what may be the reason these walnut trees do not bear. There are trees which never have even a moderate crop, whatever may be done for them, so it is possible the trees you have may be of that kind. If the trees are growing well and have had large leaves I would advise putting on about 15 to 20 pounds of 17 per cent superphosphate to the tree. This should be spread all over the ground for 25 feet in each direction from the trunk and plowed under. Then if the growth is very bushy I would prune out until I was sure the sunlight would get through so as to show patches of sunshine on the ground when the tree is in full leaf. This pruning can be done any time before the buds open. Do not be alarmed if sap should run from the cuts as there is plenty more water in the ground, or should be at any rate.—J. B. Neff.

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.
Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Renewal of Mortgage

Does a mortgage have to be renewed and how often?—Subscriber, Bachelor.

The renewal of mortgage is only for the protection of the mortgagor, as after it is due suit for foreclosure can be filed at any time. It should be renewed each time it becomes due.

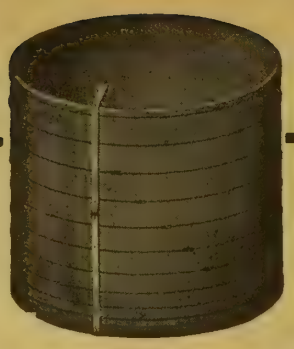
Division of Ranch

A and B own a ranch undivided; A afterwards got a pasture range cornering on the undivided ranch and wants B to divide and give A the undivided half next the pasture range, which is more valuable with the pasture range, as the one-half is more valuable for farming and alfalfa, but B wants the same one-half as A. How is best to divide when both want same?

If you cannot arrange to amicably divide the pasture, an action may be taken to have the court divide or sell the same.

Employer's Liability

I hired a man to help me pick oranges. While at work on the first tree a limb swung back in such a way as to injure his eyeball so that he was obliged to quit work and return home where he has been confined under the doctor's care. Am I responsible and to what extent?—Subscriber, Orange.



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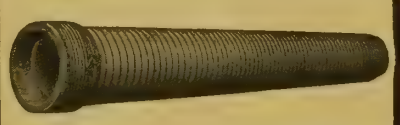

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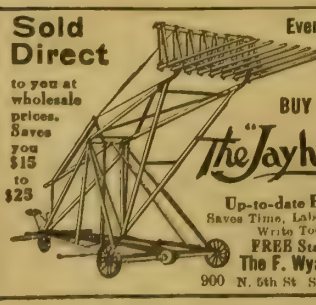

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Redemption After Foreclosure

A, B, C and D each own an undivided one-fourth interest in 160 acres of land on which is a mortgage. Party holding mortgage forecloses and land is sold to A. Can B redeem all of the 160 acres within one year or can he redeem only his undivided one-fourth interest?—Subscriber, Lemon Cove.

Assuming that the above mentioned parties were co-tenants the purchase under mortgage foreclosure by A was, notwithstanding any design he might have to the contrary, for the common benefit of all of the co-tenants. The title acquired by him is held in trust for the others if they choose within a reasonable time to claim the benefit of the purchase by contributing or offering to contribute their proportion of the purchase money. B, if he should redeem, would stand in the same shoes as A. In other words, any of the parties by offering their proportion of the amount paid by A can be restored to their former possession. In order to foreclose their rights A would be required to bring action against them to foreclose the lien which he has secured on their interest by the purchase of the foreclosure sale, and anyone of the co-tenants could by action against A and upon payment of their proportion procure a judgment restoring them to their title.

Suit to Collect

A man refuses to pay his bill and dealer brings suit. The wife homesteads the property to protect herself and in consideration of the dealer dropping the suit against her husband she signs a note which the husband does not sign. Can the dealer collect without the husband's signature? Can he take her home after it is homesteaded?—Subscriber, Riverside.

The dealer can bring action against the wife and get a judgment upon the note as the consideration for dropping the suit is sufficient to hold her. Under execution in such action he cannot sell the homestead.

Sale of Estate

A father, at his death, deeded his home to his three daughters, all of age. Two wish to sell; the third wishes to remain in the old home and does not wish to sell. She is not able to buy the two-thirds interest belonging to the others. Can she be forced to sell her interest?—Subscriber.

The third daughter cannot be forced to sell, but the other two may bring action for a partition and have the property either divided or sold, in which event each would be given one-third.

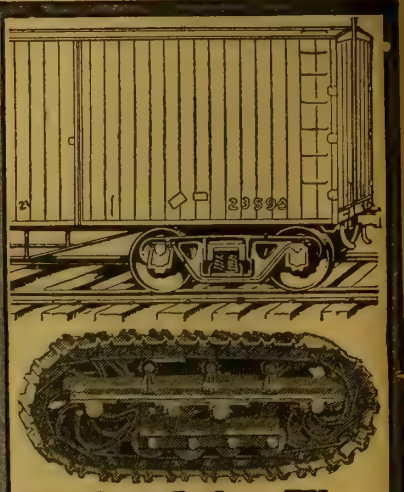
KEEP EVERYTHING WORKING

It has been recognized by business men that everything must be kept at work if an enterprise is to prosper. Loafers will kill any business in the long run. The business of farming is no exception. Unfortunately, definite rules are not as easily worked out for farm operations as for many other kinds of work, but as knowledge accumulates it becomes easier and easier to establish general principles of this kind. One farmer called attention to the fact that about the first of September a great many of the hens in a poultry plant either cease laying or do not lay enough eggs to pay for their feed. He advises immediate sale unless there is some especial reason for keeping them for the remainder of the season, for so far as these hens are concerned failure to sell will result in loss. Dairymen recognize that unless a cow produces during the season more than enough salable product to pay for her keep, which includes interest on the investment, she should be disposed of. Any animal which ceases to be profitable ought to be sold immediately, unless for some sentimental reason or other it is to be retained. This failure to keep everything working is a terrible handicap for agriculture. It will never be possible, of course, to determine just what animals are profitable until comparatively accurate records are kept. The up-to-date farmer is doing this and he must do it more and more. A field which does not produce enough grain to pay the interest on the investment, the cost of production and then some, must be so treated that it will show this profit. All these things require thought and study. It makes it necessary for the farmer himself to do less manual labor and work harder with his brain. In the long run, it will be found that brain work is much more profitable than manual labor. It will also be found that it is more wearing, but the combination of the two works very nicely.—Orange Judd Farmer.

IMPROVING CEREALS BY SELECTION

The experimental farm at Guelph, Ontario, Canada, in some respects at least, may be regarded as a model of what such an institution should be. Of particular interest and most prolific of solid information to the visiting farmer are the trial beds of the various cereal crops. Professor Zavitz, who conducts these trials, is more than an investigator. He has also brought out practical results in the improvement of cereals by selection that are quite remarkable and point the way for other propagators to follow. The province of Ontario produces a great deal of barley, perhaps more pounds of it than of oats, and the cultivation of that cereal is still increasing. The barley grown is mostly of two varieties; one introduced from Russia 23 years ago, all started from one pound of selected seed. The other variety was started from a single plant selected at the station grounds by Professor Zavitz ten years ago, and is now called O. A. C. (Ontario Agricultural College) No. 21. It is a six-rowed variety, weighing 50 or 51 pounds to the measured bushel, and yields more heavily than the older varieties. This barley has been distributed from the station to farmers in pound lots, and is now, after so short a time, the leading sort grown in the province, increasing the aggregate barley crop of the province to a considerable extent.

Ontario also produces about $40,000,000 worth of oats, and this is the crop of which more bushels are grown than of any other grain crop. One of the drawbacks of the oat-growing business is the large number of varieties grown, as this results in an uncertain and varying product, so that buyers are never sure of what they get. Buyers do not get enough of any one kind, and there is danger of the growers losing their market. The station has now started another variety from a single plant selected among many thousands as the best. It is a Siberian oat, now called O. A. C. No. 72, and has already been distributed among 300 farmers in pound lots. It is thought probable that in three or four years this variety will take the place of all other varieties grown in Ontario. All this is very interesting. What has been done and is being done in Ontario can be done in other places, and by other investigators and propagators, not only in cereals, but also in other lines. The field of opportunities for improvement is wide open and exceedingly promising.



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The Household Department

WHAT OF THAT?

Tired? Well, what of that?
Didst fancy life was spent on beds of ease?
Fluttering the rose leaves scattered by the breeze?
Come, rouse thee; work while it is called the day!
Coward, arise! Go forth upon thy way!

Lonely? And what of that?
Some must be lonely; 'tis not given to all
To feel a heart responsive rise and fall;
To blend another life into its own.
Work may be done in loneliness; work on!

Dark? Well, and what of that?
Didst fondly dream the sun would never set?
Didst fear to lose thy way? Take courage. Yet
Learn thou to walk by faith, and not by sight.
Thy steps will guided be, and guided right.

Hard? Well, what of that?
Didst fancy life one summer holiday?
With lessons none to learn, and all of play?
Go, get thee to thy task! Conquer or die!
It must be learned; learn it, then, patiently.—Selected.

THE BOUILLON TEST

THERE were three of them—Laurentine, who was beautiful and talented, Barbara, who was talented and beautiful, and Peggy, who was nothing but a girl. The description was Peggy's; whenever the others heard it, they always fell upon her, both literally and figuratively.

"You know you're the best-loved girl in the village, Peggy," Laurie would say; and Barbara would add, "Peggy's a fraud. She knows that the youngest is always Fortune's favorite. She's really expecting the fairy prince any moment."

That was when Peggy was eighteen and Laurie twenty-one. Before Peggy was nineteen, things had happened—so many things all at once that the girls were dazed by them. The first was the appearance of the fairy prince. He was a very modest fairy prince, and it would be several years before he could carry off the princess, because a young doctor—he had come as assistant to their father, Doctor Armstrong—has to make his way slowly. Moreover, he came not to Peggy, but to Laurie. Young Doctor Dana was a fine, frank fellow, much in love with his profession, as well as with the doctor's daughter.

"You'll be doing it next," Peggy said to Barbara one night.

"I'm not that kind," Barbara scoffed. "I want to study biology. Just the little bit I can do in father's little laboratory makes me wild. It's you who'd better be careful."

"Gracious, no! Why, there are some things I want to do myself."

"You'll never get time to do them—not in this town, where all the old ladies and children think you belong to them."

Peggy sat up, with her hands about her knees and a very earnest look in the eyes under her tumbled red-brown hair.

"You know, Barbara," she said, with unwonted seriousness, "that's exactly one of the things that's bothering me. You know that father thinks every girl ought to be able to support herself. You and Laurie could do it—Laurie with her music, and you—father said only last week that you could teach physiology as well as any medical professor; but I—I can't do anything except the home things, and odds and ends that anyone can do. It's—very—discouraging."

There was actually a little break in Peggy's voice.

Probably neither of them would have remembered the conversation if it had not been for the things that happened that spring. A few weeks after their talk came the first great sorrow of their lives. In April, Doctor Armstrong was called out at midnight in a heavy storm. He had not been feeling well for some time. He came in at breakfast time utterly exhausted. Before night he was in a heavy fever. People drove over the wintry hills to inquire for him with tear-choked voices. Dana, as devoted as a son, had hardly twelve hours' sleep in four days. But neither love nor skill could avail, and at the end of the four days the doctor died. He had given himself for his pepole until he had no more to give.

The Armstrongs bore their sorrow with the same gallant spirit that the doctor had shown in his life. The family settled down to the new existence with a brave memory in their hearts. They had a little to live upon; they had their own garden and fruit, and they made their own clothes.

Then, suddenly came the second blow. Squire Jeffries seemed singularly embarrassed when Peggy opened the door for him. He asked for her mother, and soon was having a long talk with her in the library. Then the old squire went down the path, switching the bare bushes with his stick—a sure sign that he was troubled and displeased about something.

Mrs. Armstrong called the girls together, and told them. It was the $1,000 mortgage that Doctor Armstrong had put upon the house during the hard winter three years before, when there was so much suffering everywhere. He could not press his bills in such a season, and because he could not let his people die for want of food and fuel, he had given money out of his own pocket. The mortgage was held by Sam Custin, the rich manufacturer of Pierpont; he had taken a fancy to the old white house and lovely garden, and he refused to extend the mortgage; it would fall due in six months. And Squire Jeffries had gone off in a towering temper because Mrs. Armstrong would not let him pay the mortgage outright, and had only gruffly consented, after long argument, to take the mortgage, with the time extended, himself.

"But we mustn't ask Mr. Jeffries for another extension," said Barbara. "He really isn't rich."

"What shall we do—use the Y. P. S. money?" Laurie asked.

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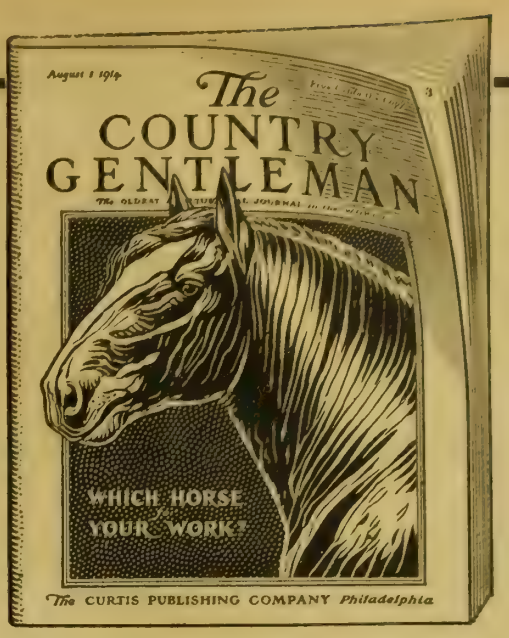

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"But they are twenty-year bonds," Barbara reminded her. "We can only use the interest. Of course, we might sell them, but it might take time or be at a loss."

"And eggs—or—gingerbread! It wouldn't be possible to earn $1,000 in such a short time," Peggy said.

"But I don't see any other way," Laurie said, slowly.

"Any other way than what?" Barbara asked.

"Than to accept Squire Jeffries offer. Of course we'd transfer the mortgage to him, and pay it back as fast as we could. If one of us could get a position!"

"Yes, or if one of us could come into a fortune!" said Barbara, with tears in her eyes. "Positions are so easy to get on a minute's notice!"

Yet, they all agreed, that was the best thing to try. Barbara could write to a teachers' agency, and Laurie could try for a position as companion. As for Peggy, there was nothing for her to be except her mother's assistant and Jack-of-all-trades. And that consciousness made Peggy slip away to her old childish hiding place in the attic, bury her red-brown head upon her arms, and cry. She felt as if the old house were a part of their very lives that could not be torn from them without leaving a vital wound. It had been her father's home, and his father's before him; and it only needed $1,000—

Peggy sat up suddenly. People owed her father hundreds of dollars—she knew that they did. Surely they would want to pay—for his sake. She would look up his account books.

She flew down to the office. It was quiet there. Peggy took down the big ledger, and began studying it breathlessly. There were the Nelsons; why, the Nelsons alone owed $97—and that at the very lowest rates. That was nearly a tenth of the whole mortgage. And the Andersons—father had been going regularly to old Mr. Anderson for seven years; and there were the Craigs and Mrs. Bennet. Peggy worked on and on; $400—$500— Her brown eyes were shining now, and her tumbled hair was more tumbled than ever. She leaned over and joyously patted her father's old medicine case.

And then a strange thing happened. Suddenly she seemed to see her father's face; and in his steady gray eyes there was a look of sorrow. She looked at the sheet of figures before her, and all sorts of memories thrust themselves upon her. The Nelsons—yes, undoubtedly they owed that money, but how could they pay except by selling their two cows, and then what would the children do? And old Mr. Anderson—she remembered how he sat, shrunken and shriveled, the last time she saw him. And the Craigs, and Mrs. Bennet, and the Lucketts.

"Oh!" she cried, with a little sob. "O father, I didn't understand—I didn't understand!"

And she tore the sheet of paper to little bits. Laurie's advertisement brought no answer at all, and the teachers' agency told Barbara that it was hard for anyone without experience to get a position. Peggy was raising chickens, and Barbara made gingerbread, and Laurie planned to put up preserves and jellies but at the most they could not expect to earn more than $100. A hundred—possibly—out of $1,000, and two months gone!

Then came a letter that threw them all into excitement. It was from Mrs. Norman, an old schoolmate of their mother, who had opened a tea room in Boston the year before, and who now was to open one for the summer at a seashore resort. She needed a manager, to whom she would pay, if she could find the right one, $800 a year. The work was not hard, but it required tact and taste. Remembering her old friend's skill, and knowing that so many girls were eager to earn their own living, she wondered whether one of Mrs. Armstrong's daughters would not consider the place. If so, Mrs. Norman would run up for a day and talk the matter over. The girls looked at one another. If they could—if only one of them could! A year and a half—two years at most—would pay the mortgage and all the extras, and make the home theirs forever.

"I ought to be the one—I am the oldest," Laurie declared.

"But—to leave Dana!" Peggy objected.

"And I'm stronger than you are, anyway," Barbara argued, "and besides, though you can make jellies, nobody can beat my gingerbread."

Peggy sighed. It would be of no use at all for her to think of it. Then her happy common sense came to her rescue as usual. They would all be helping to save the home, no matter which one actually earned the money. She flung herself whole-heartedly into the future.

"Let's plan Mrs. Norman such a luncheon!" she cried. "And oh, if it's pleasant, let's have it out on the porch! It's so lovely looking down into the garden, now that the June pinks and the larkspur are in bloom."

So they began to plan. There should be consomme and fried chicken, and Peggy's little biscuits, preserves and salad, and Barbara's gingerbread and whipped cream, and fresh strawberries, and coffee in the New Orleans fashion, with the cup half full of pecans.

"It may be new to her so," Peggy suggested, "and if she doesn't like it, she can have coffee any way she does like it, afterward."

A week of beautiful weather made the strawberries delicious, the garden was at its loveliest, and even the first roses bloomed in time for the luncheon. There was to be a bowl of rosebuds in the center of the table and a half-opened rose at each plate. As she arranged the table, Peggy broke into little snatches of song; she loved to make things pretty! Laurie's soft color was heightened by the excitement, but Barbara's lips were tense. Barbara was taking it hard. Yet when Mrs. Norman met the group at the steps, she thought that it would be hard indeed to choose among the girls, each charming in her way.

Ten minutes after Mrs. Norman's arrival, while they were all talking on the piazza, the gate opened, and three elderly ladies appeared. Barbara gave a gasp, and murmured something that sounded to Mrs. Norman like "Angels defend us!" The next instant the new arrivals were being greeted and introduced with the utmost simplicity; Laurie took their wraps, and Barbara and Peggy ran into the house for chairs. In the dining room, however, the three girls looked at one another in consternation.

"Of all days in our lives to have cousins twice removed drop in!" Barbara groaned.

"We'll have to set another table," Laurie said. "It is fortunate we hadn't begun. We can bring the little round one from the front room. We —girls, there isn't consomme enough to go round!"

Peggy's eyes began to dance. "We can fix it," she declared. "We three will have the little table anyway." In a whisper she told them how she would solve the problem, and then ran to the kitchen, bubbling with laughter.

The extra table was arranged quickly and quietly. The girls did not guess how keenly Mrs. Norman had watched them, and they were too much absorbed in their tasks to notice the pleased look in her eyes. Twenty minutes later Peggy, white-aproned, with a rosebud tucked into her rebellious hair, was serving the consomme. There seemed to be enough to "go round," but once Mrs. Norman heard a chuckle at the small table, and glancing quickly up, saw Barbara blush suddenly, and observed that Peggy's eyes were full of laughter. Mrs. Norman again smiled to herself.

The luncheon was delicious. The guest of honor noticed many things. She saw that, although the strawberries were served in the French fashion, on the stem, there was another dish of them, hulled, for the old cousins, and that there was tea, as well as coffee and pecans; each guest's preference had been remembered. After the luncheon, they all sat and talked upon the piazza. But time was passing—and it was evident that the cousins had come to spend the afternoon. Mrs. Norman presently turned to the girls.

"Won't you show me your garden?" she asked. "It looks so beautiful out there."

The girls agreed eagerly. They wandered up and down, gathering flowers for their guest, talking of a score of things, thinking only of one, until finally Mrs. Norman turned toward a shady bench.

"Can't we sit here and talk business a few minutes? I hate to leave all this, but my car goes at ten minutes past four, you know. My dears, you have put me into such an embarrassing place! I want you all! But tell me—who made those delicious little biscuits?"

"Peggy," her sisters replied together.

"And the delicious salad?"

"Laurie."

"And the gingerbread?"

"Barbara."

"But that's my only specialty," Barbara added, honestly.

Mrs. Norman laughed softly. "It is just as I foresaw—there's no choosing among you. Who arranged the menu?"

"All of us. And Peggy did the flowers, and Laurie embroidered the lunch cloth, and Barbara thought of the porch arrangement."

Mrs. Norman leaned forward with dancing eyes.

"And who," she asked, "forgive me, but who thought of using tea in place of bouillon?"

There was a second of astonished silence; then laughter and questions.

"How did you guess? We didn't suppose anyone could possibly—it was so exactly the same color. Oh, we didn't make a mistake and give you—" Laurie broke off in consternation.

"You didn't make any mistake; my bouillon was bouillon, but I happened to see Barbara absent-mindedly put sugar in hers, and then your faces told me the rest. It was a clever substitute. Whose thought was it?"

"Peggy's," Barbara replied. "Peggy always can think of a way of making things go round."

"Then," Mrs. Norman answered, smiling, "if you can spare her, I think I shall take Peggy. But if for any reason she would rather not come, I shall count myself fortunate to have either of you who will."

"O girls!" cried Peggy. I didn't suppose that I could ever help—really."

That night, too much excited to sleep, Peggy lay thinking over the wonderful afternoon. It would be hard to be away from everyone for a year and a half, but to remove the debt from the dear old home—father's home! A lump came into her throat at the thought of that. She would gladly have worked ten years for the home. And all the time Barbara could be working and saving for the study she so longed for, and in a year and a half Peggy would be back home, forever and ever!

Outside the window the elm branches brushed the roof lightly in the night breeze that whispered softly through the leaves. In the darkness Peggy's happy eyes filled with tears.—Youths' Companion.

IDEAS FOR THE COOK

Written for the California Cultivator
By Isabel Cottle

Breakfast

Halves of Oranges
Broiled Beef Patties
Apple Fritters Sugar Syrup
Buttered Toast Coffee

Lunch or Supper

Scalloped Codfish and Rice
Fried Egg Plant
Zante Muffins Warm Apple Sauce
Tea or Milk

Dinner

Scotch Broth
Veal Loaf Browned Potatoes
Creamed Spinach
Lettuce and Grapefruit Salad
Chocolate Farina Pudding, Cream
Coffee

Scalloped Codfish and Rice

Blanch one-fourth cup rice by covering with two cups cold water; put over the fire, stirring occasionally while heating to prevent its sticking; boil five minutes, drain on a sieve and rinse with cold water. Return to the fire in a double boiler, add one and one-fourth cups milk and one cup salt codfish, previously soaked over night. Cook until the rice is nearly done and the milk absorbed. Put in a baking dish, cover with one-half cup medium white sauce. Sprinkle with buttered crumbs, place in the oven and bake about 20 minutes or until well heated through and browned on top.

Chocolate Farina Custard

Heat one pint milk in a double boiler; when hot, sprinkle in four teaspoons farina. Cook slowly at least 15 minutes. Add two ounces grated chocolate to the yolks of three eggs beaten with four tablespoons sugar and then add slowly the hot milk; return to fire, cook a few minutes, then cut and fold in the stiffly beaten whites of the eggs. Cook two or three minutes longer to cook the egg, add one teaspoon flavoring, pour into wet moulds and set away to cool. Serve with cream.

Zante Muffins

Cream one-fourth cup butter and one-half cup sugar; add two eggs well beaten; mix well, then add three-

(Continued on Page 127

Four rounded tablespoonfuls Ghirardelli's Ground Chocolate; two cupfuls sugar; one cupful milk; butter the size of a small hen's egg; one teaspoonful vanilla; two drops lemon extract. Boil sugar, butter and milk until thick and add chocolate; cook until thread spins when tried; then add extract and take from fire, stirring until nearly cold or becomes sugary. Turn on a well buttered dish and cut in squares.

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Los Angeles Market

LOS ANGELES, Jan. 27, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade 4 cents above following quotations:

Creamery Extras	.29
Firsts	.26@27
Country	.23
Ladle	.21

CHEESE

Prices to trade, 1 and 2 cents higher:

California Fresh	.15@15½
Domestic Swiss	.20@21
Eastern Daisy	.18½@19
Longhorn	.19@19½
Imported Swiss	.36@38
Oregon Triplets	.17½@18

EGGS AND POULTRY

There has been a slight decline in eggs since last week. Large supplies are coming in daily.

Prices to trade, 3 cents higher than following quotations:

Fresh Ranch, case counts	.28
Candled	.30@32
Northern case couts	.29½
Petaluma-Santa Rosa	.30½

Prices to producers:

Hens, lb.	.15@18
Roosters, old	.9
Broilers, lb.	.26
Fryers	.20
Roasters, lb.	.15
Turkeys	.19@20
Ducks	17
Geese	.16
Squabs, doz.	2.00

LIVE STOCK

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs., per cwt	7.60
Prime Steers	.7¼@7½
Heifers	.6¼@6½
Calves, lb.	.8½@9
Sheep—	
Ewes, head	4.50
Wethers	4.50@5.00
Lambs, head	4.50@4.75

POTATOES

Wholesale selling price:

Idaho	1.50@1.60
Early Rose Seed	1.90@2.00
White Rose Seed	1.50@1.60
Sweets, lug	.75@80
New Potatoes	.6
Northern Burbanks, cwt	1.45@1.50
Salinas	1.90@2.00
Shimas	1.50@1.60
Lompocs	1.90@2.00

ONIONS

Australian Brown, cwt.	1.35@1.50
White Globe	4.50@4.75
Yellow Danvers	1.35@1.50
Spanish Red Globes	1.25@1.60
Sets—	
Yellow	.9
White	.10
Garlic	.17@18

VEGETABLES

Wholesale selling price:

Artichokes, Northern, doz	.75@90
Beets, doz.	.30@35
Beans, String	.16@18
Cabbage	.65@75
Carrots, doz.	.30@35
Cauliflower, doz	.75@85
Celery, crate, northern	3.00
Local	2.00@2.25
Cucumbers, hothouse	.75@2.00
Egg Plant	.14@15
Escarole, doz.	.40
Horseradish, lb.	.9@11
Leeks, doz.	.35@40
Lettuce, crate	.75@80
Mint, doz.	.35@40
Mushrooms, Outdoors, lb.	.25
Okra, lb.	.9@10
Onions, Green, doz. bunches	.15@20
Oyster Plant	.35@40
Peas, lb.	.16@18
Parsnips, doz.	.30@35
Peppers—	
Bell, lb.	.13@15
Chili, lb.	.6@8
Pimientos	.14@15
Pumpkins, lb.	.1@1½
Radish, doz.	.20@30
Rhubarb, box	.80@1.00
Spinach, doz.	.20@25
Squash—	
Summer, lug	1.25@1.40
Chayote, lug	.75
Crookneck	.50@60
Hubbard, lb.	.1¼@1½
Turnips	.30@35
Tomatoes, lug	1.50@1.75

FRESH FRUIT

Wholesale selling price:

Apples—	
Bellflowers	.75@1.00
Rome Beauties	1.25@1.75
Pearmains	.85@1.10
Bananas	.3@3½
Berries—	
Strawberries, basket	.5@10
Blackberries	.13@15
Raspberries	.12@15
Casabas, crate	3.00
Cranberries, bbl.	8.75@9.00
Figs, box	1.50@1.75
Grapes, lug	1.25@1.35
Guavas, bsk.	.3@5
Pears, Winter Nelis, lug	1.50
Persimmons, lb.	.5@8
Pineapples, lb.	.5@5½
Pomegranates, box	1.35@1.60
Quinces	.65@75

CITRUS FRUIT

Wholesale selling price:

Lemons	1.00@2.00
Grapefruit, Seedless	2.00@2.25
Navels	1.75@2.00
Tangerines	1.50@1.75
Limes, basket	.75@1.25

DRIED FRUITS

Wholesale prices to retailers are:

Evaporated Apples, Fancy, lb. boxes	.6¼@11½
Apricots	.8¾@11½
Nectarines	.12½
Peaches	.5¾@6¾
Pears	.10@11
Prunes	.5¾@16
Plums	.10

HONEY

Wholesale selling price:

Comb, Fancy, Water White	.14
White	.12
Light Amber	.11
Extr. Water White	.7
White	.6½
Light Amber	.5½
Beeswax	.32

NUTS

Prices named by California Walnut Growers' Association are:

No. 1	.16½
Budded Walnuts	.20
Jumbos	.19
No. 2	.12
Culls	.9

Prices fixed by California Almond Growers' Exchange, f. o. b. California.

Almonds—	
Nonpareil	.21
I X L	.20
N P U	.19
Drake's Thinshell	.15
Pecans	.17
Peanuts—	
California, Raw	.6
Japan	.7½
Eastern	.7½
Rice Corn	5.00@5.25

RICE

Wholesale selling price:

California	4.75@5.00
Broken	3.75

BEANS

Wholesale selling price:
Producer's price not far from one dollar under these quotations:

Limas	6.25@6.35
Bayous	7.00
Lady Washington	6.00@6.10
Pinks	5.75@5.85
Black Eyes	6.50
Lentils	10.00@12.00
Navy	5.25@5.35
Small White	6.00
Garbanzos	7.00@7.25

HAY

Buying prices f. o. b. cars Los Angeles:

Barley	10.00@11.00
Wheat Hay	10.00@11.00
Tame Oat	11.00@13.00
Alfalfa	9.00@11.00

GRAIN

Wholesale selling prices f. o. b. Los Angeles:

Corn, Yellow	2.15
Corn, White	2.25
Wheat	2.75@2.90
California Red Oats	2.10
Oats, Red	2.50
Oats, White	2.15
Oats, Hulled	2.75
Millet	3.75
Popcorn	4.75@5.00
Egyptian Corn	2.15
Barley Seed	1.90
Barley, Hulled	2.10
Milo Maize	1.95
Cal. Seed Oats	2.05
Texas Seed Oats	2.45
Rye	2.30
Sunflower Seed	6.50

FEED STUFF

Wholesale selling prices f. o. b. Los Angeles:

Bran, Heavy	1.90
Alfalfa Meal	1.15
Alfalfa Molasses, per cwt	1.20
Beef Scraps	3.00
Beet Pulp	1.25
Cracked Corn, cwt.	2.20
Crack Wheat, cwt	2.85
Cotton Seed Meal	1.80
Bloodmeal	3.60
Bone Meal	1.95
Meat Meal	3.00
Bone, Green	1.85
Charcoal	1.90
Oil Cake Meal	2.25
Fish Meal	3.15@3.25
Rolled Oats	2.15
Rolled Barley	1.85
Barley Hulled	2.20
Middlings	2.20
Feed Meal	2.25
Oat and Wheat Middlings	1.70

San Francisco Market

SAN FRANCISCO, Jan. 26, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade, 4 cents above following quotations:

Extras	.32
Prime Firsts	.26
Firsts	.25
Fancy Creamery	.29½
Seconds	.23

CHEESE

Wholesaler to retailer.

Oregon Y. Am	.16
Young America	.12½@14
California Flats	.10@15
Cheddar	.20
Oregon Twins	.14

EGGS AND POULTRY

A shipment of Chinese eggs was received Monday amounting to 62,190 dozen.

Prices to trade 3 cents higher than following quotations:

Extras	.31
Storage Extras	.31
Select Pullets	.29
Storage Select Pullets	.21

Price to producer:

Hens, lb.	.15@17
Eastern	16@19
Fryers	.17@18
Roosters, old	.11
Roosters, young	.16@17
Broilers	.17@18
Ducks	.15@17
Geese, pr.	2.00@3.00
Squabs	2.50@3.50
Belgian Hares, lb	.9@10
Turkeys, live	.16@19
Turkeys Dressed	.19@21

LIVE STOCK

San Francisco prices, gross weight:

Steers	.4@7¼
Cows and Heifers	.2@6¼
Calves, lb., live weight	.6@9½
Hogs	.5@7½
Wethers	.6½@6¾
Ewes	.5¼@5¾
Yearling Lambs	.7½@7¾

POTATOES

Wholesale selling price:

Delta Burbanks	1.00@1.15
Salinas Burbanks	2.00@2.10
Oregons	1.65@1.75
Idaho	1.20@1.25
Sweets, cwt	1.65@1.75

ONIONS

Wholesale selling price:

Yellow, cwt.	.90@1.00
Bermudas, crate	.90@1.25
Garlic, new	.19@20

VEGETABLES

Wholesale selling price:

Beans—	
Wax	.5@7
Strings	.10@15
Limas	.10@12½
Brussels Sprouts, lb.	.2@4
Cabbage, cwt.	1.00@1.25
Carrots, sack	.30@40
Celery, doz.	.10@15
Cucumbers, lug	1.25@1.50
Egg Plant, lb.	.7@10
Lettuce—	
Southern, crate	1.00@1.25
Delta	1.00@1.25
Peas, lb.	.8@15
Peppers—	
Bell, lb.	.9@11½
Chili, lb.	.4@6
Squash, sack	.25@35
Summer, crate	.75@1.00
Tomatoes, crate, Los Angeles	.75@1.00
Imperial Valley	1.75@2.00

WEATHER CONDITIONS

For Week Ending January 23, 1915

Report from the various stations of the United States Weather Bureau, by George H. Wilson, director, San Francisco:

	Rainfall Data			Temperature Data	
	Past Week	Seasonal to Date	Normal to Date	Maximum	Minimum
Eureka	.00	23.13	22.56	58	36
Red Bluff	.00	11.70	13.02	62	32
Sacramento	.00	6.46	9.73	58	26
San Francisco	.04	9.72	11.38	62	42
San Jose	.09	7.78	8.25	64	30
Fresno	.00	3.57	4.80	64	34
Independence	.00	1.18	4.74	58	22
San Luis Obispo	.10	7.93	9.37	70	32
Los Angeles	.14	4.72	7.14	72	42
San Diego	2.30	6.48	4.69	66	42

T—Means trace.

FRESH FRUIT

Apples—	
Newton Pippins	.50@1.00
White Winter Pearmains	.50@75
Bellflowers	.50@75
Bananas, Hawaiian, bunch	1.25@1.75
Cranberries, bbl.	8.50@9.00
Grapes lug	.80@1.00
Pears, Winter Nelis, wrapped, box	1.00@1.50
Pomegranates, box	.50@1.00
Pineapples, doz.	2.75@3.25
Persimmons	.50@1.00
Quinces, box	.25@40
Strawberries, chest	3.50@5.00

CITRUS FRUIT

Wholesale selling price:

Grapefruit, Seedless, new crop	1.75@3.00
Lemons	1.50@2.50
Lemonettes	1.00@1.50
Limes, case	3.00@5.00
Navels	1.25@2.00
Tangerines, halves	.75@1.75

DRIED FRUITS

Wholesale prices are:

PRUNES—1914 crop, bulk basis: 30-40s, 7c; 40-90s, 6½c; 90-100s, 6c. The above are for both Santa Clara prunes and stock from outside sections.

Other Fruits. 50-lb. boxes—	Standard	Choice	Extra Choice	Fncy
Evapt'd apples	....	5½c	5¾c	6
Apricots	9 c	9½c	10 c	11
Peaches	4 c	4¼c	4½c	5¾c
Pears	4 c	8 c	9 c	10

RAISINS

RAISINS—The following prices are f. o. b. Fresno, as given out by the Associated Raisin Company, for immediate shipment, and are guaranteed against a decline till April 1st: Fancy seeded, 16-oz., 7¼c; 12-oz., 5⅞c; bulks, 6c; choice seeded, 16-oz., 6⅞c; 12-oz., 5⅝c; bulk, 5½c; Thompson seedless, No. 1, 16-oz. pkgs., 7⅝c; 12-oz., 6¼c; 50-lb. cs., 6½c; loose, Muscatels, 1-crown, 5½c; 2-crown, 5½c; 3-crown, 5⅞c; 4-crown, 6c; Sultanas, 50-lb. cs., 5¾c; bulk, layers, 50-lb. bxs., $2.75; in 20-lb. bxs., 6-crown, $2.75; 5-crown, $2.25; 4-crown, $160; 3-crown, 5-lb. bxs., $1.50; on all bulk stock, 50c additional. Cartons—Clusters, 20 to cs., No. 1, $1.70; No. 2, $2.10; No. 5, 4 to cs., $2.25. Local representatives of the association are asking about ¼c higher, while several of the largest independent packers are quoting ½c under these figures.

NUTS

ALMONDS — Prices fixed by Almond Growers' Exchange to the trade, f. o. b. California:

Nonpareil	.21
I X L	.20
Ne Plus Ultra	.19
Drakes	.16

Wholesale selling price:

Peanuts—	
Unpolished	.5@8
Polished	.6@6½
Shelled, Jap	.6¼@6¾
Italian Chestnuts	.6½@7

BEANS

Wholesale selling price:

Limas	5.60@5.70
Lady Washington	3.60@3.75
Pink	4.45@4.60
Black Eyes	5.35@5.50
Cranberry	5.00@5.25
Small White	5.40@5.50
Garbanzos	6.50
Large White	5.00@5.15
Bayou	5.50@5.70
Manchurian Speckled Bayous	3.90@4.00
Manchurian Butters	4.50@4.75
Manchurian Cranberry	4.15@4.25
Red Mexican	5.60@6.70
Red Kidney	6.00@6.25
Horse Beans	4.00@4.50
Bayou	5.50@5.70

HONEY

Comb, Water White	.14@16
Amber	.10@12
Dark	.7@10
Extracted White	.7@9
Light Amber	.5½
Dark	.4@5½
Beeswax	.27@32

HOPS

1914

Sacramento Valley	.7@9½
Sonoma-Mendocino	.9½@11½
Oregon Clusters	.9½@11½

HAY

Under date of January 23, Scott Magner & Miller say:

Receipts of hay for the past week were 3371 tons. This is a large increase over the previous week, 2477 tons. Although it is early to predict crops for the coming season, the weather has been most favorable for a large crop. Demand for alfalfa has been light and receipts heavier than usual. Straw is unchanged.

We quote the average wholesale prices on carloads lots of hay on today's market, as follows:

Fancy Wheat Hay, lt. bales	11.00@12.00
No. 1 Wheat or Wheat and	

Oat .... 9.00@10.50
Oat .... 9.00@10.00
No. 2 Wheat or Wheat and Oat .... 6.00@8.50
Choice Tame Oat .... 10.50@12.00
Other Tame Oat .... 6.00@9.00
Barley .... 5.00@8.00
Wild Oat .... 6.00@8.00
Alfalfa .... 6.00@9.00
Stock Hay .... 4.50@5.00
Straw .... 30@45

GRAIN

Wholesale prices.
Alfalfa Seed .... 14@16
Wheat, Cal. Club .... 2.35@2.40
Corn, Eastern Yellow, blk .... 1.75@1.76¼
Corn, Egyptian White .... 1.82½@1.85
Barley, Feed .... 1.52½@1.57½
Shipping and Brewing .... 1.26¾@1.27
Oats, White, Feed .... 1.75@1.85
Oats, Red, Seed .... 1.60@1.65
Oats, Red, Feed .... 1.50@1.62½
Millet .... 3@3¼
Flax .... 6@6½
Rye .... 1.50@1.60
Sunflower .... 5@5½

FEED STUFF

Wholesale prices.
Alfalfa Meal, car lots .... 16.00@16.50
Bran, ton .... 32.00@34.00
Feed Cornmeal, ton .... 40.00@41.00
Cracked Corn .... 40.00@41.00
Rolled Barley, ton .... 32.00@33.00
Rolled Oats, ton .... 37.00@37.50
Middlings .... 34.00@36.00
Shorts .... 33.00@34.00
Oilcake Meal .... 38.00@39.50
Cocoanut Oilcake Meal .... 24.00@25.00

Citrus Fruit Market

LOS ANGELES, January 27, 1915.

The auctions show fairly good returns on best fruit. Above $2.60 has been given as average on a few small lots. The price generally, however, will run close to the $2.00 mark. Of course other markets are better than the auctions.

The lemon market is looking more hopeful.

Shipments

Shipments of oranges to date from Southern California since November 1, 1914, 3163 cars; lemons, 722; total, 3888. Last year same date, oranges, 3578; lemons, 351; total, 3929. From Tulare County this season, oranges, 5035; lemons, 120; total, 5155. From Northern counties, oranges, 533.

NEW YORK, Jan. 25.—Fifteen cars navels, one mixed car and one car lemons sold. Market unchanged on navels and lemons. Raining.

NAVELS— Avge.
Blue Banner, Sutherland F. Co. $2.50
Bronze Gobbler 2.00
Black Gobbler 1.75
Heart, Merryman F. L. & L. Co. 2.40
Washington, Merryman F. L. &L. 2.20
Euclid, Growers' F. Co. 2.30
Uplanders, Growers' F. Co. 2.10
Santa Anita, E. J. Baldwin Estate 2.00
Arcadia, E. J. Baldwin Estate 1.95
H. & M., Merryman F. L. & L. Co. 2.20
Monarch, Merryman F. L. & L. Co. 2.05
Lindsay, C. C. Ex. 2.05
Tulip, T. C. Ex. 2.00
Iris, D. M. Ex. 2.40
Robusta, A. H., Pachappa 2.60
Jasmine, D. M. Ex. 2.05
Mt. Whitney, T. C. Success 2.45
Bobusta, A. H., Pachappa 2.60
Hobo, A. H., Pachappa 2.15
Strathmore, T. C., Strathmore 2.30
Scotch Lassie Jean, T. C., Strath. 2.20
Pioneer, C. C., Lindsay 1.95
Red Label, C. C., Lindsay 1.75
Oakleaf, T. C., Porterville 1.90
Full Value, T. C., Porterville 1.60
Sphynx, C. C., Lindsay 1.85
Ora Flora, C. C., Lindsay 1.70

NAVELENCIAS—
Robusta, A. H., Pachappa $2.55
Hobo, A. H., Pachappa 2.20

VALENCIAS—
Green Banner, Sutherland F. Co. $2.15

LEMONS—
Liberty, E. F. G. Ex. $2.40
El Dorado 2.00

ST. LOUIS, Jan. 25.—Cold, clear. Market is weak account the weather. One car of lemons and one car navels sold.

NAVELS— Avge.
Cactus, Highland F. G. A. $1.75

LEMONS—
Paul Neyron, S. A., Lordsburg $2.70
Fuschia 2.40

PHILADELPHIA, Jan. 25.—Two cars navels sold. Cold, raining. Twenty-one cars of Floridas sold. Market steady. Oranges, $1.00 to $2.55; average, $1.60. Grapefruit, 25 to $2.70; average, $1.50.

NAVELS— Avge.
Yokohl, C. C. Ex. $1.90
Iris, D. M., Monrovia 2.35
Violet, D. M., Monrovia 2.20

BOSTON, Jan. 25.—Nine cars oranges, one car lemons sold. Raining. Market easier oranges; unchanged lemons.

NAVELS— Avge.
Lindsay, C. C., Lindsay $2.15
Forgetmenot, T. C., Ponca 2.10
Pine Cone, R. H., Highland 2.30
Gold Buckle, R. H., E. High 2.50
Lochinvar, R. H., E. High 2.30
H. & M., Merryman F. L. & L. Co. 2.30
Heart, Merryman F. L. & L. Co. 2.30
Blue Banner, Sutherland F. Co. 2.25
Green Banner, Sutherland F. Co. 2.15
Monarch, Merryman F. L. & L. Co. 2.15
Monarch, Merryman F. L. & L. Co. 2.10
Gold Seal 1.95
Native, Sutherland F. Co. 1.85
Mallard, Randolph F. Co. 1.85
Lilac, Randolph F. Co. 1.75

LEMONS—
Dan Patch, S. B., Bloomington $2.10
Pony 2.70

PITTSBURGH, Jan 25.—Six cars navels sold. Cool.

NAVELS— Avge.
Sunnyslope, Randolph F. Co. $1.75
Wildflower, Randolph F. Co. 1.50
Valley, T. C., Success 1.70
Full Value, T. C., Success 1.55
King Campbell, C. C., Wahtokt 1.85
Button Willow, C. C., Wahtoke 1.75
Holsum, C. C., Wahtoke 1.55
Prairie Chicken, A. H., Arlington 1.70
Spanish Girl, A. H., Arlington 1.50
Iris, D. M., Monrovia 2.40
Violet, D. M., Monrovia 2.20
Jasmine, D. M., Monrovia 2.10

CLEVELAND, Jan. 25.—Two cars navels, one car lemons sold. Market is advancing on navels. Prices low on lemons account quality. Unfavorable, cold, snowing. Three cars Floridas sold, averaging $1.55.

NAVELS— Avge.
Scotch Lassie Jean, T. C., Strath. $1.95
Valley, T. C., Success 1.75
Full Value, T. C., Success 1.45

LEMONS—
Arab, S. D., San Dimas $2.75
Pup 2.50
Duck 2.50

CINCINNATI, Jan. 25.—Cold. Market declining on lemons and Floridas. Sold one car lemons, seven cars Floridas, one car grapefruit. Florida oranges sold, $1.10 to $1.90; average, $1.55. Grapefruit, $1.40 to $1.85; average, $1.55.

LEMONS— Avge.
Arab, S. D., San Dimas $2.70
Pup 2.10
Duck 1.80

LOS ANGELES, Jan. 25.—Four cars sold.

NAVELS— Avge.
Monoplane, M. O. D., Crafton $1.30
Mission Play, San Marino G., imp. 1.10
Lone Palm, G. & Willard 1.10
Lone Palm, G. & Willard 1.10

IDEAS FOR THE COOK

(Continued from Page 125)

fourths cup milk. Mix and sift together one cup cornmeal, one-half cup flour, one-half teaspoon salt and two and a half teaspoons baking powder. Add to the first mixture with one-half cup currants, mix thoroughly and pour into hot buttered muffin pans. Bake about 25 minutes.

Broiled Beef Patties

Grind one pound round steak two or three times, shape into patties about two inches in diameter and one-half inch thick. Place in a smoking-hot frying pan and broil about five minutes, browning first one side, then the other. Sprinkle with salt and pepper, spread with butter and serve.

Enough kerosene on the drinking water to form a thin film over the surface will help to avoid spreading roup through the flock, when the disease is contracted by one or two individuals. If the disease appears, a good roup remedy should be resorted to at once. Isolate the affected individuals and treat the whole flock. Prevention is much easier than to cure.

In saving birds for breeding, look out for good vigor along with breed type. The bird with a tendency to crow-headedness and long toe nails, which denote inactivity, should be avoided as a pestilence.

Potassium permanganate and several of the commercial roup cures combine chemically with tin or iron. The result is that when they are given in the drinking water, they eat holes in the pans and fail to do the birds any good. Where the water clears or changes color soon after putting the medicine in, when a tin or galvanized pail is used, the trouble can generally be avoided by using a crock.

A HANDSOME ONE

The new Germain tree and seed catalog is the niftiest ever yet gotten out by the Germain Company. It has 100 pages, with attractive cover showing an orange tree ready for planting. Incidentally, there is an inset of Germain's giant comet aster which certainly is a beauty. The catalog is illustrated and has an instructive text regarding the planting of everything in the garden. It covers ornamentals, vegetables, and nearly everything in the tree line. It may be had by addressing the Germain Seed Company, 326 South Main Street, Los Angeles.

Our Paint and Stains are the same make you are paying $2.00 a gallon for. We sell Paint in every town on the Coast at wholesale. Save money — don't pay the high retail dealer's profits. Mail your order now. **Stafford's Shingle Stain and Preserver** for roofs and unsurfaced houses, any color. 50-gal. bbls., per gallon, 65c; 5-gal. cans, per gal., 75c; 1-gallon buckets, 80c.

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Get the **"Old Hickory Habit"** and save money on your **Farm** and **Home Supplies**.

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Early Fruit Specialist

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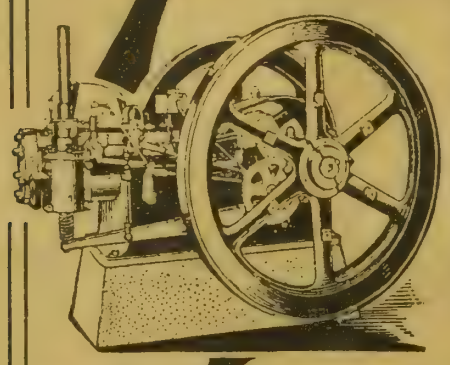

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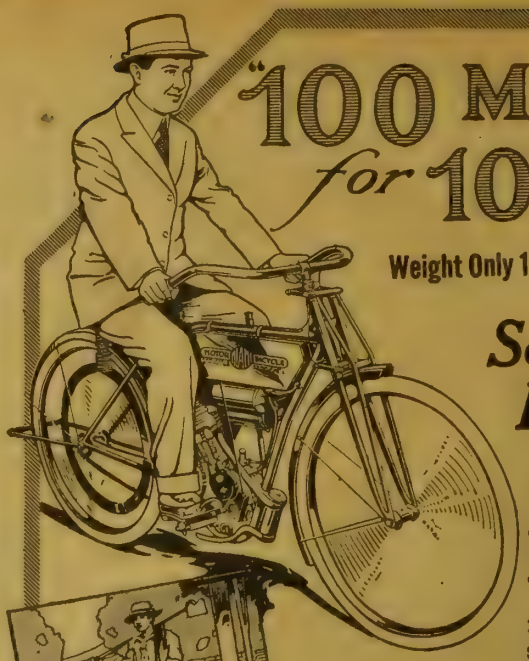

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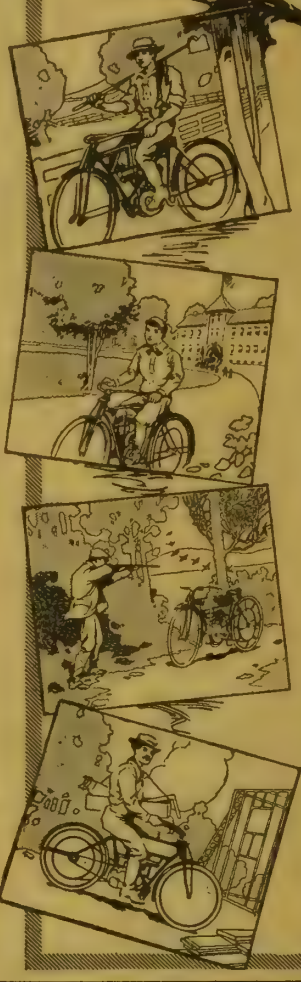

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Equipped with Novo engine, Bean Pump, 100-gal. tank, canvas cover and curtains, patented pressure regulator, rotary agitator, truck, hose, rod, etc. Write for more details and wonderfully low price. SEND FOR FREE CATALOG 28-A, which describes the entire Bean line.

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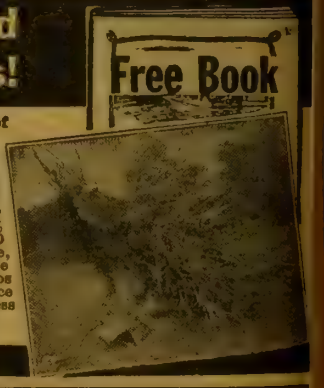

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Rural Californian combined with California Cultivator

An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES February 4, 1915 SAN FRANCISCO

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California's Large Flocks Are Not Increasing in Number, but the Small Rancher is Considering More Every Year the Advisability of Raising Sheep as a Side Line

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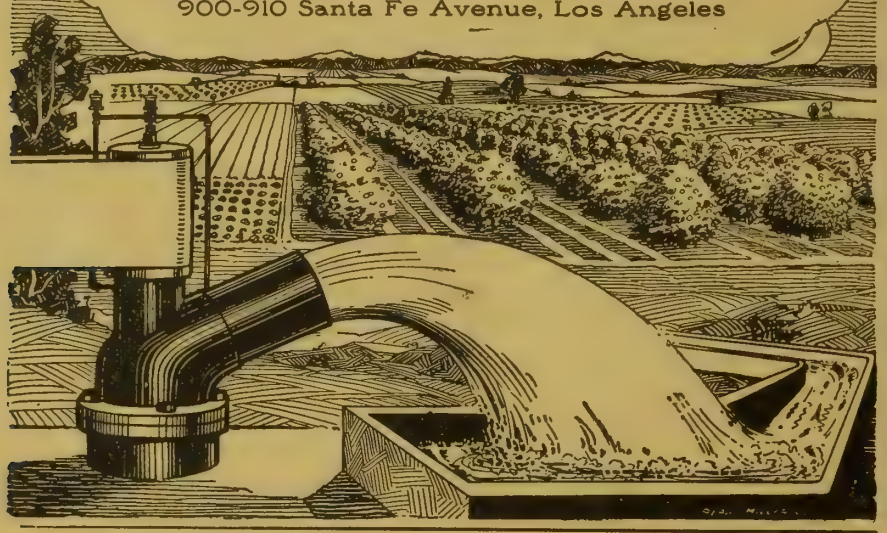

Little Stories of Success

No. 2

The real record of records goes to Hansen Bros., of Rio Vista, Cal. We quote their letter verbatim:

"The 75-horsepower, 30-inch track Caterpillar No. 2108 we purchased from you May 15th, 1914, ran 45 days in harvest, pulling a 26-foot cut Holt Harvester that we had used 40 horses on, previous to purchasing the Caterpillar.

"We harvested over hills that had from 10 per cent to 48 per cent grades. The Caterpillar works up or down hill or around the hill just as well on account of the two-speed gears.

"In spite of the terrific strain when working on the hillsides, the track never gave us any trouble—no wear on the truck wheels and they never once left the track. The tracks never slipped, even on the steepest grades.

"We averaged over 40 acres per day using 45 gallons distillate and one gallon oil per day.

"Our engine is in A No. 1 condition and ready to go ahead with the fall plowing without a cent of repairs."

Ten years have brought the Caterpillar to the point where it will stand a whole lot of hard knocks without going to pieces.

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CATERPILLAR
Reg. U.S. Pat. Off.

Don't say Caterpillar unless you mean Holt!

Have about 12,000 4 to 6 ft. trees. Strong and Vigorous

Bartlett Pears

Better order soon. They are getting scarce and higher.

I also have a good supply of Mayflower and Southern Beauty Peach Trees. Also early fruit trees of all kinds. All who want early fruits for market or home use will do well to write me. I may surprise you.

W. D. ROSE
Early Fruit Specialist
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ESTABLISHED 1889

Get my Prices on FRUIT TREES

Orange, Lemon, Pomelo, Avocado, Olive, Peach, Plum, Pear, Apricot, Apple, Cherry, Walnut, Almond, Pecan and many others; also all varieties of Berries, Grapes, etc.

I can supply you in any quantity with any wanted variety of all fruits adapted to California and Arizona.

Clean, thrifty stock direct from my nurseries to your field or garden,—trees that will start right off and grow—and give you perfect satisfaction.

If you have not already received a copy of my illustrated Catalog and Price List, send name and address and a free copy will be sent you at once.

My $10 model home orchard now for $5

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It consists of 29 varieties of fruit, no two alike. The greatest little nursery bargain ever offered you, and the assortment will supply you with fresh fruit for family use from May to December. Send $5.00 and receive this model orchard by return express.

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SEED TIME

"Cheap" seeds are dear at any price. But why pay high pr for the best? We are not in the L. A. Seed Combine, but we have b selling seeds right here for years, giving the best of satisfaction beca we sell the VERY BEST. We pay as much for our seeds as they do theirs, which our invoices will prove. Our slogan: SEEDS at LC PRICE and NO PRICE can buy better. Send for our Price List.

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California Cultivator

Rural Californian combined with California Cultivator

Vol. XLIV No. 5 LOS ANGELES: THURSDAY, FEBRUARY 4, 1915 One Dollar Yearly

Foundation Stones for Success

Dean Hunt of the State Agricultural College Asks Heads of Departments for Short, Concise Statements of Their Ideas of Principles That Will Lead to Success

RECENTLY Dean Thomas Forsyth Hunt of the college of agriculture of the University of California asked the specialists in charge of various departments of the agricultural work of the university this question: "What are the fundamental principles of successful agriculture?"

In response each man "boiled down" into a single page the facts he regards as basically important for the particular agricultural pursuits in which he is a specialist.

ANIMAL HUSBANDRY

By Gordon H. True, Professor of Animal Husbandry

Farm animals convert raw materials grown on the farm into valuable finished products. The improvement of farm live stock is dependent on the use of pure bred sires. Good breeding and individuality should be combined. Mature breeding stock gives best results. Too early breeding results in under-developed stock. Where possible proven sires should be used. A mother in good condition at parturition raises her offspring best. Over-feeding often results in impairment of breeding functions. Inbreeding is dangerous. Different breeds of livestock are adapted to different natural conditions. Form in animals indicates function. It is a mistake to attempt to combine diverse uses in the same animal. The cheapest growth is made by young animals. Young animals should be kept growing from birth to maturity. Exercise is important for young stock and pregnant females. In feeding young animals their ultimate use should be kept in mind. Regularity in care and feeding make for best results. Animal comfort promotes profit. Ruminants are especially adapted to the economical use of rough feed. The growing pig should be fed at least two per cent its weight of grain daily. Sheep keep down weeds on the farm. Sheep are well adapted to rough grazing lands. A production of at least 250 pounds of butter fat or 6000 pounds of milk per cow per year should be the aim in dairy farming.

DAIRYING

By Leon M. Davis, Assistant Professor of Dairy Industry

The care given the raw materials in creamery production determines the quality of the finished product. Cleanliness and low temperatures are controlling factors in producing good dairy products. Poor dairy methods and poor dairy products are coincident. Workmanship and methods used in manufacturing dairy products influence quality and yield. Sterilization of the utensils used in handling milk or cream tends to reduce contamination. Sanitary buildings and equipment tend to reduce contamination. Factors which tend to check bacterial development in milk and cream favor their keeping quality. Pasteurization reduces the bacterial content of milk and cream. Immediate cooling of milk or cream removes the animal heat and checks fermentation. Sacrifice of quality for yield tends to reduce the demand for manufactured dairy products. The successful handling of dairy products requires cooperation from producer to consumer.

CITRUS FRUITS

By J. Eliot Coit, Professor of Citriculture

The most important factors in successful citriculture are: The soil, favorable climatic conditions, irrigation, fertilization, cultivation, healthy, vigorous trees, careful pruning, membership in a strong selling organization. Sour orange is the best root stock, broadly speaking. High-budded trees are most resistant to disease. The control of scale insects costs six per cent on $250 for each acre annually. Scale-free districts need not pay this tax. Plowsole and hardpan decrease yields. Maintenance of the humus content of arid soils increases yields. Allowing the roots to dry during transplanting kills trees. Allowing the soil to become too dry once makes trouble for a year. Suckers cannot be depended upon to grow into profitable branches. Frequent pruning of lemons increases yields. Top-working old orchards in usually unprofitable. Orchard temperatures may be economically raised ten degress with oil heaters. Radiated heat is more effective than heat of convection. Fruit decays are caused by fungus parasites. Tent-cured lemons ship better than tree-ripe fruit. Toadstool fungus is fatal to citrus trees. Lemon gum disease may be cured with Bordeaux paste. Scale insects are most economically controlled by fumigation.

CROP PRODUCTION

By Charles B. Lipman, Professor of Soil Chemistry and Bacteriology

Deep soil, meaning several feet free from coarse gravel, hardpan, or standing water, is essential for the production of the best crops in California. Air, as well as moisture, each to the extent of about one-fourth of the volume of soil, are essential to successful plant growth. Plant food in available (or "soil water"—soluble) form is essential to successful plant growth. Maintenance of a plentiful supply of organic matter is essential to successful crop production. A neutral or slightly alkaline reaction of the soil is essential to the successful growth of most crops. Liming maintains such reaction. Soil bacteria are essential factors in successful crop production because they help to make plant food available. Excessive amounts of water-soluble salts (alkali) are detrimental to crop production. The use of barnyard manure in the case of "white alkali" and of gypsum in the case of "black alkali" prevents the toxicity of these salts to a great degree. Fertilizers may serve to add to the store of available plant food in the soil, or may stimulate bacterial and physical changes in the interest of soil fertility, or both.

(This series will be continued another week.)

Working to a Dairy Ideal

Written by Dr. Leroy Anderson for Cultivator Readers. If Ideal is Correct, Success Follows

IN August, 1911, Mr. John H. Guill, Jr., of Chico said in a California live stock journal, "During the past few weeks our farm papers have reported the sale of a Jersey bull for $13,000, the sale of a Berkshire boar for $4,000 and the sale of numerous animals at prices ranging well up in the hundreds. It is not the probable opportunity of every dairyman or farmer to raise a $13,000 animal, but it is absolutely within his power, by simple selection and intelligent breeding, to materially increase the value of his stock. My ideal of dairy cattle was fixed when as a student in the college of agriculture I was sent to the Pierce Land and Stock Company's ranch at Stockton to represent the agricultural station in an official test. The many excellent Holsteins, with their great producing powers set a record of attainment high enough to be worthy the ambition of any man to equal."

CALF HERD OWNED BY JOHN H. GUILL, CHICO.

Mr. Guill has a goodly sized ranch near the city of Chico and he began its management after graduation from the college of agriculture. As to dairy herd, he began with grade cows, largely of Shorthorn type like so many of the dairy herds in California of a decade ago, and in fact like many today, especially in the coast sections.

SOME OF THE GRADED UP COWS OF JOHN H. GUILL, CHICO.

His first Holstein bull was purchased in 1907. This animal was out of a 12-pound cow and sired by Jetze Zwartbok, the grand champion bull which the Pierce Brothers imported from Holland. The next herd bull was sired by Aralia Prince of Riverside, a brother of Aralia De Kol, the cow that gave over 28,000 pounds of milk in a year. His dam was a pure-bred cow of excellent dairy conformation. This bull is still in Mr. Guill's herd. A young bull now in service is Lorena

(Continued on Page 144)

When writing advertisers, mention The Cultivator.

Citrus and Tropical Fruits

ORANGE JELLY

HP. D. Kingsbury of Redlands has been making investigations as to by-products of the citrus for many years and has maintained a large commercial citrus by-product plant in that city. He is now writing for the Redlands Facts a series of articles from which we quote:

Orange Jelly

This information also applies to lemon jelly and grapefruit jelly.

Orange and lemon jellies made in the home have always required the addition of gelatine to make them firm, because the juices of these fruits by themselves do not contain the jellying principle, called "pectin" in sufficient quantity to make a firm jelly, such as can be made from apple juice and quince juice, which are both rich in pectin.

Nature, however, has provided in both of these fruits, the orange and the lemon, a good store of pectin, but has stored it in a place where it would be most apt to be overlooked, namely in the white pith or rag of the peels, and by using this a firm jelly can be made without the addition of gelatine or any substance not contained in the fruit itself, excepting sugar.

Ripe navel orange juice contains about one and one-half per cent of citric acid, and from 10 to 11 per cent of total sugar, therefore the jelly made from it is apt to be somewhat sweetish and insipid unless some more acid is added to it to bring up the flavor. The addition of acid also aids in the jellying of the juice. This additional acid is supplied by mixing lemon juice with the orange juice in the proportion of about one to six, that is, one pint of lemon juice to about six pints of orange juice, or in any other proportion which best suits the taste of the maker.

Freshly squeezed orange and lemon juices are not clear and pellucid, as they contain a considerable amount of albuminoid matter, and to make a clear jelly from the juice it is necessary to get rid of this sediment. It will not easily filter out from the fresh juice, nor will straining remove it, therefore the jelly has to be made in two cookings on separate days.

From good, ripe, medium sized oranges about an ounce and a quarter of juice can be squeezed with a hand squeezer, and from cured, ripe lemons about an ounce of juice per lemon. The amount of jelly to be made will be approximately double the amount of juice which is used, the additional bulk being furnished by the sugar to be added.

Therefore to make a dozen of the ordinary sized tumblers of jelly it will be necessary to use six or seven lemons and 28 or 30 oranges.

Get out of this fruit all of the juice possible with the hand squeezer, and save the peels. Add one quart of water to the juice to make up for the loss by evaporation during first cooking. Mix the juices and water and put them into the preserving kettle and over a low flame let it simmer for from half to three-quarters of an hour. Do not let it boil hard. Take about half of the saved peels and put them into a muslin bag, tying them in, and place this bag of peels in the kettle with the simmering juice.

When the period of simmering is done, remove the bag of peels, squeezing it out lightly so that no great amount of juice shall be lost from the kettle. Then allow the juice in the kettle to stand for 24 hours in order that the pomace or sediment in it may settle down to the bottom.

Then pour off the clear juice at the end of 24 hours, and to each pint of this clear juice add one and a quarter pounds of granulated sugar. Put it on the stove, see that the sugar is dissolved, bring to a boil, and boil briskly for three minutes, skimming off the foam which arises from the sugar. Then pour the syrup into glasses and set it aside to cool.

If desired, the color of this jelly may be varied in a pleasing manner by adding some clear berry juice to it, or cherry juice in small amount before the last boiling and when the sugar is put in.

The cost in the home will be about 15 cents for the fruit at half a cent per pound; 22 cents for the four pounds of sugar at five and a half cents a pound; 20 cents for the glasses; 20 cents for the actual labor involved; and about five cents for the fuel, making a total of 82 cents for the dozen tumblers of jelly.

As to market conditions, there are very many jellies on the market, of all varieties, and therefore as a commercial proposition the price on the orange jelly will have to be in line with the other varieties. Also, it is hard to sell a single jelly to the trade, as many jobbers quote them a whole line at a time with many different varieties.

Furthermore, it would not pay to have a salesman spend his time on a single line of jelly like this. Also, there must be added to the cost when selling to the trade the cost of the shipping cases, the freight charges to the dealer wherever located, and the brokerage, the jobbers' discount and the retailers' profit must all come out of the returns before the profits to the manufacturer can begin to be figured. There is no foreign competition to this line of goods which need be considered.

PROPAGATING OLIVES

Owing to repeated calls for information as to propagating olive trees we reprint an article written for the Cultivator of December 21, 1911 by J. W. Mills. The article follows:

It has been told in the columns of the Cultivator how in foreign countries the olive is sometimes propagated by burying large limbs a few inches below the surface of the ground and with due care removing the sprouts when they attain sufficient size. These sprouts send out roots below the surface of the soil, and as there is a continual succession of sprouts, a log of olive wood will continue to produce rooted slips for some time. The off-shoots come from adventitious buds. These are dormant buds distributed promiscuously and irregularly beneath the outer bark

The Old Reliable

San Dimas Citrus Nurseries

Established 1890
Incorporated 1913

Citrus Trees Exclusively

All Leading Varieties

REMEMBER, MR. PLANTER

Practically anybody can grow a citrus tree, but it takes years of experience to produce a tree that will prove a money-maker when it comes into bearing. Nice-appearing nursery trees are desirable and promising, but do not always prove to be good bearing trees in the long run. Plant for profit and not for appearance only. Our trees are straight, thrifty, well rooted and have strong, full heads, but the main consideration is that: Our buds are carefully selected from heavy fruiting trees and will prove true-to-name revenue producers.

OUR TWENTY-FIVE YEARS

of experience in the growing and handling of citrus nursery trees gives the buyer the advantage of starting out RIGHT, thus avoiding disappointment at the end of four or five years' labor in bringing the young orchard into bearing.

ANOTHER POINT TO CONSIDER

Growing a good tree is only part of having it do well after planting. Many a good tree is ruined in the taking up from the nursery and shipping. We give the best of service in the proper handling and delivering of our trees.

WRITE,

'phone or call on us before buying your trees. Tell us your wants and we shall be glad to give you the benefit of our wide experience as to planting, soil conditions, fertilizers, etc.

Our illustrated new booklet on citrus culture mailed to any address upon receipt of 25 cents.

QUOTATIONS GLADLY GIVEN

San Dimas Citrus Nurseries

(INCORPORATED)

Established in 1890 by R. M. Teague

San Dimas
California
U. S. A.

Teague trees are started right, grown right, and shipped right.

This process is only of passing interest to California growers, as it necessitates the cutting of large branches from desirable trees.

Hardwood cuttings about one foot in length are ordinarily used, taken in February or March, and planted with an inch or two of the top exposed. It is the experience of some growers that a longer cutting, about 18 inches, is better, as the hot days of midsummer tend to dry them out too fast if the lower ends of the cuttings are only ten inches or so beneath the surface. These cuttings should be half an inch or more in diameter.

The most rapid process of growing young olive trees is the so-called herbaceous method. The hardened tips of the previous summer's growth are used. This means from one to three cuttings taken from each well grown twig. The trees from which these twigs are taken must have been well irrigated and cared for in order to make thrifty cuttings of the right texture. The cuttings should be about three inches long with two leaves at the apex. This requires the removal of the two lower sets of leaves from the cuttings as the well grown twig should have about three sets of leaves in the length of three inches. These cuttings should be about one-eighth of an inch in diameter. Experienced propagators tell us that it is useless to use sucker wood for this method as it fails to make good. This is true of all kinds of suckers. The soft growth at the tips of the twigs that bend easily between the fingers should not be used.

These small cuttings are stuck in coarse sand in flats, about 700 cuttings in a flat, two feet by 18 inches. Usually they are placed in glass houses in which artificial heat is applied, but there is often heavy loss from fungus owing to the warm, moist atmosphere being an ideal condition for this disease.

One of the most successful growers in Southern California has rooted his olive trees by this method, excepting that he used cold frames with manure for bottom heat. This seems to be an improvement over the hot house method and is much cheaper. The plants must be kept continually moist, not even allowing the surface of the sand to become dry. After the young olive trees grow tops a few inches high they should be transplanted to the field nursery without exposing the roots to the air, and watered as soon as planted. Cuttings should be put in the flats now.

The above described method of growing olive trees was first practiced as far as we know in Southern California by Kenneth McLennon, first superintendent of the Southern California substation at Pomona. The idea was suggested to him by Dr. E. W. Hilgard, and immediately revolutionized the olive nursery business.

JOHN'S CHANCE

Wife—Now, John, my sister Belle and her steady are coming to call on us tonight. So you must act the part of an ideally happy married man. She's not quite sure of him yet.

John (savagely)—Leave it to me! That lobster trimmed me in a horse trade once! Leave it to me!—Boston Globe.

EVERY KIND IN STOCK

"Will you direct me to your range department?" asked the lady in the big department store.

"Certainly, madam," replied the polite floorwalker; "rifle, kitchen or mountain?"—Yonkers Statesman.

SAFETY FIRST
in purchasing
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Deciduous Fruits

APPLE GROWERS USE COLD STORAGE

IN view of the interference with the European market and the large production of American apples this season, specialists of the department of agriculture call the attention of apple growers to the advantages of cold storage for steadying the market at harvest and for lengthening the selling period.

Glutting of the market will result, it is feared, in many thousands of barrels of good apples rotting in the orchard or being disposed of at prices which figure a net loss to the grower.

The following are the directions given by the apple handling specialists of the department for using cold storage successfully in handling apples:

The proper function of cold storage is to retard the ripening processes of the fruit and the development of decay organisms and skin blemishes. The first responsibility for the keeping quality of his fruit rests with the grower since it is his growing and handling methods that largely determine its vitality, freedom from disease, and general condition when stored. Cold storage is not a remedy or a restorative for poorly developed, weak, imperfect fruit, but is the most effective method of preserving the quality, flavor and appearance possessed by the fruit at time of picking.

The first step in successful cold storage of apples has been found to lie in the practice of such culture, spraying and pruning methods as insure production of sound, healthy, well colored fruit, free from disease. Assuming this as the first requisite, the following factors have been found to most influence the keeping quality of the fruit and furnish best conditions for long storage:

1. Proper maturity at time of picking.
2. Care in all handling operations.
3. Prompt storage after picking.
4. A proper storage temperature.

Maturity Tests

Careful and extensive investigations have demonstrated that fruit picked at full maturity can be held for a longer period of storage and is less affected by scale and decay than that picked when somewhat immature. Two important commercial varieties, Rome Beauty and Winesap, have been found to be especially susceptible to scald during storage if picked prematurely. There is no doubt that several thousand dollars are lost to the industry each year through the improper picking of these varieties alone. The results emphasize strongly that more care and attention should be paid to this detail of the harvesting operations than is usually the case.

By full maturity, however, is not meant over-maturity, which may cause fully as heavy losses as immaturity. Each grower should study his own fruit and his own conditions in order to determine the proper picking stage. Probably the most reliable single indication of maturity is the whitening or slight yellowing of the "ground color" of the fruit. This is the color underlying the blush or red color and should not be confused with the latter.

Careful Handling

Care in all handling operations is the second important requisite of successful storage. A class of fungi, of which the common blue-mold is an example, are known to be unable to attack and cause decay of healthy, uninjured fruit. In spite of this fact, very serious rots, both in storage and in transit to market, are the work of fungi of this type, and the largest contributory cause in all cases is bruising or skin breaking suffered by the fruit in the picking and packing operations. Microscopic bruises and breaks in the skin are large enough to afford entrance to the spores of these fungi and the necessity for the utmost care in all operations connected with the handling of the fruit to avoid bruising and mechanical injuries is more urgent than most growers realize.

Prompt Storage

There is a marked difference in condition between fruit stored promptly after picking, say not more than two days later, and otherwise comparable lots of which the storage is delayed ten day or two weeks. Such delay is especially injurious during a period of warm ,humid weather. The delayed fruit at withdrawal from storage is riper, yellower and duller than the corresponding "immediate," stored fruit and in addition develops more serious scald and decay. The importance of eliminating all avoidable delay in storing cannot be too strongly emphasized.

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Storage Temperatures

Trirty-one degrees to thirty-two degrees Fahrenheit is the standard storage temperature for apples, and this has been found to be the best for long keeping of the fruit. Higher temperatures permit the ripening of the fruit to advance more rapidly than at 31 degrees to 32 degrees Fahrenheit, with the result that the fruit at these temperatures reached the end of its storage life much sooner. In addition the lower temperature retards most effectively the development of fungus decays and skin blemishes. For a short storage period higher temperatures may be used without serious trouble, especially with the better keeping varieties, but for long keeping 31 to 32 degrees Fahrenheit will best maintain the color, quality and texture of the fruit.

Apples should be withdrawn from storage while still firm, and in this condition can be held on the market in satisfactory shape for several days or weeks. If allowed to become excessively overripe in storage, however, they will break down very fast on withdrawal. Apples from 32 degrees Fahrenheit will as a rule hold in better condition after withdrawal from storage than will comparable lots from higher temperatures.

HOME-MADE APPLE VINEGAR

Apple vinegar or cider vinegar is now made by commercial plants to such an extent that the home-made product is rarely seen and has but little place in the market.

Apple cider will go through the normal process of fermentation and develop vinegar of splendid quality if given proper temperature and time for development. As the cider is stored in the barrels it should be exposed as much as possible to the air and be kept at a temperature above 80 degrees and below 100 degrees. The best results will be obtained if the material is kept at a temperature ranging between 80 and 90 degrees. At this temperature it requires approximately a year for cider to develop enough acid content to pass as first-class vinegar. It should have between four and seven per cent of acid content, and with the process of making being that of slow ferment in barrel quantities, it will seldom reach six per cent of acid content. Ordinarily the vinegar that is made by being permitted to ferment in barrel quantities must be kept in a basement or cellar storage where the high temperature can be obtained. It does not kill the ferment in the vinegar to pass below 80 degrees in temperature, but it retards its action, and the longer the material is in the process of making the less valuable it is and the more difficulties are liable to be encountered in the work. The best results will be obtained if the head of the barrel is taken out and the barrel left entirely open. It can be stirred to advantage once in a while, but ordinarily the process of letting it stand entirely undisturbed will develop a very clear and satisfactory grade of material.

The mother of vinegar that develops ordinarily on the top of the barrel is of no special advantage after it assumes the form of a condensed or hard cake. As long as it is in a loose, slimy form it will work fairly rapidly, but as soon as it assumes the caked form it may as well be removed from the barrel. Ordinarily if touched or pressed down on one side it will sink to the bottom of the barrel. The live, active mother of vinegar when collecting appears as a thin or mucilaginous gelatine-like mass and is rapidly reproducing the ferment yeast that is making the vinegar. It is not necessary in all cases to use this mother of vinegar to start the process of fermentation. It is a good plan, however, to use small quantities of it for placing in each barrel of cider to start the process of fermentation. If this is not done a great many different kinds of bacteria will develop in the cider and not all of these will tend directly to the manufacture of acetic acid, which is the valuable acid in vinegar.

The home process of vinegar manufacture is slow, but easily handled, and can in a small way be carried on very satisfactorily—O. M. Morris, Horticulturist, Washington State Experiment Station.

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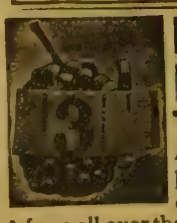

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ALFRED MITTING
8 New Street, SANTA CRUZ, CALIFORNIA

THIS MONTH IN SOUTHERN CALIFORNIA

Written for California Cultivator
By O. M. Morris

OPERATIONS and planting in the flower garden are practically the same as with vegetables. All the hardier annuals may be planted and the perennials for early flowering.

The planting of sweet peas is still in order, as well as asters, centaureas, all the garden pinks, hollyhocks, poppies, phlox, primulus, schyzanthus, stocks and zinnias. Many gardeners plant aster seed in boxes but we recommend the selection of a favored spot in the garden, preparing a light frame around it, and planting the seed directly in this bed, afterwards, when the plants are three to four inches high, transplanting where desired. When seeds are planted in boxes they soon exhaust the nourishment and become dwarfed before large enough to set out. The plants are hardy and easily transplanted. For August blooming the tall varieties should be planted now, as well as the dwarf early flowering which should bloom the latter part of June The new varieties of the King Aster, a cross between the Comet and the Giant American Branching, are proving very popular. Their peculiar needle-like petals give them a most artistic appearance and for private gardens they are unsurpassed.

For small border plants less than eight or ten inches in height the most suitable are English Daisy, sweet allysum, golden feather or pyrethrum, centaurea (dusty miller) and cineraria maritima. Lobelia is also satisfactory but not so easily grown. It should be started in a small seed bed or in seed boxes, the seed covered very lightly with soil or, still better, with ground sphagnum. After they make a growth of two or three inches they may be easily transplanted.

With the abundant rains this spring we would recommend the sowing of a wild flower garden. This is proving a splendid solution of the vacant lot or waste space problem and the seeds may be obtained at the different seed stores as wild garden mixtures. These will furnish blossoms the greater part of the early summer.

Do not fail to plant some of the new early flowering hybrid annual Sweet William. It may be planted now or during the next two months, flowering during the better part of the summer. The old type Sweet William being a biennial required a year or more to come into bloom while this new hybrid will bloom in three and a half to four months. The flowers are larger and richer in color than the old type. It is a novelty, offered for the first time this year.

PALMS

Palms are much used for interior decorations where there is no direct sunlight. Regular watering is essential, with especial cae not to overwater. It is better with most palms to keep them a little dry than too wet. Where a pot is in a jardiniere especial care must be exercised not to have them too wet.

While small, wash the foliage occasionally with soap suds made from a good soap. Immediately folow with a thorough rinsing. When too large for this, spray the tops frequently with clear water.

Browning at the tips usually comes from trouble at the roots:—first, overwatering; second, worms on the roots; third, lack of plant food. The first is the trouble in nearly every case. The worm that gave the trouble is not the ordinary earth worm, but a little white harmless-looking creature that emerges into the air as a small fly. Dissolve a piece of quick lime as big as a tea cup in three gallons of water. After it is through sputtering and the milky mixture has cleared, pour off the clear part and soak your soil with it. Do not dilute, for the soaking should be thorough. To provide plant food, stir small quantities of bone meal and wood ashes into the surface or in place of ordinary watering occasionally use manure water or ammonia water (a teaspoonful of ammonia to a quart of water). Trim off the brown tips, as they will never recover. If the leaves turn yellow, look for scale on the under side and be sure you are not overwatering. Wash the scale off or spray with kerosene emulsion or whale-oil soap, or some nicotine preparation.

Do not repot too often. If a palm grows three new leaves a year it does well.

CHANGING PLANT SEX

Written for California Cultivator
By Albert R. Gould, F. R. H. S., Late of Royal Botanic Gardens, Kew, England

On page 554 in your issue of December 3, 1914, the somewhat startling statement is made by your contributor, Ernest Braunton, that changes are brought about in plants that bear the two sexes of its flowers on different plants. He states "that cases are known in northern Africa where the natives having an excess of male date palms have pulled out the first flower spike in the hope that the next one will prove female, and they are not always disappointed. The second and all subsequent flower-spikes bear nothing but female blossoms and of course bear a resultant crop of dates." He also states "that the paw-paw is more often changed by the same method or by cutting off the whole top of male plants." That "such changes are well authenticated having been vouched for by plant experts employed by Uncle Sam." It would be interesting to hear more on this question as it seems hardly possible to bring about such a great physiological change by this simple method and from what I know of the African natives, their statements are not always reliable. The date palm (Phoenix dactylifera) in contrast to many other genera of the palmae is dioecious.

In the case of the paw-paw (Carica papaya) this is also said to be dioecious, but I have on several occasions in west Africa found plants of this which are monoecious, and I can therefore quite understand how Uncle Sam's plant experts have been probably deluded. The paw-paw appears to show variations, and it would be difficult to prove that plant sex had been changed in the case of a plant which is sometimes monoecious i. e., bearing both male and femal flowers on the same plant. Personall I should hardly credit your contributor's statement.

Small Fruits Vegetables

THIS MONTH IN SOUTHERN CALIFORNIA

Written for California Cultivator
By O. M. Morris

FEBRUARY is spring planting month, so to speak, and all the hardy vegetables may be planted with the exception of a few vining plants, such as melons, cucumbers, squash, etc. While it may still be a little early for corn yet in favored localities fair success may be had with some of the early varieties, one of the best being Golden Bantam. This is a dwarf variety and an early producer, maturing in about seven weeks. It makes a very good all season corn but owing to its dwarf habit the ears are rather small. The quality, however, is first-class. For a later corn probably the best on this market is Wilkes' Big Four, so called on account of its productiveness and large ears. Being fairly early it is one of the first market corns we have. Large plantings of beans should not be made at this time but, like corn, one may make small plantings of Canadian Wonder or Early Valentine in warmer sections. If the weather proves favorable these will come along all right and furnish early beans. With peas the best varieties for February planting are Yorkshire Hero, Dwarf Telephone and Stratagem. The two latter varieties are proving remarkably profitable to growers, producing larger peas than the Yorkshire Hero and being quite as productive, or even more so. The Dwarf Telephone is practically the same as the tall or Vining Telephone except in habit of growth. It is one of the sweetest peas that we have.

Peppers, tomatoes and egg plants should be planted in hotbeds. These require but light covering at night, a good piece of muslin will protect them from cold and beating rains. Eggplant and cucumbers require a little more bottom heat than do the tomatoes and we would recommend a good hotbed for these, say at least six inches of manure to give sufficient warmth.

There has been more or less complaint in regard to the different strains of Chinese Giant peppers during the last two or three years but this season there is an abundance of first-class, large fruiting Chinese Giant stock to be had. This is a strain of the original Chinese Giant and it is being placed on the market as Chinese Giant Special Strain or Magnum Dulce. This is one of the most profitable strains of the Chinese Giant we have ever seen and those who want large, heavy fruits will be pleased with this variety.

Among the early tomatoes the variety known on the Los Angeles market as First Early is undoubtedly the most productive early tomato grown. It has a large, smooth, round fruit and produces early crops. For a later, all purpose fruit the Dwarf Stone or the New Stone and the Globe are the best, while the Beefsteak or Ponderosa is still later. This latter is a fine slicing tomato. However, it should not be planted for early fruiting as it will not set until late summer.

THIS MONTH IN THE SACRAMENTO VALLEY

Written for California Cultivator
By S. S. Rogers

THROUGHOUT the Sacramento Valley the month of February for the market gardener is in many respects the most important period of the year. In order that high prices be realized from vegetables they must be placed on the market as early in the season as possible. The returns from many crops such as green vegetables, potatoes, etc., is generally high at the beginning of the season and the difference of a few days is often responsible for a large decrease in value.

In many sections of the valley the conditions are such as to make the production of early spring vegetables possible providing the grower will take advantage of the warm weather which generally comes during this month. In many localities potatoes may safely be planted at any time after the first week in February. There is a certain amount of risk attached to planting early potatoes and it would not be advisable to plant a large amount of acreage at this time, with the exception of a few especially favorable sections.

The writer suggests that if the grower is planning to grow 40 acres of potatoes he seed between five and ten acres as soon as possible. From the middle or the last of February a planting of 20 acres or so might well be made, and putting in the remainder of the land between the first and the middle of March. The Early Rose and American Wonder varieties can be used for the early planting. For the later planting the American Wonder will be found desirable.

By use of the hot bed or the cold frame (direction for construction printed on page 555 of the California Cultivator of December 3, 1914) such seeds as tomatoes and peppers can be planted. As a rule the demand for green peas maturing between April and June will warrant the planting of quite an area during this month, using such varieties as the American Wonder, Premium Gem, Telephone and the Extra Early Market. If tomatoes are to be grown the Sparks' Earliana is probably the best early variety to be had and the Stone should be used for the general crop.

In order that seeds may germinate well and the various vegetables grow as rapidly as possible the field should be put into the finest condition possible before planting. If manure has been applied during the previous month it will not be advisable to replow at this time, for by so doing the fertilizer is brought to the surface, which is undesirable. It is necessary that the soil be worked thoroughly to a depth of from six inches to one foot, and this can be accomplished satisfactorily by the use of a disk. After the land has been worked it should be harrowed and ring rolled or clod mashed until all the lumps have been pulverized. If the soil is of such a character that it runs together and bakes badly after being wet a second harrowing after it has been smoothed will be found helpful. The thorough working of the soil before planting not only aids the seeds in germinating but materially prevents weed growth and is very important when growing such vegetables as onions, radishes, beets, etc.

New Macatawa Everbearing Blackberry

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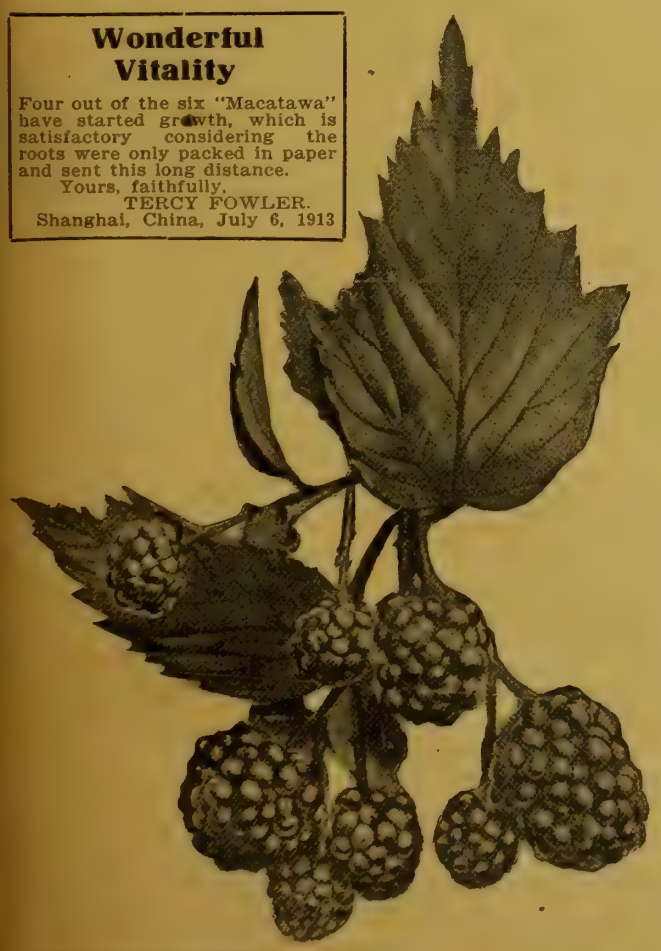
Four out of the six "Macatawa" have started growth, which is satisfactory considering the roots were only packed in paper and sent this long distance.
Yours, faithfully,
TERCY FOWLER.
Shanghai, China, July 6, 1913



THE MACATAWA originated by Alfred Mitting, in 1909, at Holland, Michigan, a cross between the true Giant Himalaya and the Eldorado, and offered to the trade in the fall of 1912. I have named it the Macatawa as that term carries to me the idea of our cold Michigan winters and our occasional dry summers, which this berry stands without the slightest damage. It went through the extreme cold winter of 1911-12 in an exposed condition without freezing. The Macatawa has characteristics of both its parents. The fruit is very large and sweet, in fact it is the sweetest blackberry grown. It is coreless and almost seedless; very solid, jet black when ripe, and can be shipped 1000 miles without bruising. The shape is oblong, very uniform, averaging three and one-half inches around one way, by three and one-fourth inches the other way.

It begins blooming in the southern and coast states about February 15. In the eastern states about April 1st. One month later you can begin to pick. It is a continual cropper from Spring until the frosts, in fact it is the only berry in my 46 years' experience that is an everbearing variety.

Its habit is similar to that of the Eldorado, but self branching, and the bloom is almost semi double, about the size of a silver dollar. So far, all who have tried the berry, say that it is the sweetest and best flavored berry they ever tried. When it was in fruit at Berrydale, it was admired by everyone that saw it, and three thousand plants were sold to said visitors, in the fall of 1912. The young plants come from suckers and not from tips, but it is a shy sucker maker, so we propagate by digging up the roots between the rows and cutting same into one, and one and one-half inch pieces. These piece roots are sown in rows four inches deep, and the rows two feet apart. They should be sown in the southern and coast states from December 1st to March 1st, in the center states from March 1st to May 1st. By the next fall you will have nice plants full of fiber roots, and the plants will be 18 inches high and ready to plant in the field for fruit. Our price for these piece roots is $10 per thousand, one year old plants, $2 per dozen, $12 per hundred, $100 per 1000. 50 plants go at 100 rates, 500 at thousand rates.

The Macatawa Berry is 3½ inches one way by 3¾ inches the other

Macatawa Is a Great Berry for Canning

Address all orders to

Santa Cruz Bulb & Plant Company
8 New Street
SANTA CRUZ, CAL.

Wanted Agents to sell The New Macatawa Everbearing Blackberry Plants Some of our agents are making $10 to $25 a day. We allow a libera ldiscount on all sales made. Send for outfit now with References to Santa Cruz Bulb & Plant Co., No 8 New St., Santa Cruz, Cal.

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The first cost of the tree is the smallest item. You spend years of time and lots of money before you know what your trees will produce. So-called "cheap" trees are seldom cheap.

It is the extra fancy fruit that sells quickly and brings big profits. Thousands of growers will tell you that Roeding's trees grow true to name and are the most satisfactory kind to plant. We grow everything that grows, but specialize on fine citrus and olive stock.

Free Service

We have a special service to offer every purchaser of our trees, that costs you absolutely nothing. It means protection for you against costly mistakes—help in planting, pruning, spraying, irrigating, marketing, etc. Write today for further information.

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Send us your list of what you expect to plant this season and we will be glad to quote our lowest prices and offer our suggestions.

Roeding & Wood Nursery Co.

J. D. Merlwether, Manager

1607 E. Washington St. Los Angeles, Cal.

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The Sulphur Spray in Dry Form

Manufactured on the Pacific Coast Under Niagara Patents

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Attempts are being made to use the reputation of our compound to market a crude substitute—a caustic soda compound of low sulphur content—under a similar name. Beware of such inferior products.

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Grafted Walnut Trees On Black Root

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FRANK B. McMILLAN, - - Alhambra, Cal.

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General Agriculture

KELP AS A BY-PRODUCT

THAT the giant sea-weed of the Pacific Coast, known as "kelp," can be profitably made into commercial fertilizer in the same plant where fish scrap is manufactured is a suggestion in a new bulletin (No. 150) of the United States department of agriculture entitled "Utilization of the Fish Waste of the Pacific Coast." The rendering of fish waste requires more specialized apparatus than the drying of kelp, but the amount of fish waste that could be utilized would keep the plant busy for so short a season that one factory could well be expected to attend to both.

With a plant fully equipped for the large-scale rendering of fish waste, all the equipment necessary for treating kelp, with the exception of a kelp harvester, has been supplied. Scows and tugs designed for the collection of cannery waste can be applied to the harvesting of kelp. The unloading elevators, storage bins, and conveyors within the plant are entirely adaptable to chopped kelp. Since the kelp is not to be cooked or pressed the conveyors should be arranged with a view to the transference of the material directly from storage bin to drier. And the drier, of whatever form, probably would be found quite suitable for drying kelp.

Assuming the canning season, for example, in the Puget Sound region to be confined to the months of July and August, the equipment of the rendering station can be applied to the treatment of kelp during the months of September, October, and probably November, thus more than doubling the activity of the plant.

The capacity of the drier for the plant should be in actual practice about 50 tons per day which is equivalent to about 500 tons of wet kelp. Furthermore even during the canning season when the amount of fish waste available is not sufficient to keep the plant running at full capacity, kelp may be harvested and dried as a supplementary operation.

The following estimates may serve to convey some idea of the cost and profits to be expected from the supplementary operations on kelp. Since the drier has a capacity of 50 tons dry kelp, the capacity of the plant is limited to the equivalent weight of green kelp, which on the basis of 10 per cent solids in the green is 500 tons. This it is assumed could be harvested and unloaded at 50 cents per ton. Such an amount of material probably would require at least two cutters and five barges of 100 tons capacity each; and to tow these to the factory dock two tugs would be necessary.

During the season when cannery waste is being collected the labor required would be on wages, whether actually employed or not. Under such circumstances the labor cost need not be considered but only the actual expense of operating the tugs and cutters. After the close of the cannery season, however, the cost of labor would have to be borne by the kelp. Any estimate of this cost would be difficult and perhaps misleading, but it scarcely would be under $50 per day. About one-half of this estimated cost of labor would be included in the cost of harvesting and the balance in the cost of drying and sacking. The drying it is estimated would cost $1 per dry ton. To sack the product $2 per dry ton is a fair estimate, as a sack would hold over 100 pounds; the bags would cost something less than 10 cents, including string.

The principal expenses of operation may be itemized as follows:

Harvesting, 500 tons, at 50 cents	$250.00
Drying, 50 tons (dry), at $1	50.00
Bagging, 50 tons, at $2	100.00
Overhead charges, selling, and depreciation, 50 tons, at $1	50.00
Total	$450.00
Freight to Eastern centers, at $6	300.00
	$750.00

The proceeds from the sale of the product may be estimated as follows:

On basis of retail sales, 50 tons, at $22.94	$1,147.00
On basis of wholesale sales, 50 tons, at $16.45	822.50

An estimate of daily profits may be made as follows:

Retail basis:	
Daily proceeds	$ 1,147.00
Daily expenditures	750.00
Daily profits	397.00
Profits for 30 days' operation	$11,910.00
Wholesale basis:	
Daily proceeds	$ 822.50
Daily expenditures	750.00
Daily profits	$ 72.50
Profits for 30 days' operation	$ 2,175.00

While very great accuracy cannot be claimed for these estimates, as they are based on experince with materials other than kelp, it is believed that they are approximately correct and can be taken as an indication of what the items of expenditures and proceeds may be. They indicate strongly that a plant erected and equipped for rendering cannery waste can be applied with profit to the treatment of kelp. The proviso that the plant be equipped with a drier of large capacity must be introduced. In the beginning of the proposed industry the market on the Pacific Coast would consume the entire product, so that the high freight rates to the Atlantic seaboard could be avoided. This would add materially to the profits.

SECURITY

Orchard Ladders for your pickers will bring results to you. Insure the pickers' safety. He will do better work.

"See the Joint That's the Point"

Rear view Security Step Joint

Security 8-ft. Tripod

4000 California growers have solved the ladde problem with the Security. Sold by dealers in 14 California towns.

Illustrated 1915 Booklet Gives you length, width, weight and prices of Security Orchard Ladders.

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Ideal Gopher Trap

Only Trap guaranteed to catch large or small gopher. Being round with thin edges gopher walks into trap before detecting anything in runway. Positive grip, jaws always hold. 100% efficient—catches gopher every time. Easiest to set. Far safer and surer than poisons or gas. Farmers say it's worth dozen other makes. Price 50c. If your dealer can't supply you, will be sent postpaid on receipt of 60c; two traps for $1.10; six for $3.00. Money back if not satisfied.

E. J. CHUBBUCK CO., Dept. A, 731 Market St., San Francisco, Cal.

Farm Bureaus and Institutes

FARM BUREAUS

Schedule of meetings through February:

Madera County, Thos. C. Mayhew, Adviser, Madera

Chowchilla	February 1
Madera	February 6
Dixie Land	February 9
Fairmead	February 11
Eastin	February 12
Coarse Gold	February 25
Oakhurst	February 26
Nipinnawasee	February 27
North Fork	February 29

San Joaquin County, Frank F. Lyons, Adviser, Stockton

Thornton	February 1
Stockton	February 3
Acampo	February 5
Lockeford	February 8
Linden	February 10
Escalon	February 12
Stockton, Directors' Meeting	Feb. 13
Farm Advisers' Convention at Berkeley	February 15-21
Holt	February 24
Ripon	February 25
Manteca	February 26

San Diego County, Jas. A. Armstrong, Adviser, San Diego

—First Week—

Encinitas	Monday, February 1
Vista	Wednesday, February 3
Fallbrook	Friday, February 5
Directors' Meeting, Saturday, Feb.	6

—Second Week—

Escondido	Monday, February 8
Julian	Wednesday, February 10
Dehesa	Friday, February 12
Office	Saturday, February 13

—Third Week—

Conference of Farm Advisers at Berkeley.

—Fourth Week—

Chula Vista	Tuesday, February 23
San Ysidro	Wednesday, February 24
Poway	Friday, February 26
Office	Saturday, February 27

Alameda County, W. H. Nixon, Adviser, Hayward

Hayward	Monday, February 1
San Leandro	Wednesday, February 3
Castro Valley	Friday, February 5
Murray Township, at Livermore	Monday, February 8
Pleasanton	Wednesday, February 10
Oakland Day	Friday, February 12
Newark	Tuesday, February 23
Niles	Wednesday, February 24

Probably no meeting at Centerville or Irvington on account of state conference of farm advisers at Berkeley, February 15 to 20, inclusive.

Napa County, H. J. Baade, Adviser, Napa

Dr. Cady's schedule in Napa County has been changed from the previous announcement so that it now stands as follows:

Rutherford	February 1
St. Helena	February 2
Berryessa	February 3
Pope Valley	February 4
Calistoga	February 5
Carneros	February 8
Brown's Valley	February 9
Coombsville	February 10
Salvador	February 11
Wooden Valley	February 12

This change has been made for the reason that the farm advisers of the state will have a conference at Berkeley from February 15 to 20, inclusive. All persons interested should note the dates carefully, since this change has been made necessary. Any questions on hog cholera control or hog management will be gladly answered by Dr. Cady at the time he visits this county.

The farm advisers' schedule for the remainder of the month is as follows:

Conference of farm advisers at Berkeley	February 15-20
Mt. George	February 22
Fly District	February 24
Howell Mount	February 26

During the month of February hog cholera control and poultry management will be discussed at the center meetings. The regular schedule of the farm adviser will be dispensed with, his meetings occurring on the dates mentioned above. This change is for this month only; in the future the regular schedule will be followed.

Kern County, R. R. Mack, Adviser, Bakersfield

Wasco, Director W. T. Fowler, Monday, February 1, 7:30 p. m.

Delano, Director R. H. Hiett, Wednesday, February 3, 8:00 p. m.

McFarland, Director H. L. Heard, Friday, February 5, 7:30 p. m.

Panama, Director A. B. Robinson, Monday, February 8, 7:30 p. m.

Rosedale, Director J. Waters, Wednesday, February 10, 7:30 p. m.

Rio Bravo, Director F. W. Haag, Saturday, February 13, 7:30 p. m.

Tehachapi, Director L. T. Jenkins, Tuesday, February 16, 7:30 p. m.

Muroc, Director C. E. Clark, Wednesday, February 17, 7:30 p. m.

Willow Springs, Director H. W. Mongold, Thursday, February 18, 2 p. m.

Arvin, Director R. Haven, Monday, February 22, 7:30 p. m.

Shafter, Director E. U. Combs, February 24, 7:30 p. m.

Bakersfield, Director M. J. Adams, Saturday, February 27, 2 p. m.

High School Agricultural Club meetings:

Kern Co. H. S. Agr. Club, President J. Pierce, Tuesday, February 2, 7 p. m.

Delano J. U. H. S. Agr. Club, President J. Woolsey, Wednesday, Feb. 3, 7 p.m.

Kern Co. H. S. Agr. Club, President J. Pierce, Tuesday, February 23, 7 p. m.

FARMERS' INSTITUTES

Galt, Sacramento County, Feb. 1-2.

Corning, Tehama County (Corning Extension School in Horticulture), Feb. 10, 11, 12, 13.

Irwin, Merced County, Feb. 23.

Stevenson, Merced County, Feb. 24.

Allison Ranch, Merced County, Feb. 25.

Among the lecturers for the above are: Prof. W. T. Clarke, W. B. Herms, C. B. Lipman, F. T. Bioletti, J. E. Coit; Messrs. R. L. Adams, W. F. Oglesby, T. Francis Hunt, R. H. Taylor, R. D. Robertson, W. E. Lloyd, V. C. Bryant and Miss Lillian D. Clark.

Galt Institute Program

Monday, 10 a. m.—Alfalfa Culture, V. C. Bryant; Feeding Stock for Market (followed by stock judging), V. C.

(Continued on Page 159)

Jeffery Builds The Foremost Six

THE Jeffery Chesterfield Six is a car so perfect in style and quality that not even the most critical engineer could describe any of its features as other than the very best.

No car has ever been built with body lines more harmonious. The Chesterfield is a true style-carriage, in which the streamline has been carried out in perfect European design. Most so-called streamline cars are not truly streamline. The lines of a bird's body, however, the lines of a yacht's hull, and the form of the Jeffery Chesterfield Six are perfect types of streamline.

Jeffery spends an extra $1,000,000 a year to insure the quality of material and manufacture in Jeffery cars. The purpose of the great organization is not to build cars for a price, but for an owner.

How thoroughly Jeffery insists upon super quality is clearly shown in the Chesterfield Six specifications.

Every Chesterfield is fitted with a small bore, high speed motor that marks the farthest reach of modern engineering. It is vibrationless, flexible, powerful. When you drive it you perceive that the Chesterfield is quite as unusual in its ability as in its appearance.

Every Chesterfield is driven through a worm-drive rear axle, the ultimate type of quiet, wear-proof, efficient drive. You absolutely cannot hear the axle.

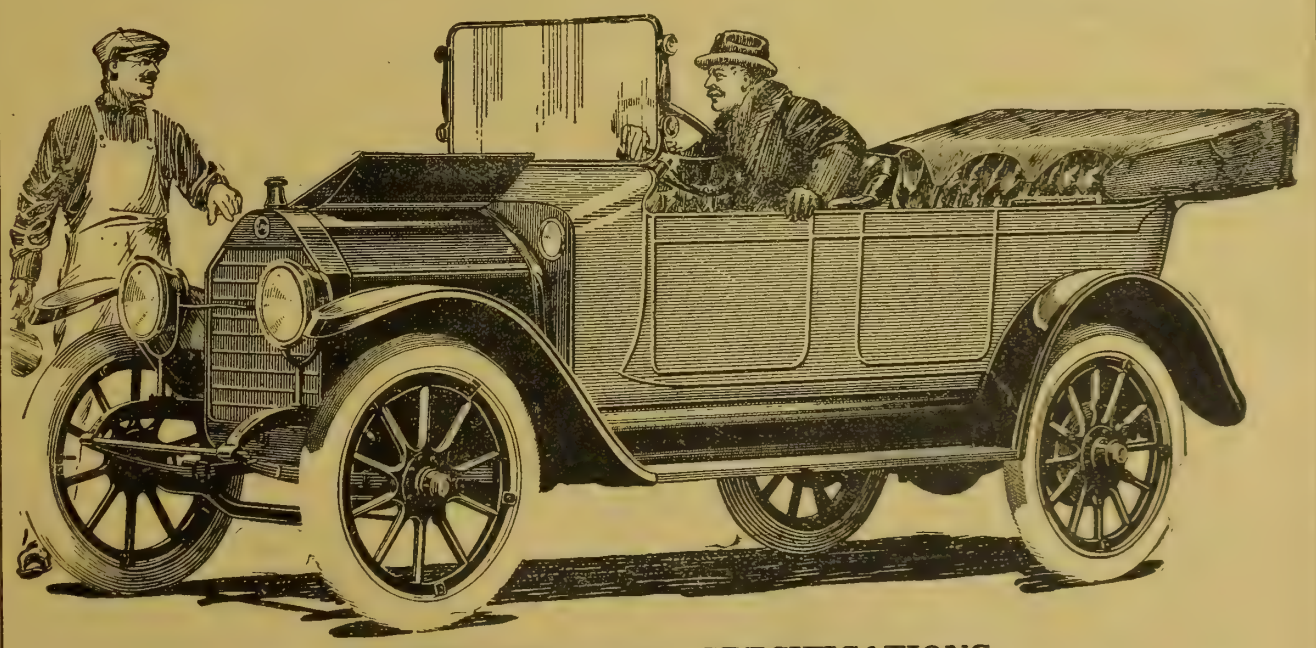
Every Chesterfield uses a trouble-proof, three-plate dry-disc clutch whose smoothness of operation improves upon any other type we know.

Every Chesterfield transmits its power through Spicer universal joints and Daimler leather coupling.

Every Chesterfield is lighted and started by the Bijur system. The quality of this installation is evident from the fact that it is used also by the most popular high-priced car in America.

Read the specifications through, and you will be greatly pleased to see how at every point the Jeffery Chesterfield Six is built along lines which you know look solely to an owner's interest and not to low manufacturing cost.

If you wished, you could not buy a better car.



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Motor: High speed, high efficiency bloc type; 35-42 horse power. Bijur two-unit starting and lighting system, used in the most popular high priced car in America.

Transmission: Four forward speeds and reverse. Worm drive, full floating, ball bearing rear axle. Imported annular ball bearings. Three-plate dry-disc clutch. Spicer universals. Daimler leather coupling. Rich Tungsten steel valves—require no grinding or other attention. Bosch ignition, magneto, cables and plugs. Cantilever spring, self-oiling spring bolts. Combination constant level splash and gravity feed lubrication, with indicator on dash. Gemmer steering gear. Eighteen-inch corrugated steering wheel, with signal button in center. Left drive, center control. Two sets internal expanding brakes—14x2 inches. Side rails frame extended under sills of body—most rigid construction possible.

Honeycomb radiator—European design. Demountable rims with lugs. Crown fenders. Wheel base, 122 inches. Body: roomy, five-passenger. Weight: 2850 pounds, as shipped.

Equipment: Rain vision ventilating two-piece windshield shaped to cowl; One-man Neverleek top and boot; Collins curtains; Stewart-Warner speedometer with Empico drive enclosed in axle shaft; Waltham clock; power tire pump; Solar electric headlights with one bulb of five intensities; seamless pressed steel round gasoline tank with gauge, carried in rear, with Stewart vacuum feed; combination wash and trouble lamp; extra demountable rim with carrier; Klaxet horn; ammeter; robe rail; foot-rest; full set of tools, tire repair outfit, and jack. Cloth upholstery optional.

Jeffery Four, $1450; Jeffery Chesterfield Six, $1650;
Jeffery 7 Passenger Six, $2400

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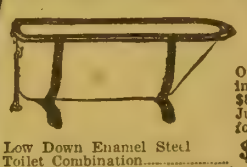

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Complete to floor—wonderful value.

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The highest grade wallboard on the market; made of 3 layers of moisture-proof fibre, with asphaltum between each layer; or cream white fiber board.

Cheaper and neater than plaster or lumber, and any one can install it in one-quarter of the time. Per 1000 square feet..... $19.00

This is a $30.00 Value.

Special—NAILS—In 100-lb. kegs—per keg..... $2.20

This is an unequaled price for 20, 30, 40, 50 and 60 penny common nails. We also carry all sizes and finishes at $2.20 per 100 lbs. base.

LUMBER, SASH AND DOORS — Lowest Prices on Rough and Finished Lumber

2-inch Redwood as low as $12.00 per 1000. 1 in. x 6 in., 8 in. and 10 in. length, 8 to 18 ft., going at $15.00 per 1000. 8 ft. x 12 ft., galvanized all-metal frame skylights glazed with ribbed glass, suitable for hot-house, roofs, etc., crated, $12.00 each.

Two-light double hung windows 1⅜ in. thick, best quality American window glass, all sizes..... 60c

No. 1 Colonial Door Selected Kiln-Dried Oregon Pine — all stock sizes—$1.50 up.

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You can buy anything in the Building Material line second-hand, at one-half to two-thirds less than the price of new material. We do 95 per cent of all the wrecking done in Southern California.

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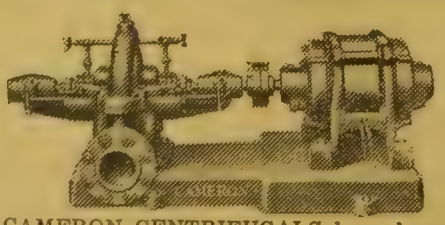

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Irrigation Forestry

WORK OF TRI-COUNTIES' REFORESTATION COMMITTEE

IN his annual report Francis Cuttle of Riverside, as president of the Tri-Counties Reforestation Committee, says the Riverside Press, reviews the excellent work done by the committee during the last year, and makes some interesting recommendations.

His report shows that for 200 days last winter an average of 4448 inches of water from the Santa Ana river was spread on gravel beds. This method of conservation of water has been used for several years by the committee, and has proven successful. The work is to be enlarged immediately.

Riverside, San Bernardino and Orange Counties are joined in the Tri-Counties Reforestation Committee, organized to promote water conservation in the San Bernardino mountains.

Cuttle's report to the members of the Tri-Counties Reforestation Committee at its annual meeting at Riverside was in brief, as follows:

The committee has furnished two extra men for fire patrol for three months of the driest portion of the summer for the protection of our watershed, which work was done in cooperation with the forest service. The season was one of great danger on account of the rank growth of the fire lanes and trails, following the heavy rainfall of last winter, there being 145 fires started, only three of which got beyond control, but approximately 4300 acres were burned inside the national forests and 3887 just outside. The damage to the watershed cannot be accurately computed, but it is placed by Mr. Charlton, forest supervisor, at $6000. Seventy per cent of the fires were started by campers throwing away matches, cigarettes, cigars, etc.

Cuttle advocated the committee endorsing a law being enacted creating a game refuge of the whole of the Angeles national forest as only about one-third of 1 per cent of the visitors to the Angeles forest are hunters, it would be a source of great pleasure to the largest number to have harmless wild animals protected, and would also cause less danger from fire, owing to the fact that hunters go into isolated places, where when fires are started it is difficult to reach them in time to prevent serious loss to the watershed cover.

The Newlands River Regulation bill and its provisions as affecting the people of the West, if it is enacted into law and sustained by the courts, was also touched upon by Mr. Cuttle. This bill has provisions broad enough to affect every section of the country in assisting in the storage and conservation of water by all known means. He urged the endorsement of a resolution in favor of the Newlands River Regulation bill.

The work of the Water Conservation Association during the past year was as follows: About 4448 inches of water average for 200 days was diverted and sunk into the gravels of the debris cone of the Santa Ana river, the upper contour ditch is being enlarged and brought to grade, carrying twice as much water as heretofore. A short boulder and wire dam as designed by W. E. Pedley has been built at right angles across the Santa Ana river at the intake of the loose boulder dam used for the past five or six years. This dam will be a test of this method of construction which may be valuable later as demonstrating the practicability of this method of construction should the association desire to enlarge its conservation system.

Cuttle closed his report with the words of J. B. Case, president of the International Irrigation Congress in his greeting for the year 1915:

"The real dream of the empire is not a spectacle of embattled columns, of charging regiments, of roaring cannon, nor even of victorious banners, telling of conquests on war's red fields. It is a vision of happy homes, where a contented people thrive under a helpful government, where none is over-rich, where none is poor, but where all share in the beneficence of earth's vast store-house of plenty. With the waters spreading their bounty over the thirsty land, with the wide reaches of our plains transformed into productive farms, America may be the haven of all who seek the fullness of life. To realize this vision is America's problem today."

PURCHASING AN AUTOMOBILE

A common mistake made by most people who purchase a car is to purchase, and then find out the things they would have had different had they known.

There are many things about the car that the purchaser could have had at the time of purchase, or, for a very little extra cost, could have had added to the car.

There is the size of tires; in order to get a car down as cheap as possible the manufacturer sometimes puts on as small a tire as will carry the car, when if a purchaser would insist on a tire one-half an inch larger, he would get almost twice the mileage and have infinitely less tire trouble. Most blowouts are caused by undersized tires or insufficient air in them. A tire will not blow out nearly so quickly with the right pressure as it will if allowed to mash down on the sides and break the fabric.

You will find, if you keep a tire pumped to the required pressure it seldom blows out, but will wear out instead, without giving much trouble.

I have heard some say "I only ran it flat about half a mile." It may injure a tire so it will be ruined by runing it a much shorter distance than half a mile.

The best thing to do is to stop when it goes flat and fix it, or take it off and run in on the rim if you must go a short distance.

A great many people are getting to understand the advantages of over-size tires and some agents are equipping their cars with them.

Another thing is to see that front and rear tires are the same size, otherwise you will have to carry two cases and two tubes to have an extra case and tube for both front and back wheels.—R. A. Bradley, Colorado, Agricultural College.

Country Life Clubs

Clubs Established by Extension Division California College of Agriculture

"HOW CAN THE HOME EXTENSION CLUB MAKE A SUCCESS OF THE FARMERS' INSTITUTE?"

By Mrs. G. F. McCarthy Before Esparto Home Extension Club

IN considering this question let us look for a few moments at the object of the farmers' institute. What is the reason for holding one?

When a young man arrives at that time in his life, when he must earn his own living, does he buy a set of books, rent an office, hang out his shingle and announce to the public that he is ready to fight its legal battles? Does he buy a set of surgical instruments and in like manner notify the people that he will attend to all ills that flesh is heir to? Does a young woman ever think of starting out as a teacher, a dressmaker or stenographer by simply investing in the implements used in such pursuits. You say, "Certainly not." They will spend years of time in hard study fitting themselves to the very best of their ability to make a success of whatever vocation they may choose.

When once they have begun their life work do they cease their study? No, a number of times during the year we will read of the teachers' institute being held which must be attended at least once a year by every teacher in the state. We will also notice that the county medical association held its monthly meeting at a certain time and place and that Dr. So and So read a paper upon the prevention of tuberculosis, Dr. Somebody else spoke of some very important investigations which were being carried on along other lines. Always studying and working out better methods of doing whatever they are concerned with.

But how is it with the farmer? Years ago it was thought that one did not need to know anything especial to farm. One would go along in the same old rut doing just the same from year to year as his father had done before him. But gradually the state of affairs has been changing in this, as well as in other vocations, until the fact has been made plain that education is just as important a factor in farming, dairying, stock and poultry raising, as in any other professions. And so has come about the establishment of the farmers' institute.

With the advantages offered by the state agricultural college, the experiment stations and the bulletins published by the United States department of agriculture, as well as the state bulletins, there is no reason why a farmer should not be as intelligent and practical as any other person.

Closely associated with the work of the farmers' institute is that of domestic science which is intended to lighten the burdens of the overworked housewife. This brings us to the question of what the home extension club can do to make a success of the farmers' institute.

Some of our members may say "I am not a farmer's wife, therefore am not especially interested." Did you ever stop to think that when the farmer is not prosperous it to a certain extent affects others? Ask the merchant if a season of poor crops affects his business. Ask the manufacturer if he can notice any difference in his output if the harvest be good or poor. Did you ever hear a farmer say, "Well, if we have good crops this year we can have an automobile or if the almonds do well I think we can have the new rug Susan has been wanting? Perhaps we can go to the coast for a little vacation this summer if the apricots and peaches are as good as they promise to be." These are common expressions. Can you see by them where there is a benefit to anyone besides the farmer?

The members of the home extension club can show an interest in the work by making their plans to be present as often as they possibly can at the sessions. Mark the three days on your calendar and try to arrange your work so that you will be free to attend. Let it be known beforehand if there is any particular subject upon which you wish instruction. Talk about it among your friends. You do not know where a hint may be given that will lead to something which may prove of inestimable value.

(Continued on Page 159)

John Deere Implements

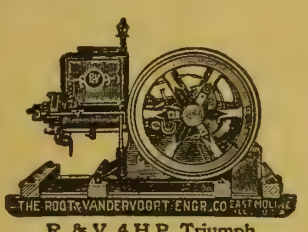
R. & V. Gasolene Engines

New Triumph One Horse Engine. Just the engine for light work about house and barn, such as running washing machine, pumping water and operating other small machines. Saves every member of the family work and worry.

A reliable, efficient, low priced but high grade engine. Easy to start, smooth running, requires no attention when in operation, economical in use of fuel and perfectly safe in and around buildings. All working parts are back of the fly wheel out of the way—a neat outfit in every respect.

R. & V. Triumph Engines for All Farm Machinery

The R. & V. Triumph line of engines is also made in 2, 4, 6, 8, 10, 12 and 16 H.P. sizes, stationary and portable. Every farm can use one or more of these engines to advantage.



R. & V. 4 H.P. Triumph

They are dependable gasolene engines—always develop rated horse power.

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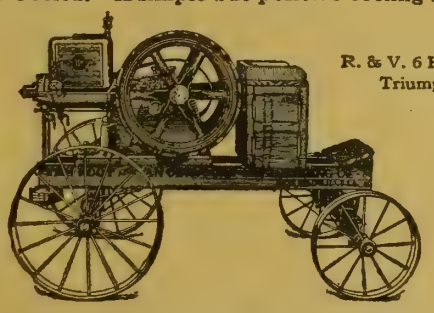
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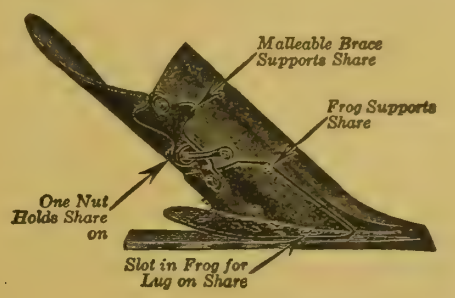

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A Journal of Horticulture and Agriculture

By
THE CULTIVATOR PUBLISHING CO., Inc.
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Thursday, Feb. 4, 1915

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

SAVE THE BIRDS

The department of agriculture is sending out warning that migratory birds are now protected by federal law. Under the provisions of this law no water fowl may be shot in the northern breeding zone after January 15. Officials have been appointed to look after the enforcement of the regulations of this law.

MORE POULTRY

The poultryman is aghast at the prices to which wheat is mounting. The margin has been narrow enough in the past and with wheat at nearly double former prices and other grains following closely it is evident that closer figuring will have to be done and other feeds used as far as possible. With little question many people will be influenced to drop out of the poultry industry and more will reduce their output until they see smoother sailing ahead. But there is little question that good prices will prevail and if early hatches can be made fall layers may induce full baskets when the longest prices prevail. A period of closer figuring during the next year or two may prove of benefit to the entire poultry industry.

MILCH COWS

In 1910 there were 20,625,000 milch cows in the United States. This number held practically stationary until 1914. That year a slight increase was shown, and during the past year, up to January 1, 1915, the percentage of increase was 2.5. Now there are in this country 21,262,000 milch cows. The valuation however shows a greater increase than does the number. In 1910 the cows were valued at $727,000,000, while on January 1, 1915, the valuation was $1,176,338,000.

PLANT TREES

Next week's Cultivator will give considerable attention to the planting of trees and small fruits. This is the planting season and everyone who intends to plant deciduous trees or small fruits should have them in the ground at once. A fund of valuable information is being gathered for next week's paper. It may have some suggestions for even the experienced planter; it certainly will have many for those who are this season planting their first trees in California.

RAKER BILL

The campaign carried on by practically all Pacific Coast apple growers to secure standardization of apple packages must be continued a little longer. The Raker box bill which has been before the national congress has lost its place on the calendar and has been laid over until the next session. The entire proceeding will then necessarily be renewed. It is charged that bad faith was shown in the management of this bill and politics of not very high grade worked in order to do it to death. The only thing for Western apple shippers to do is to take a new start and insist on fair treatment at the hands of the national congress.

IMPORTING MEAT

The secretary of agriculture recently addressed a Topeka audience, laying stress on the fact that the American farmer is continually exporting wheat and continually importing meats. We have also seen the statement that money received for our wheat exports would hardly buy the phosphoric acid to return to the soil to recompense it for the great drain made upon it.

We believe the tendency is toward a great increase in animal industry, but it should be encouraged by all possible means, for it now seems that our country may some day be compelled to seek far and wide for the fertility to replace the drains which have been made upon our soils. The best way is to provide against this by raising more live stock, which means greater fertility and a greater proportion of the original fertility retained on the lands.

MORE HORSES

Notwithstanding the statements made of the immense shipments of horses and mules to European battlefields the fact remains that according to census figures there are more horses and mules in the United States than on January 1 of 1914. In fact there was an increase of 233,000, or, in percentage, an increase of 1.1. The statement has been made that the shipments from this country to France alone aggregated 300,000 horses, while the census reports show that all horses shipped from the United States during the last few months total less than 100,000.

This statement is not made to discourage production of more horses, rather the reverse, for there is increasing demand for draft horses. We are compelled to admit further that the price is somewhat lower than a year ago, the average being $6.00 per head lower. This may be due to adverse financial conditions more than to overproduction.

PAYING THE COST

The department of agriculture has now secured through the signing of the deficiency act a sum of $2,500,000 to be used for compensation, or rather part compensation, of live stock breeders whose herds have been destroyed because of foot and mouth disease. It is to be hoped that the various states will come through with an equal amount. The compensation is little enough considering the great loss.

MORE PROSPERITY

On page 158 is some interesting reading. We are not referring to the markets but to the table under the heading "Weather Conditions." Every section of California was visited during the last week by a plentiful supply of moisture. Eureka, which is usually long on rainfall, shows the lightest of any section in the state, but its total for the season leads all others, so we need not worry over Eureka. San Luis Obispo tops the list with over five inches; Los Angeles comes next with nearly five, Red Bluff shows a total of over four, and San Diego outdoes herself with practically two and a half, or a total for the entire season of nearly nine inches, which is almost four inches above normal. We have promise of a wonderful showing of golden poppies for our visitors this year who will come to see the great expositions. Better, we have promise of golden dollars for the pockets of California producers.

FARMERS ORGANIZE

The meeting called by State Commissioner Cook and his committee appointed at the last State Fruit Growers' Convention, to be held in San Francisco February 22, should prove a great opportunity for the producers of the state to discuss the advisability of a general organization of the farming interests of the state. The recommendation of the committee which will be given to the gathering calls for a most ambitious organization. Perhaps its greatest activity is contemplated along scientific lines, but such an organization cannot well be held together without also accomplishing great good along economic lines. There are now in this state a great many organizations looking after the interests of the different branches of farming. The State Fruit Growers' Convention which has met annually for many years has looked after the interests of the fruit grower in a larger way though it has been devoid of definite organization, being a loose gathering of people brought together upon the call of the state horticultural commissioner. Draft horse breeders have had a strong organization. The same is true of the swine breeders, of the dairymen, of the live stock people in general. The wool growers have also had an organization; the grape producers another.

Is there not opportunity for these diverse interests, while still maintaining their associations to watch their own individual interests, gather greater power by affiliating under one general management and thus give to the producing classes an influence which they do not now have?

The meeting will be held at the Inside Inn on the Panama-Pacific Exposition grounds on Monday, February 22. The exposition will open on Saturday, the 20th, and Monday being a legal holiday should give opportunity to many people to go to San Francisco and take a first look at the great exposition and talk over the interests of the farmers for a short time.

Agricultural Notes

Colorado now has eight county agents at work in the field.

English railways are encouraging culture of sugar beets in their territory.

It is reported that the Italian government has just closed an order for 400,000 sacks of Michigan white beans.

The sweet potato is the principal article of food among the people of the West India islands. It is a native of the tropics.

Of breadstuffs the United States exported during 1914 $300,309,550 worth. This was an increase of over $100,000,000 from the previous year.

In peat lands of both Germany and England central electric stations have been established to utilize energy generated by burning peat for electric power.

There is a growing demand in Brazil for flower and garden seeds, the bulk of which have been imported from France, Germany, Portugal, Spain, and other European countries, the United States supplying only a small part.

A soap manufacturer of Argentina has been sucessfully experimenting with the manufacture of oil from grape seed. It is estimated that a refined article can be produced suitable for table use as well as the inferior used in soap making.

The Iowa Beef Producers' Association is planning its showing at the Panama-Pacific Exposition. It is stated that it expects to send from Iowa 200 head of cattle, at least 200 hogs, as many sheep, and about 200 horses.

It has been estimated that last week grain in cars at New York and Jersey City terminals awaiting trans-Atlantic shipment amounted to more than 7,000 carloads, and one railroad line is said to have 3,000 cars awaiting vessels at Baltimore.

The Southern Pacific, the Atchison Topeka & Santa Fe and the Western Pacific have notified the California Railroad Commission that they will abolish all switching charges on cars delivered from or taken to industry tracks, when incidental to a line haul.

Agricultural papers all over the country, as well as many other papers, are insisting that school houses should be working longer hours; not to keep the children longer at their studies, but to provide a community gathering place in the evenings.

The principal vegetable seeds imported at Rio de Janeiro are watercress, cabbage and lettuce, onions cauliflower, cabbage of all kinds spinach, peas, beans, melons, mustard turnips, Spanish black radishes, red radishes, small and large tomatoes etc. The varieties of flowers most popular include carnations (mixed) pansies, zinnias, violets, chrysanthemums, flowering vines, etc. Planting is commenced in March.

"Kamiko," as paper clothing is called in Japan, is made of the real Japanese paper manufactured from mulberry bark. The paper has little "size" in it and, though soft and warm, a thin layer of silk wadding is placed between two sheets of the paper and the whole is quilted. Velvet shirts and drawers made in this way are more comfortable than flannels. The Japanese soldiers realized the value of this kind of clothing when they had to weather a Siberian winter. A company in Yokohama is supplying large quantities of paper shirts to the Russian army.

Agricultural News Notes of the Pacific Coast

Northern California

Bean men of Sutter County are planting large acreage.

The citrus products plant at Lodi is nearly ready for its initial operation.

Tehama County's olive production is running heavier than any preceding year.

Another seedless lemon has been developed at Fairoaks, Sacramento County.

Dairymen near Arcata, Humboldt County, are forming a cow-testing association.

Consumers of domestic water of Sacramento are objecting seriously to its quality.

Napa County dairymen are considering the advisability of forming a cow testing association.

Dixon, Solano County, farmers are discussing advisability of mutton production on the small farm.

The newly formed cow testing association known as Sacramento-Yolo Association has over 900 cows signed up.

The board of directors of the Napa County farm bureau met and discussed matters pertaining to the next county fair.

The Haywards Poultry Producers' Association recently met in monthly meeting. Over 150 poultry breeders attended.

T. E. Quissenberry of the Missouri state experiment station has been made superintendent of the poultry division at the Panama-Pacific Exposition.

The largest shipment of rice ever made from this state went out from Sacramento late in January. It consisted of over 40 cars, with 1,600,000 pounds.

An olive grower at Corning, Tehama County, is developing a process by which ripe olives may be cured or fried. The bitterness is extracted during the process and the dried product is said to be delicious.

The rice crops grown on the west side of the Sacramento Valley this season made very satisfactory yields in spite of the fact that they were all planted too late. Yields of over 40 sacks per acre are reported.

The litigation between the Kuhn syndicate, or the Sacramento Valley Irrigation Company, and Beckwith and other interests, has been adjusted and the judgment which was granted to Byron D. Beckwith of Colusa has been settled for $87,000.

A few outbreaks of hog cholera are reported in the Sacramento Valley. Both the University of California and the United States department of agriculture have men in the field giving lectures and demonstrations on the use of hog cholera serum and virus, and many growers are successfully using the treatments.

The run of grain stubble hogs from the Sacramento Valley and the San Joaquin country is about over, and the bulk of the pork of California is coming from southern Idaho by way of Ogden. Hogs are plentiful in Idaho, and it may be some time before there is any marked increase in prices in California markets.

Central California

Monterey claims to have run the first jitney bus in the state.

California's per acre yield of rice for 1914 averaged 53.3 bushels.

Grape growers expect to benefit by the war between shook manufacturers.

The old Chatten ranch of Tulare County has been placed on the market for subdivision.

Citrus fruit growers of Tulare have organized an association to find means of utilizing culls.

One thousand two hundred and eighty acres are to be planted to rice near Wasco, Kern County.

Demonstrations in vineyard pruning are being given in various sections of Fresno County by Mr. Frank Henry.

Two bills have been introduced into the assembly for regulation of sale and shipment of frost-bitten and immature citrus fruits.

Dates for the next show of the Porterville Poultry and Pet Stock Association have been set for December 2, 3, 4, and 5.

Shipments of citrus fruit from Tulare county this season have been nearly 1,000 cars heavier than last year at this time.

A Modesto rancher is suing the Turlock irrigation district for $30,000 damages because of the water flowing across his ranch when the Davis reservoir broke last year.

Beekeepers of Stanislaus County met at the county seat Saturday, January 30, to discuss the exhibit of the California Beekeepers' Association at the Panama-Pacific.

The San Joaquin Valley Counties' Association has made its last shipment of exhibit products for the Panama-Pacific. Practically everything is now ready for the opening day.

The supervisors of Kings County have ordered submission of bids for bridges whose construction will connect up the various sections of state highway already completed in Kings County.

Veterinarians from the state university are making investigations and giving interesting information to hog breeders in various portions of the valley as to care of hogs and prevention of disease.

At the recent annual meeting of the Visalia Cooperative Creamery over 300 stockholders were present. The secretary's report showed a return of 20 per cent on investment of stockholders during the past year. Former directors were reelected.

Commissioner of Corporations H. L. Carnahan, newly appointed by the governor, has announced that he will maintain offices in Sacramento and Los Angeles for the administration of the blue sky law, and possibly later will open an office in San Francisco.

The grazing permits to be issued to stockmen for grazing on public lands of California for 1915 will aggregate nearly a million meat animals. There will be 212,000 cattle and horses, 505,750 sheep, 8000 swine. This is a material increase over number of permits issued in 1914.

Southern California

The biggest crop in the Imperial Valley is alfalfa, of which there is now planted 128,148 acres.

A company has been incorporated in the Imperial Valley to manufacture serum for hog cholera.

Sixty carloads of beans were shipped from one warehouse in Saticoy, Ventura County, during January.

The Mound Farmers' Club of Ventura County is working to secure a branch of the county free library.

The Moorpark farm bureau is discussing advisability of forming a walnut association in the Simi Valley.

The Villa Park Orange Association, Orange County, opened its packing house for the coming season on January 20.

The Arlington Poultry Association has endorsed the plan followed by the Federated Poultry Club of Los Angeles.

A Ventura County bean grower received last week from the Italian government an order for 20,000 sacks of pink beans.

Several towns in the San Gabriel Valley of Los Angeles County are making an effort to secure a regular agricultural fair.

Several Southern California towns are planning to extend the glad hand to the Western Fruit Jobbers who will visit the state early in February.

The Celery Growers' Association during January shipped out 47 carloads. The manager of the association reports the present market as fair.

The Covina Valley farmers' club met in Irwindale last Saturday and listened to an address by President Monroe of the local Citrus By-Products Company.

Land owners in the Palo Verde and Coachella Valley sections are appealing for a United States land office to be established on the Colorado desert.

Three cars of celery are now being shipped daily by the Celery Growers' Association from the Smeltzer, Wintersburg and Talbert stations in Orange County.

Ventura County proposes to make its county fair a permanent institution. The fair association is to be organized February 6 at the chamber of commerce rooms in the court house.

Suits are still being prosecuted in San Bernardino and Riverside Counties by orange growers against cement works because of estimated damages to vegetation from dust from the mills.

The coming citrus fruit crop is estimated to run close to 38,000 carloads, though some estimates place it at 40,000. This does not include the 5500 carloads to be shipped from north of Tehachapi.

Forest Supervisor Charlton after several years of effort has at last succeeded in interesting goat owners in the subject of feeding out his firebreaks, and the secretary of agriculture has just authorized the free grazing of 4000 of these animals as well as the payment of an additional bonus for handling them according to a definite agreement.

The Coast

The poultry show at Chandler, Arizona, closed last week.

Oregon's dairy production during the year ending October, 1913, amounted to nearly $19,000,000.

Advance in freight rates from Portland, Oregon, has caused almost complete stoppage in exports.

Improvements in a large meat packing plant at Spokane are under way which will cost over $50,000.

"More livestock as a by-product" is the slogan of many farmers of Washington, Oregon and Northern Idaho.

The Chandler Poultry Association of Chandler, Arizona, is holding its annual show. Over 60 prizes are offered.

A general institute was held at Logan, Utah, recently in which teachers, housekeepers and farmers united.

Eastern Washington, often known as the Inland Empire, is moving for state division, with Spokane as its capital.

Some damage by extreme cold and lack of snow has been done to wheat in the neighborhood of Walla Walla, Washington.

The Montana state college of agriculture at Bozeman held a Farmers' Week and Country Life convention the last week of January.

The state hop-growers' association met at Hillsboro, Oregon, last week at which time $5000 in additional shares was subscribed.

The Carnation Stock Farm, near Seattle, Washington, has just purchased for $25,000 the prize Holstein bull, Johanna McKinley Segis.

Experts from the University of Washington at Pullman are visiting hog-producing sections and giving information as to best methods.

A meeting of cantaloupe growers was held at Chandler, Arizona, recently and plans were formulated for next season's planting and marketing.

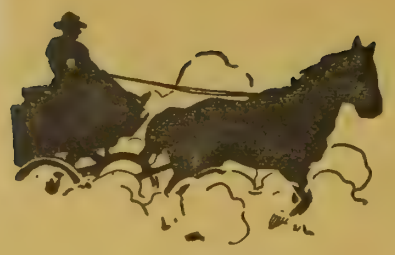
Montana produced $4,500,000 worth of dairy products during the year, according to the annual report of State Dairy Commissioner A. G. Scholes.

Cantaloupe buyers have been in the Chandler, Arizona, section for some time endeavoring to sign up at least 200 acres of contracts. An advance of $5 per acre was offered.

An organization known as the East Chandler Water Users' Association has been formed for the purpose of reclaiming thousands of acres near Chandler, Arizona. H. C. Meyer was elected president and Gus Tyler secretary.

During farmers' week at the Oregon Agricultural College at Corvallis the first week of February four dairy associations will hold meetings. They are: Oregon Milk Dealers' Association, Oregon Jersey Cattle Club, Oregon Holstein-Friesian Association and Oregon State Dairymen's Association.

Fruit growers representing over 15,000 cars or apples met in Seattle recently and discussed marketing, especially the handling of cull products. Many packers of the Northwest have signed an agreement with growers recognizing the association and agreeing to abide by the rulings of its governing board.



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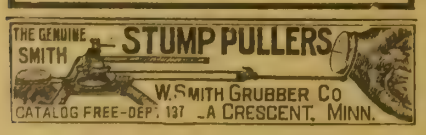

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Live Stock and Dairy

TRAIN HOGS TO COME WHEN YOU CALL

Written for California Cultivator
By Sacramento Valley Contributor

AT this time of the year many good farmers have their places so arranged that the hogs have "the run of the place," and they not only get most of their living but spend all of their time in the field.

And while they may not require attention and do not need more feed than they are getting, it is a good practice to see them every day, and there is no better way to do that than to train them to come up to the buildings every night when they are called. This can easily be done by having water and the salt, ashes and lime trough in some handy place and feeding a little of some kind of grain. Even though the hogs are "full as they can stick" they will come up for this little bite, and when the feeder calls "poo-ee-ii-g!" they can be seen coming from all over the farm.

Close by this central feeding place it is a good plan to have a shed for them to sleep in so that they may "make their headquarters" as it were, where the owner knows where they are.

All kinds of animals can be trained to come up for feed. They may have to be driven in a few times, but after they understand the proceeding they will come regularly. They must always be fed, however, and never "fooled."

This practice of "calling in" sheep and goats and feeding them a little something every day is sometimes practiced by wise stockmen who range stock in rocky, mountainous country where to "round up" and see stock frequently is an impossibility because of the roughness of the country.

It may be suggested that on a big farm this bringing in of the hogs every night would cause them to "run off" too much flesh, but it is found that the young and old sows and growing pigs benefit greatly from the exercise and hogs ready for market or nearly finished are generally in close pens anyway.

And another thing may be said in favor of this practice, that when you hear a farmer making the long drawn out sort of yodeling cry "poo-ee-i-g!" the chances are 100 to 1 that he is a good farmer an a good hog man. So it is worth something to be in the "hog calling" class.

WORKING TO AN IDEAL IN A DAIRY HERD

(Continued from Page 131)

Koningen Korndyke, a son of Lorena Korndyke and out of Dorothy Koningen Spofford who has a seven-day record of 22.18 pounds of butter and 500.8 pounds of milk.

There is nothing fancy nor spectacular about Mr. Guill's methods. The impression received on visiting the ranch and talking with the proprietor is that things are done on strictly business principles with a view to making the utmost use of every resource. There is a good, new, and up-to-date milking barn, but the other buildings are those that have seen service on a regular California grain and stock ranch. There are two or three silos that have seen much service and have survived the fire which destroyed the original milking barn a few years ago. The silos are filled with corn each fall and are a guarantee that the cows have the best of feed. Plenty of alfalfa hay is produced and there is a good range of upland pasture for spring and early summer.

A few figures of daily milk yield of the herd are of interest. During the year 1913 the highest number of cows milked was 26 and the smallest number 16. The average number for the year was 21, four being heifers with first calf. Three daily weights are here given, two of them accompanied by a butter fat test.

1913—February 10, 19 cows, 472 pounds of milk; 16.66 pounds fat. March 7, 22 cows, 673 pounds milk; 22.46 pounds fat. June 4, 25 cows, 897.5 pounds milk.

On February 10 the average fat test was 3.5 per cent and on March 7, 3. 3 per cent.

Between 1913 and 1914 there was a good deal of culling out done in the herd for the record for 1914 shows 12 heifers present with the first calf, or an equivalent of half the herd. Still the yield per head was equal to that in 1913.

1914—April 3, 25 cows; 804 pounds milk. June 10, 25 cows; 841 pounds milk. October 6, 25 cows; 500 pounds milk.

By October the herd averaged seven months in milk, that is since coming fresh.

The financial returns of any ranch are always of interest, and Mr. Guill has kindly given me the figures for his herd during 1913 and 1914. The dairy product is sold to a creamery in Chico in three forms, sweet milk and sweet cream for household trade or ice cream and cream for butter making. The returns for the two years are as follows:

1913

	Sweet Cream	Cream for Butter-Making	Total
Jan.	$ 55.60	$117.95	$ 173.55
Feb.	51.40	103.21	154.61
March	94.65	137.50	232.15
April	118.30	111.55	229.85
May	200.20	90.35	290.55
June	246.75	58.85	305.60
July	330.50	65.90	396.40
Aug.	238.45	99.75	338.20
Sept.	205.35	67.90	273.25
Oct.	247.80	52.35	300.15
Nov.	223.65	38.10	261.75
Dec.	170.20	1.95	172.15
Total			$3128.20

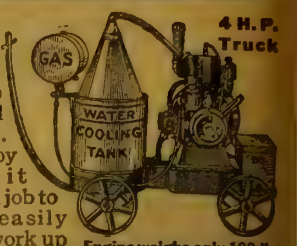
Average income per month, $280.70; average number of cows, 21; average income per cow, $12.40.

1914

	Sweet Cream	Cream for Butter-Making	Total
Jan.	$148.10	$ 20.39	$ 168.49
Feb.	183.05	8.89	191.94
March	190.60	45.04	235.64
April	142.40	145.24	287.64
May	191.10	162.87	335.97
June	222.00	116.07	338.07
July	242.15	152.89	395.04
Aug.	170.95	161.70	332.65
Sept.	146.41	130.93	277.34
Oct.	170.21	67.05	247.26
Nov.	188.25	68.97	257.22
Dec.	240.10	71.87	311.97
Total			$3397.23

Average income per month, $260.70;

Light Weight Cushman Engines For All Farm Work



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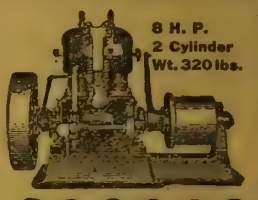

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average number of cows, 23; average income per cow, $12.30.

Mr. Guill is fortunate in having a market for so much of his product as sweet cream. In that form butter fat rules considerably higher than the same cream for butter making. But aside from market conditions, Mr. Guill is not more favorably situated than hundreds of dairymen. He is winning in the dairy race by having a high ideal of what a dairy cow should look like and what she should produce. The two illustrations show something of what this ideal is worth. The "business end" of those beautiful cows shows that they can give a good account of their stewardship at the milk pail. The calves are built right and the cow man can see the future milker in them now. I am not sure that there is a registered cow on the ranch. If there is, her glories are not above the glory of the herd, which has been built up on the ordinary foundation by the use of registered bulls. It is one of the best illustrations of a graded up herd I have seen in California.

FARROWING TIME

Written for California Cultivator
By Sacramento Valley Contributor

When the inhabitants of the Middle West and Eastern states are suffering from zero cold and blizzards, we in California are apt to have rains, and with the rain, days of chilly weather that make young pigs and young calves shiver with the cold.

These are the times when the careful, watchful stockman makes money and his more careless neighbor loses. Many a litter of good pigs has become chilled, and all or a part lost because there was no one to see that there was a dry bed and that the little pigs secured a feed of warm milk within a few hours after birth.

It is remarkable what a young animal will stand in the way of cold and exposure if its stomach is full of hot, rich, mother's milk. A young pig or calf is a delicate thing as it comes into the world, but because of the vicissitudes it is liable to encounter it is endowed with a vast store of vitality—comparatively—and if it gets the start that it is intended by nature that the mother's first milk will give it, the youngster is well started toward a successful and useful career.

One Sacramento Valley stockman has a lot of young sows that are having pigs and due to farrow now, and for the past month there has been considerable rain and many raw days. Like every other busy farmer there are many jobs on the farm that engage his attention. One day recently he came in from the field and found a sow with six pigs. They were all huddled together in a bunch, and supposing that they were all right he went to work doing up the chores.

In a couple of hours he went back and found two of the pigs up and sucking—and the other four sprawled out in the cold. Evidently they had not sucked yet and they did not have energy and ambition enough to try. They were wrapped up in a sack, taken into the house, put into the oven (with the door left open), thoroughly warmed up and given one or two teaspoons of warm cow's milk, then taken out to the sow. Had this been done soon enough, or if some one had seen to it that they had gotten some of their mother's milk they would undoubtedly have been

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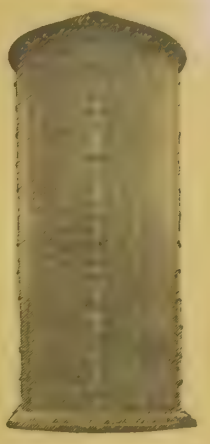

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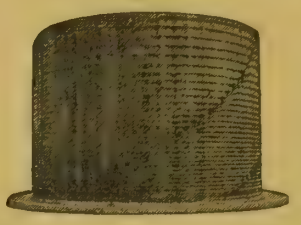

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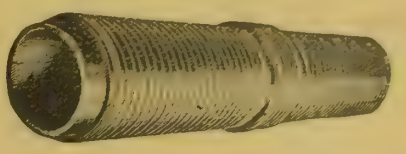

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¶ There will be a shortage of PURE Sudan Grass Seed before sowing time comes. Now is the time to order if you want pure, reliable, genuine seed. Later on you'll have to take your choice between paying top prices to speculators or taking greatly inferior quality — adulterated, rejected seed mixtures, sold without a guarantee, that will spoil your crop and ruin your land.

¶ Don't take our word for it. The leading authorities on Sudan Grass in the country are expressing the same opinion about the quantity of seed available this year.

¶ Mr. B. Youngblood, Director, Texas Experiment Stations, makes the following statement:

"I am inclined to think that the Texas farmers who intend to buy seed, should do so now, rather than next spring, when seed speculators will in all probability run the price clear out of reach."

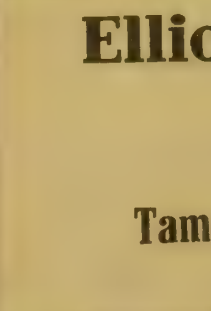
¶ Mr. A. B. Connor, Agronomist, Texas Experiment Stations, writes:

"The present acreage will scarcely supply the needs of the Texas farmers."

¶ That defines the situation in Texas, where according to the United States Department of Agriculture's News Letter of October 14, 1914: "Probably fifty per cent of the total amount of seed will be produced this year."

¶ As long as our supply lasts our prices will remain the same and every pound of our seed is absolutely guaranteed to possess full germinating power and to be free from Johnson Grass or any adulterant. It has been grown under the supervision of Texas Substation No. 8, located in Lubbock County, V. L. Cory, Superintendent, and every field was officially inspected, certified to and passed before harvesting.

WARNING! We are the only authorized agents for selling Lubbock Association Guaranteed Seed. Be sure that all seed you buy has our name and trade-mark stamped on every bag. Ask your dealer for Lubbock Sudan Grass Seed Association PURE SEED.



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Put up in 1-2-5-10-25-50 and 100-lb. packages.
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The Ideal Sanitary Cream Cooler

Will remove the animal heat from the cream while flowing from the separator, and as well reduce the temperature sufficiently low that it can be at once mixed with older cream and set aside for future delivery without further cooling.

Its cooling capacity is sufficient that where used in connection with the largest hand-power separator, it is capable of reducing the temperature to within three to four degrees of the water used.

It is so constructed that it can be placed under the cream spout of the smallest size separator and still be high enough to deliver by gravity into a 5 or 10-gallon can. Write for Cooler Circular.

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saved, as it was they were too far gone and the four died. The other two are all right.

Now someone will read this who will say that this is all nonsense and that all that is necessary in order to have success with hogs is to let the sows alone, that they can take care of themselves and their pigs better without than with help.

The answer to this is that in many, many cases this last statement is true, but that the exception is that every hog, like every man or any other living thing, is both like and unlike every other, and different individuals require different treatment.

This is well illustrated by experience during the past month in the herd referred to. One sow had the experience related, another young sow farrowed seven fine, husky pigs, is raising them all and they are making splendid growth. They neither had nor required any attention. Another sow had trouble in farrowing—and if one pig had not been taken away from her she would have died from blood poisoning. All are young sows from the same herd, of the same breeding, and they have all had the same good care. They have had alfalfa pasture, plenty of exercise and enough corn, barley, oil meal, etc., to grow them well and keep them in the "pink" of condition.

All of which goes to prove that the man who makes the biggest success and the most money in the stock business—opportunity and capital invested considered—is the one who is the best caretaker and who combines common sense with a genuine love for live stock. All are indispensable and particularly the latter.

USE TWO INCHES OF SILAGE A DAY

To have silage that is in the best condition, you must use about two inches of it from your silo every day, according to J. B. Fitch of the dairy department of the Kansas Agricultural College.

The size of silo to construct will therefore depend upon the number of animals to be fed. As a general rule, the height of a silo should be at least twice the diameter. If a silo is made tall the pressure will be great, which helps insure good keeping of the silage. When silage is exposed to the air for any length of time it will spoil, hence it is poor policy to make your silo so large that you cannot use a layer of silage at least two inches deep, every day. Under ordinary conditions a cow will eat 30 or 40 pounds of silage a day. By figuring from this it is not difficult to decide what size of silo is needed for the number of animals to be fed.

Profit From the Silo

A farmer who has only four or five cows may, perhaps, not be justified in building an expensive silo, Mr. Fitch believes, but the man who is feeding a number of cattle cannot invest money to better advantage. According to a report of the federal department of agriculture, the cost of silage will average about $2.50 a ton, allowance having been made for all factors of expense except depreciation in soil fertility. While the feeding value of silage is difficult to determine accurately, it should at the present time, when fed with good judgment to beef or dairy cattle, be $3.50 a ton.

Care should be taken, in preparing to build a silo, to decide upon one that will prove satisfactory in the long run.

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Your crops will get a be ter start and have a stronger, healthier root if you prepare your seed bed with

THE DUNHAM CULTI-PACKER

There are two rows of "V" shaped wheels that work down deep in the soil, crushing every lump and stirring the top like a cultivator.

Loose, ashy or sandy soils are made firm and compact so that moisture will gather, and give seed a good start. The top is stirred and mulched to keep the moisture from evaporating.

When the crop is in, you do not put the Culti-Packer away, but use it first on the new seeded field, then on the growing wheat, corn or oats, until the plants are three or four inches high. It firms the soil around the roots, breaks up crusts and makes a strong, sturdy plant. It will straddle corn rows, hinder the young weeds and save one cultivation.

The Culti-Packer is built to last; frames are heavy steel and castings semi-steel; like all Dunham machines it is fitted with the famous Dunham Roller Bearings which make it run easily.

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HOLSTEIN CATTLE

British Holstein butter gained highest honors at the last dairy show of the Royal Dublin Society in Ireland. In addition to taking the prizes in special classes, this butter won for its producers a gold medal awarded for the best butter in the show. It is sometimes ignorantly asserted that the Holstein is a poor butter cow, in the face of the fact that the world's record for butter production for all periods of official testing (except the 365 day) are held by purebred registered Holstein cows, and the year's record was exceeded by only one cow of another herd.

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SWEETER CREAM—HIGHER PRICES

One of the most serious problems with which dairymen have to contend is that of delivering sweet, well flavored cream. The sterilizing of utensils and care of cream in sultry weather require constant vigilance. people on earth to whom time is money it is the dairymen. We were recently shown an aerator and cooler so constructed that when placed under the cream spout of the smallest separator it will still be high enough to deliver cream into the ordinary sized ten-gallon cream can. An illustration

AERATING CREAM AS IT COMES FROM SEPARATOR

Where a dairy is fitted with satisfactory aerators the problem is to a certain extent simplified, but the arrangement of most dairies makes it almost impossible to aerate cream as it comes from the separator without repeated handling. This takes time, and consequently money, and if there is a of the cooler is given on this page. The separator is not shown in the engraving, or at least only a portion of it, but it will be noted that the delivery from the separator places the cream through the opening in the cover of the aerator. From this point it is carried to the center of the cooler and if the appliance is properly levelled it will flow freely over the cooling surface and be delivered into the cream can, not only aerated but reduced to the temperature of the water which is flowing underneath the surface over which the cream passes. The small hose attached to the cooler delivers the water while the larger carries away the waste. This cooler will remove the animal heat from the cream while flowing from the separator and as well reduce the temperature sufficiently low that it can be at once mixed with older cream and set aside for future delivery without further cooling.

The two large openings in the top of the cover of the aerator are supplied with finely perforated covering which gives sufficient pure air.

The best buttermaker in the world cannot make sweet butter from off-flavored cream. It is to be hoped the simplicity and economy of this cooler will induce dairymen to secure it unless already supplied with a similarly satisfactory working appliance.

A MARINE VIEW

Driven to it by stern necessity, the old sailor had taken the job of running an elevator.

"'Vast there, my hearty!" he said to the fat man who was stepping toward the side of the car, "I'll have to ask ye to stand amidships. This craft has a heavy list to port."

CANNY SCOT

Buttons—Get up! Get up! The hotel's afire!

Scottish Gentleman—Richt, laddie; but if I do, mind ye, I'll no pay for the bed.—Answers.

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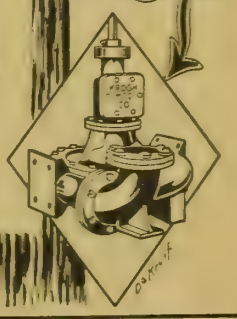

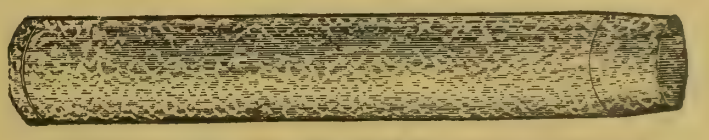

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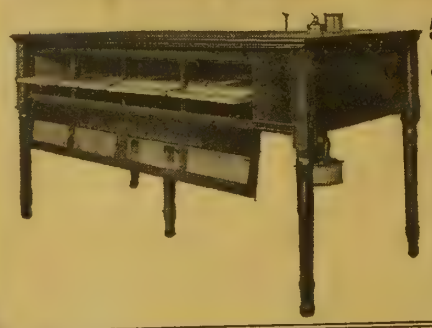

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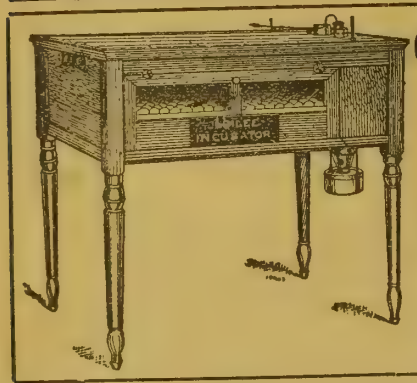

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Poultry for Profit

SOME PRACTICAL EXPERIENCES WITH POULTRY

Written for the California Cultivator
By Mary E. Edwards

THIS is an account of what one woman has done the past year in helping to solve the problem of how to live and make both ends meet on a limited income. No pretense is made that the writer of this little story possesses any smartness about the details of the poultry business, or, indeed, anything more than common sense and patience. Now if the many readers of the California Cultivator are willing to read what one with such qualifications has to say, in a small way, about poultry and the profit there may be in it, then it may be worth while to read on to the end of my experience as herein set forth. Remember this is the story of one of the unimportant producers in the business to "help out" expenses.

Several years ago I began with a half dozen laying hens, from which little flock the next year there were raised about two dozen pullets which made the flock of laying hens nearly three dozen. These were Brown Leghorns and Black Minorcas. Up to this time the family used the most of the egg production. Indeed that was about the only idea I had of keeping chickens—an aid to the table. During this time I sold several dozen eggs at such a good price that I became affected, like many others no doubt, before whose vision there appeared the possibilities of doing so much with so little responsiblty. But, dear reader, don't hurry away with this idea that there is "so little responsibility." I have learned, in my small way, that there is a great deal of responsibility in caring for chickens, if you get any profit in return for your labor.

I purchased several settings of eggs from neighbors for early spring hatching and used some of my own hens' eggs, always selecting the largest and best formed, and they were carefully handled and wrapped before being used. In selecting hens for mothers those showing the quietest and best dispositions were chosen. My chicks were all mothered by old hens. Then when the present season began with the month of January, my flock of layers numbered between 80 and 90. The flock was housed in the usual small houses with slanting roofs and open fronts, without floors. These houses were inclosed within a small corral where the chickens were kept during the night. In the daytime the flock ranged about a small lemon grove. At times they found some food about the place, but not much. There is some question aobut the advantage of such a range. So far as feed is concerned there is little to be had at any time on the usual orange or lemon ranch. But there is some advantage in the ranging and scratching exercise. This may help to keep hens healthy.

The following statement shows what were my expenses and returns monthly during the laying season from January to September:

January			
Cash received for eggs	$14.59		
Family use	4.20		
	$18.79		
Cash expenses		$ 9.30	$ 9.49
February			
Cash received eggs and poultry	$15.11		
Fam'ly use	3.50		
	$18.61		
Cash expense		7.50	11.11
March			
Cash received eggs	$ 9.15		
Family use and setting eggs	4.70		
Family use	4.70		
	$13.85		
Cash expense		10.65	3.20
April			
Cash received eggs and poultry	$25.80		
Family use and setting eggs	3.42		
	$29.27		
Cash expense		5.50	23.77
May			
Cash received eggs and poultry	$30.50		
Family use and setting eggs	3.96		
	$34.46		
Cash expense		$ 9.25	$25.21
June			
Cash received eggs $20.89, broilers $8.86	$29.75		
Family use	2.64		
	$32.39		
Cash expense		$ 8.15	$24.24
July			
Cash received eggs	$16.60		
Family use	1.63		
	$18.23		
Cash expense		$10.40	$ 7.83
August			
Cash received eggs	$32.02		
Family use	1.50		
	$33.52		
Cash expense		$ 6.30	$27.22
September			
Cash received eggs and poultry	$11.36		
Family use	2.80		
	$14.16		
Cash expense		$ 7.99	$ 6.17

Of the months October, November and December it may be sufficient to say that the flock will hardly produce enough to pay for its keep. This income from the flock for the three months would be a few eggs and poultry for family use. My flock now numbers 125, of which 50 are hens and balance pullets. Besides I have about 25 nondescripts being fed for market.

An item of feeding not counted as expense in the above figures would be green alfalfa which the flock had in plenty throughout the year. The alfalfa was chopped fine before feeding and no doubt helped largely in keeping down the expense account. Besides the flock ranged at large much of the time.

So you see from the above statement that I have contributed something each month towards solving the difficult problem of modern living expenses. Above my actual outlay I

have received $138.24. Perhaps all of this should not be called profit in the strict sense of the term since time is worth something in any figuring. But it is a nice return to me for the time given to my flock and the help to the table expense. Besides my capital has increased with my flock from less than 100 to 125, with all culling out of this number. I have about 125 dependable layers for the coming season and 25 culls for market. My stock is now made up of Rhode Island Reds, Black Minorcas and Barred Rocks. These with Leghorns are best for egg producing, I think.

Now all this may not be so interesting to others as it seems to me. But it is my personal experience, without much knowledge of chickens at the start, I have used patience in handling my flock and have at all times kept them clean and free from disease. Maybe my account of experience with poultry does not add very much to the common store of knowledge of the industry, but it may prove of help to some women who want to help in solving the question how to live and make both ends meet in these exciting times.

HOW TO PREVENT ROUP

An ounce of prevention is worth a pound of cure.

It's the old, old story and it applies to poultry diseases as well as to other disorders.

"Prevention," says John B. Hayes, of the poultry department of the University of Wisconsin, "is the most satisfactory method of treating roup." This troublesome disease he has found can be prevented in these ways:

By keeping the house dry, well ventilated and clean; by making the fowls exercise on cold, wet days in the house in a deep litter of straw; by breeding from strong, vigorous birds; by feeding clean, wholesome feeds, and by taking every precaution to prevent the introduction of the disease into the flock.

If in spite of these precautions the disease does appear, Mr. Hayes recommends that the poultryman make up a strong solution of permanganate of potash and then each day pour enough of this into the drinking water to give it a violet or wine color.

Many of the birds which have developed roup or exceedingly bad colds should be removed from the house and the houses disinfected with coal tar disinfectant or a five per cent solution of carbolic acid. Unless the birds are valuable it is advisable to kill and burn or bury all sick fowls.

With all birds worth the time necessary to give them individual treatment the following will likely prove successful:

Thoroughly clean the nostril and eye of all the cheesy material that has collected. Inject into the nostril with a syringe a saturated solution of permanganate of potash and dust boric acid into the eye and nostril. This treatment must be followed several times a day until decided improvement is noticed when the permanganate of potash can be omitted. The boric acid should be continued until the nostrils are dry and all enlargement of the eye has disappeared. It is not advisable for most people to attempt to remove the mass that collects beneath the eye by an operation and if taken in time the other treatment will prove effective.

See that the turkeys are encouraged to come home at night by making it a point to feed them every evening. If there is any danger of the neighbors' flocks running together, put a dab of bright colored paint on your birds' wings, where it can be readily seen.

It is a great temptation to feed hot mashes in cold weather. They will be eaten with relish by the hens, but in the end will only work harm, under ordinary conditions. It heats the hens temporarily and opens the pores of the skin. When the warming effect has passed, the hens feel the cold more than ever, and are in condition to catch cold. Roup and catarrh follow.

Don't wait till the last day before you halter-break the cattle you are going to take to the fair. If you do, you may have a circus, as well as a fair.

Keep a good, deep, dry bed under the horse while he is in the stable, day or night, on Sundays especially. The more he lies down, the longer his legs and feet will last.

The Fresh Air Brooder Stove

It exhausts warm **Fresh Air** from its **Base** to the chicks. If you use our stove you can't get away from proper **ventilation. Our 1915 Brooder Stove** is by far the best model we have ever produced. Let us send you our **New Catalogue.** It is full of splendid information and value to you with any system.

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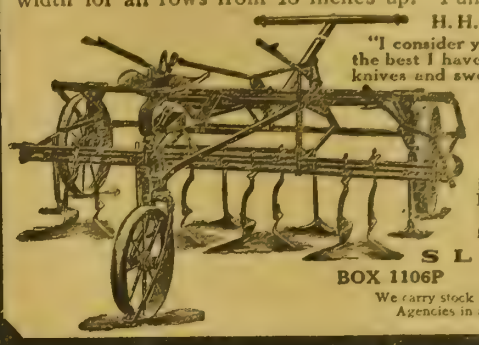

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Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

My Mistake

In the Cultivator of January 31, on page 82, under the heading "Faulty Eyesight," my reply to the question would have better suited a case of opthalmia such as is common east of the Rocky Mountains, where I spent several years at my profession. I might have added that I had known a man who had a very dark stable who had several horses act just as did those described in the question, and some of them had lost their eyesight entirely. He was advised to put large windows in his stable, which he did, and had no more trouble with his horses' eyes. No doubt the direct cause of the trouble with the horses at Inyo-Kern was loco poisoning, and the faulty eyesight was only one of the symptoms.

It has been said that it is only a true friend who will tell one of his faults, and I believe it. I fully appreciate the kindness of the three gentlemen, whose letters regarding this question were in last week's Cultivator, for writing in to set me right, and I take this opportunity to thank them for doing so.

It has always been understood that a horse once "locoed" was never right after that. All kinds of remedies have been tried but so far none have been found that will cure.—William Petrie.

Fox Tail

My horse had a fox tail in his throat which caused a swelling between the jaw bones. Had it lanced and can keep the swelling down, but it still runs. It has been two months since it was lanced.—Subscriber, Terra Bella.

There may be something still in the cavity with the pus that is keeping up the irritation and will not let it heal. You had better get someone who understands such work to make the opening large enough to examine it to the bottom and scrape the inside of the cavity. After that it should heal quickly.

Lameness

Colt eight months old is lame in hind leg. Can walk all right but cannot trot or lope on it. When loping it will hop and carry that foot. There is no sign of troube anywhere and there is no soreness when pressing on it. She rests that leg most of the time. —Subscriber, El Centro.

The lameness may be caused by rheumatism or it might be a spavin that has not developed enough yet to show on the surface. We suggest that you give the following treatment for rheumatism and also bathe the hip with liniment. Take of nitrate of potash two ounces, salicylate of soda one ounce and bicarbonate of soda one ounce. Mix and divide into 16 powders. Give one powder each day. A good liniment for the hip can be made of spirits turpentine, spirits camphor, tincture of arnica, oil origanum, aqua ammonia and alcohol; of each one ounce and enough water to make one pint. Shake and apply once a day.

In grazing over land sheep add greatly to its fertility.

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We Have Made a Specialty of Placentia Perfection Walnuts on native black root for a number of years, and are offering the finest trees we have ever grown this year. 80 per cent of our stock is eight feet and up. The scions used were taken from trees in our large orchard that have made a very high record for the past five years. Good Ancestry Pays. Nursery at Villa Park. Hugh T. Thomson, Orange, Cal., R. F. D. 1.

Walnut Trees—Late blight resisting varieties grafted and budded on California Black and on FIRST GENERATION Royal and Paradox Hybrid roots, which are as much superior to the California Black root, as the California Black Root is to the English root—Eureka, Franquette, Mayette, Neff's Prolific, Concord and Placentia. Dr. W. W. Fitzgerald, Elks' Building, Stockton, Cal.

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Cheap Reliable Trees—4,000 Phillips' Clings; also Tuscans, Fay Elbertas, French, and Imperial prunes, 10,000 Bartletts, 8,000 Gravensteins, Grafted Walnuts and other stock cheap. Write or wire for just what you want. Will save you money. Table Grove Nurseries, Healdsburg, Cal.

The Walnut Nursery has a fine lot of grafted walnut trees again this season, Chase, Eureka, Mayette and Placentia Perfection. Order now and get the best. W. A. Litten, Prop., R. F. D. No. 2, Whittier, Cal. Home phone 7863.

Walnut Trees—Eureka and El Monte varieties a specialty, also Franquette and Placentia. Write for prices and description of stock. Personal inspection invited. Eureka Walnut Nursery, Montebello, Cal.

For Sale — 2000 Late Valencia Orange trees, two years from bud. 1800 Washington Navel, one year from bud, A1 stock. Address, H. H. Eshelman, Soldiers' Home, Cal.

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Budded Citrus Trees and seedlings at fair prices. Will take auto or land. Butler's Morning Side Nursery, P. O. Box 15, Lamanda Park, Cal.

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The 1200-Acre Nursery, growers of 1500 varieties of trees and plants. OREGON NURSERY CO., Orenco, Oregon. Sales office, 522 Chamber Commerce, Los Angeles, Cal.

Orange Trees—2½-year-old buds from select stock, average ¾ inch; 500 Navels, 40c, and 500 Late Valencias, 50c, F. O. B. nursery at San Dimas, Box 108, Pomona, Cal.

Avocados—Select field grown trees of best Standard Varieties for home and orchard planting. Semitropic Nursery, Monrovia, Cal.

For Sale—Eureka Walnut Trees, budded on Native Black Walnuts. Choice stock. Order immediately. Don't delay. Wm. Holve, Fullerton, Cal.

Grafted Walnut Trees on northern black root. Eurekas and Placentia Perfection. Also Satsuma Plum trees. J. M. Koller, Puente, Cal.

You Future Nurserymen—Write for prices on special stocks of plants to start business with. Ballou's Nursery, Pasadena, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

TREES

Grafted Walnut and Paper-Shell Pecans—Exclusive propagators of Tribble Mayette, Kerr Parisienne, and Improved Franquette. All walnut grafts taken from our bearing trees. Finest trees in the State. Eureka, Wiltz, San Jose Mayette, Concord and other varieties. Bartlett Pear on Blight Proof Root. Olives, fruit trees, etc. Reduced prices. New list ready. Tribble Nurseries, Elk Grove, Cal.

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High Class Citrus Trees—50,000 fine stock, three-quarters and up. Guaranteed absolutely clean, for sale or exchange for clear land, automobile or good farm team and wagon. McMillan-Graffen Nurseries, Spadra, Cal.

For Sale—Navel, Valencia and lemon trees, three-quarters inch and up, 20c loose root, 25c balled. Budded Avocados, 4 to 7 feet high. Address Box 57, Glendora, Cal.

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Grafted Walnut Trees, 15c and up. Wholesale and retail. Whittier Nursery, Whittier, Cal.

Before Planting Olives, Avocados, Feijoas, Rhubarb or Cactus, get my free booklet. Bishop's Nursery, Highland, Cal.

For Sale—Avocado Seed, home grown; also fine budded "Taft" Avocado trees. C. P. Taft, Orange, Cal.

For Sale—500 Lemon and 500 Valencia 2-year-old extra fine buds. Address L. M. Netzley, Azusa, Cal. Phone 551.

Thirty Thousand Sour Orange seed-bed stock. $100.00 if taken by March 1st. Must move. Box 612, Orange, Cal.

Royal and Tilton Apricots, 4 to 6 ft., $15.00 per 100, $135.00 per 1000. K. B. Utigaard, Hemet, Cal.

Our Specialty—Quality Citrus Trees. Robinson Citrus Nurseries, R. F. D. No. 35A, San Dimas, Cal.

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Who's Got Cold Feet?—Not our customers, for they know a thing or two. "A look ahead with good business back of it," is what we tell them about in our circular. Part of the business is to buy right, quality and reasonable prices for a team. Our White Leghorn chicks fill that bill—from yearling stock, mated right, heavy layers, good size—pure bred, hardy chicks that are boxed and shipped right for safe delivery and a good start. Prices 8c to 10c, depending on month and quantity. Hatching eggs, $4.50 hundred; $40.00 thousand for February. All choice R. I. Reds—top notch in utility stock at prices that will interest you for chicks or eggs—any quantity—Roofden Poultry Ranch and Hatchery, Campbell, Cal.

Baby Chicks — Buff Orpingtons (Sterns stock); Barred Rocks (Hawkins' Royal Blue), R. I. Reds (Thompkins), 20c each; White Leghorns (McFarlane-Hogan), 12c. Settings from above, also White Orpingtons (Kellerstrass) and White Minorcas, $1.50 for 15. Hatches—Feb. 6, 10, 15, 22. Bird, 1256 Lyman Pl., Los Angeles.

Make Money with our superb White Orpingtons; best breed for every need. Lay most when prices highest; make finest eating. 1000 grand range-raised birds, trapnested and bred for heavy laying. Eggs, chicks, stock. Send for circular. Whitten Ranch, R. 5, Box 646, Los Angeles.

White and Brown Leghorns — Day-old chicks from healthy vigorous breeders. "Chicks well hatched are half raised." We will be pleased to send you circular and prices. San Jose Hatchery, 371 Meridian Road, San Jose, Cal.

For Sale—My entire loft of breeding pigeons. Carneaux, Runts, Hens and mixed stock. Over 500 mated birds for $250.00. Have sold ranch and must move birds. Mrs. J. H. Babbitt, Martinez, Cal.

White Minorcas — Eight pullets, $1.25 apiece; cockerels and nine hens, $16.50; cock and 10 pullets, $15.00. L. C. Alles, Orange, Cal.

Eggs for hatching from select mated pens of thoroughbred White Plymouth Rocks. Seven cents each, $1.00 per 15. Ben F. Thorpe, Bonsall, California.

Highest Utility Cockerels, S. C. W. Leghorns—Also day old chicks S. C. W. Leghorns and Anconas. J. E. Blackshaw, San Jacinto, Cal.

White Plymouth Rock Cockerels, standard bred birds. Ramona Farm, Box 1361, R. D. 2, Sacramento, Cal.

Pit Games—A few choice specimens for sale. Write for prices. Delivered your station. O. L. Crane, R. D. 3, Santa Rosa, Cal.

Barred Rocks—Only a few fine breeding cockerels for $3.00 each. G. L. Hawley, Madera, Cal.

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Hatching Eggs—Hoganized S. C. White Leghorns four dollars per hundred. Thirty-five per thousand. D. Clayton, R. D. 2, Modesto, Cal.

POULTRY

Order Now—The Cultivator Poultry Book, "Poultry for Profit," by Jean A. Koetheen. Published by the Cultivator Publishing Co., after repeated calls for a thorough treatise on poultry. Highly endorsed by experts. An authoritative book for every western poultry raiser, whether experienced poultryman or beginner. Over 200 pages, 50 illustrations. Contains simple methods of avoiding and overcoming difficulties. A guide to poultry success—it tells what to do, why to do it, and how to do it. Nicely bound in cloth. Price, $1.00 postpaid, or with Cultivator one year, $1.75. Send orders to Cultivator Publishing Co., 115-117 North Broadway, Los Angeles, Cal. On the press now. All orders will be filled soon.

Macfarland Strain White Leghorn eggs $5 per 100, chicks, Jan., Feb., $12, afterward $10, order now, any quantity Cockerels $2. White Rock eggs, chicks cockerels; write for prices. Big plant best stock, lowest prices. Newton Poultry Farm, Dept. 3, Los Gatos, Cal N. B.—See article about us by Prof Adams, U. C., in October Poultrycraft.

White Leghorn baby chicks from McFarland Strain, from two years old hens, there is no better laying strain than this. You cannot succeed in the poultry business with poor stock. I guarantee safe arrival by express. My specialty is pleasing my customers. Chicks $10.00 per 100 Book your order for Spring delivery now $2.00 per hundred with the order. J. W Lyon, Gardena, Los Angeles Co., Cal.

S. C. White Leghorn Baby Chicks—From my pure-bred flocks S. C. White Leghorns, carefully selected for laying and Standard qualities, $9.00 per 100, $85.00 per 1000. A first class chick at a reasonable price. Eggs for hatching, $5.00 per 100, $45.00 per 1000. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

Incubator Chicks—White Rock, Rhode Island Red, Black Minorcs, White, Brown and Buff Leghorn, and Indian Runner Ducks, high class stock—Standard bred and Hoganized. Send for booklet of prices and make your contracts now. Mahajo Farm, P. O. Box 597, Sacramento, Cal.

Richey's New Zealand Red Rabbits—1st at L. A. Show. Barred Rock eggs for hatching $1.50, 15; special cockerel mated, $2.50.
Roselle, the famous jelly plant—equals red currant—annual; 10c per packet. Sow in April. Mrs. C. A. Richey, Route 8, Box 557, Los Angeles, Cal.

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Try Us for first-class chicks. Eggs for hatching. Eight breeds. We ship chicks C. O. D. when 50 per cent deposit accompanies order. We guarantee safe arrival any distance within 72 hrs. Our prices are right. The Hawkeye Hatchery, Turlock, Cal.

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S. C. White Leghorns—McFarland 228-egg strain. Bred for years from the best layers and bred to lay large eggs on range. Eggs $4.00 per 100. Plenty of Cocks $5.00 each. S. H. Johnson, Glenwood Ranch, Wasco, Cal.

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USED WINDMILLS, TANKS, PUMPS, ENGINES, RANCH MACHINERY SPECIAL SALE ALL KINDS PUMPS TANKS, TANKS. NEW AND USED WINDMILLS, COMPLETE, ALL SIZES. RANCH MACHINERY. Why buy new? Save over half. MATERIAL GUARANTEED Champion Binder, fine shape, $75; Header, $95; 2-Gang Deere Disc, $35, fine; 3-Gang Disc $35; 15-in. Mouldboard Riding, $35, nearly new; 6-Gang Tractor Disc, $140, cost $270; 2-Holt, 60-H.P. Ranch Tractors, cost $4000, $750 each; payments M. Knox Road Tractor and Trailer, 10 tons, cost $6000, for $2000; new Southwick Power Baler; Whitman Empress Baler; 4 Mowers, $25 and $30 each; Mounted Hand Sprayer with tank and pump, $12; Scrapers, harrows, potato and beet machinery. Fan Mill, Corn Sheller, Power Ensilage Chopper; small ranch tools. Absolutely cheapest, serviceable material can be produced for. WANT TO BUY IRRIGATION PIPE AND RANCH TOOLS OF ALL KINDS. Pioneers in our line. DEMMITT CO., UPSTAIRS, 120 N. Main, Los Angeles.

For Sale or Exchange — 50 H. P. 1912 American undersling automobile. Has 4x40 tires, fully equipped, both electric and Prest-O-Lite lights; trunk; two extra tires with demountable rims; carry pumped up; powerful, speedy; throttles from 10 to 60 miles on high as it is. Perfect control. Nothing finer ever put out for the money. Anybody wanting car for staging, mining district, desert or city use cannot beat this. Original cost $4800, our price one-fouth this or $1200. Will accept runabout, horses, cattle, machinery to $600, or close-in equity or clear lot to this amount. Stand 35 miles on all kinds of roads all day and not get hot. Demmitt Machinery, 120 N. Main, Los Angeles.

Gas engines, centrifugal and deep well pumps, motors, and everything pertaining to irrigation, for sale and exchange. If you want a complete plant or any part write us; we are experts in irrigation; advice and estimates cheerfully given. Will buy, sell or exchange. Reliable and responsible, everything guaranteed as represented. Machinery & Motor Exchange, Inc., 733-735 San Fernando St., Los Angeles. Main 6382, F-3433.

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Special inducements; government land, railways, free schools; cheap irrigation; 31 years to pay for farms adapted to alfalfa, corn, grains, fruit, etc.; climate like California; ample markets; reduced passages; special excursion being arranged. Free particulars from F. T. A. Fricke, Government Representative from Victoria, 687 Market St., San Francisco, Cal., Box X.

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Owner of established Rice Selling Agency Company with broad charter for general export and import business, desires to exchange same for ranch valued at $3000 and upwards. Fine opportunity for city man on ranch to re-enter commercial activity or for a farmer's son to acquire a city business. Present owner wants to go on a ranch. No agents—principals only. Box R, Cultivator.

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Rhubarb Plants — Burbank's Crimson Winter and Wagner's Improved Giant Crimson Winter. We will soon be subdividing again. Now is the time to order. Burbank's, 75c per dozen; Wagner's, $1.50. Special low price on Burbank's by the thousand for early orders, $40.00 per 1000. Wagner's, $80.00 per 1000. Greatest profit per acre of any standard crop. Reginald Bland, San Luis Rey, San Diego Co., Cal.

New Varieties of berries originated by Alfred Mitting, New Dewberry White Fawn, the berry is white, large, fine, sweet flavor, $1.00 each. New blackberry Black Prince, a prolific bearer, berry 1½ inches long, quite tart, fine shipper, $1.00 each. New strawberry Santa Cruz, a rich, large, berry, dark red inside and out, fine flavor and shipper, 6 for $1.00. Send orders to Santa Cruz Bulb & Plant Co., 8 New St., Santa Cruz, Cal.

For Sale—8000 Burbank Spineless Cactus, Hardy. These two varieties went through the freeze of 1913, without injury, when five other varieties and one-year-old orange trees were frozen to the ground by their side. These varieties are rapid growers and just the plant for cold sections. These varieties won't last long, so place your order early. F. K. Strasser, San Jacinto, Cal.

Sudan Seed—An annual grass, a wonderful hay producer, good for all stock; very high in nutriment value. I raised 5430 seven-foot binds and approximately 6000 lbs. of seed on ten acres, in 36-inch rows. Seed officially inspected, guaranteed pure, recleaned and graded, insures a good stand. Price per lb. $1.00. Oliver Palm, Albany, Texas.

For Sale — Non-irrigated, San Fernando Valley Grown Seeds. Black Seeded Chilean and Angeleno Melon, 80c per lb.; Improved Hybrid, Golden Beauty and Pineapple Casaba, $1.50 per lb. First class seeds direct from the grower. M. C. Sutton, Van Nuys, Cal.

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Splendid budded rose tree (any color) given to purchasers of following set of trees. Three Golden Drop, 3 Industry, 3 Crown Bob, Gooseberries, 3 Currants, 3 Early and 3 Late Red Raspberry; $1.00 the bundle; 10c for postage. J. Saunders, tree specialist, Yucaipa, Cal.

Sudan Grass—Pure, officially inspected, recleaned Sudan Grass Seed. Prepaid 5 pounds, $2.50; 10 pounds prepaid, $4.50; 50 to 100 pounds, F.O.B. Lubbock, 25c a pound. Cash with order. We guarantee purity. Dee Turner Pure Seed Co., Lubbock, Texas.

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Thoroughbred Mammoth White Holland Turkeys from strong, vigorous prize winning birds, thoroughly domesticated; the stay at home kind. Eggs in season. Orders given prompt attention. Prices on application. Mrs. E. H. Broadwell, Crows Landing, Cal.

Mammoth White Holland Turkeys—A few fine toms for sale. Also eggs in season from two very select pens. Orders given prompt attention. Prices on application. Address H. McKusick, Box 733, Calexico, Imperial County, Cal.

20 Giant Bronze Turkey Toms—From prize winning stock. Weight from 25 to 30 pounds at nine months. Price, $8 and $10 each. Mrs. Nellie Hart, Holtville, Cal.

Mammoth Bronze Turkeys. Largest and best flock in the world. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

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Young Married Man, experienced, industrious, temperate, successful, wants management of alfalfa, stock and fruit ranch; is mechanic, understands pumps, engines and irrigation. W. E. Bartlett, 150 Jefferson St., Pomona, Cal.

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Thoroughbred Berkshire Boars of all ages; two grade Holstein Bull Calves from seven gallon cows and registered bull; born Aug. 11, 1914, Jan. 10, 1915. $45, $20. Riccomi Bros., Mountain View, Cal.

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Glenview Poland China—Stock for sale. Chas. R. Hanna, R. F. D. No. 3, Riverside, Cal.

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Los Angeles, Cal.

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Get Next To This Inside Stuff

There are thousands of men, pipe-stung and tongue-sore, who love a pipe, but have had to chuck it because the tobaccos they've tried have left their tongues as tender as though they'd been chewed. You fellows who have bitten at and been bitten by tobacco full of rough edges come on in and get next to the joy of smoking fragrant tobacco that's had its teeth pulled. The goodness of

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is all in the tobacco and the wonderful patented process that takes out the bite, leaving a cool, comfortable, free-burning, fluffy smoke that you can hit as hard and as often as you feel that impulse. Meanwhile Mr. Tongue lolls around as happy as a clam at high tide. When we say we control this patented process exclusively and that no one else can use it, we're handing you strictly inside stuff. There isn't another tobacco in the world just like good old P. A. There never can be.

So, if you've canned that good old jimmy pipe, get it out and give it a new lease of life.

You can buy P. A. at any store that sells tobacco, either in the tidy red tin, 10c; the toppy red bag, 5c; in pound and half-pound tin humidors; or in the crystal-glass P. A. humidor containing one pound, the dandiest kind of a container for home and office use.

R. J. REYNOLDS TOBACCO CO., Winston-Salem, N. C.

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The greatest test of any pump is its ability to raise the maximum amount at lowest cost per gallon, day in and day out, year after year.

True pumping economy is one of the great features of "Jackson Made" pumps; they work economically and their freedom from repairs and power saving pays their original cost in a few months.

If your pumping puzzles you, tell us—our expert engineers are at your service free of charge.

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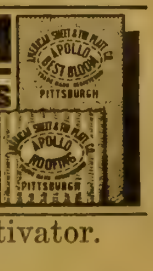

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Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Rotation

What is a suitable rotation for the vicinity of Santa Cruz where sugar beets is to be the principal crop?—Subscriber, Ames, Iowa.

Beets, rye, either barley or corn, and beans would make an excellent rotation. If the soil is exceptionally rich it is possible, for a time at least, that the beets could be brought in twice in the four-year rotation, but for permanent results the four-year rotation is best.

Red Clover

When is the proper time to sow red clover seed and will it do well on low sandy soil? How many cuttings are there per year? Do bees do well on clover?—Subscriber, Watsonville.

We do not think it would do well on sandy soil or on any other soil in California. If we have any subscribers who have ever sown red clover and succeeded with it we will be glad to hear from them. Alfalfa is so much superior to it that we would recommend its use in this case. Bees make some of our finest honey on alfalfa.

Ground Squirrels

What is the cheapest way to get rid of ground squirrels? Our orchard is filled with them and they do much damage.—Subscriber, Lamanda Park.

Probably the quickest method is to use the gases created from carbon bisulphide or similar substance. This is sometimes done by placing waste cotton saturated with the bisulphide in the hole and closing it quickly. It is more satisfactorily accomplished by the use of an appliance which has been advertised in the Cultivator, and which is recommended by the government service which has investigated the squirrel situation in California. The appliance is not patented, or rather we believe it was patented by the government and its use dedicated to the people, but it has been manufactured and we understand is sold very reasonably. In addition to the foregoing, satisfactory results are obtained by the use of poison. At this time of the year when the fields are covered with green feed poisoned dry grain proves successful. The formula recommended by Dr. Blue is as follows: Whole barley, 20 pounds; starch paste, one pint; strychnine sulphate, one ounce; saccharine, one dram. The barley is placed in a receptacle large enough to permit thorough stirring (as a wash tub). One pint of water is then brought to a boil and sufficient laundry starch (about two tablespoons dissolved in a little cold water), is slowly added to form, when well cooked, a paste about the consistency of cream. The strychnine (first powdered if in crystals) and the saccharine, are now added to the hot starch paste and the mixture well stirred until dissolved. While still hot this is poured over the barley, mixed well, and the whole put aside for several hours before using. Persistent work is necessary in dealing with this pest. One treatment with the gas or one poisoning is not sufficient. A day or two after the first treatment the field should be thoroughly inspected and another treatment given wherever there is any indication of live squirrels. If the orchard is surrounded by unimproved lands they should be treated for a reasonable distance away from the boundaries.

Stock for Pear

What is the best stock on which to graft Bartlett pears which are to be planted on light sandy soil with ample moisture?—Subscriber, Santa Rosa.

If a dwarf is desired then the quince stock is best. However it is seldom used in California. The stock usually preferred is the seedling pear which is brought to this state in large quantities from France. Select only the very choicest and thriftiest of the seedling roots. Some prefer Japanese stock and again others prefer the rooted cuttings of Le Conte, which is more resistant to blight.

Field Rats

Will you tell me how to poison or exterminate common field rats? They are destructive here on tomatoes and peppers.—Subscriber, Fulford, Florida.

This is not a pest with which California has had to deal and we know nothing as to its control. Would suggest to our subscriber that he write to his state agricultural station at Lake City and we think he may secure information which will aid in the control of this pest.

Stock Damaging Crops

I have a neighbor who allows his pigs, about 35 in number, to run at large. He has been asked several times to keep them up on account of their doing damage but he refuses to look after them. They are rooting up my grain and doing considerable damage. What recourse have I? May I shoot them or shut them up? If I shut them up can I make him pay me damages before turning them over to him?—Subscriber.

California laws are somewhat contradictory in this matter. One law stipulates that the crop owner may not collect damages for crops destroyed by trespassing stock unless his field was surrounded by "substantial fences," but under another law it is possible to have any stock at large impounded and if impounded on any person's ranch they may collect "reasonable costs" for feed while the stock is kept. In this case the stock should be put up and notice served on the owner that he may have it for the usual fee and costs of feed. This gives no opportunity to collect any damages which the stock may have caused.

Gum Disease

Would you advise me to dig up a large tree suffering with gum disease and plant a new one in its place, or shall I cut it off near the ground and grow new shoots and feed them? Should lime be put on grove during winter and spring?—An old Subscriber.

If the tree has suffered a long time, as stated, is completely girdled and

in general poor condition, we believe we would remove it, put fresh soil into the hole and plant fresh stock. If however it shows general fair condition it might be safe to bridge graft, which, however, calls for some little experience and for best treatment of soil about the roots. Of course if such a step is to be taken the first thing to do would be to thoroughly eradicate the disease by scraping away the diseased tissue and painting with Bordeaux paste.

Plowing Orchard

I have not plowed my orange grove for two or three years. I now think of plowing it. Will plowing up the mass of little hair-like roots do harm or will tearing out roots as large as your finger harm the trees? Does pruning by plowing benefit the tree or otherwise?—An old Subscriber.

This is a long question and to answer it fully would require much space and doubtless bring out much discussion from dissenters who would not agree with the various points made. This matter of handling soil is one calling for large study. Every man's soil is to a degree different from every other man's and until the particular soil in question is known it is not safe to prescribe. In fact soil cultivation and handling can hardly be prescribed for for the reason that season by season, in fact, almost week by week, it calls for different treatment. Farming is not a calling where rules may be laid down and followed without the use of some good judgment on the part of the farmer. Personally, and speaking in a general way, we would prefer plowing at least once every year. We would plow as deeply as possible. We would root prune if the tree was of a variety that would stand for such treatment, and we think nearly all varieties of trees will. On the other hand, there are some of our best farmers who will never, unless compelled to do so, put a plow in their orchard, but there must be some way of thorough stirring the soil to its lower depths. "Tillage is manure" and "air is manure" are both true to a degree. Deep tillage introduces air into the soil and makes possible the work of bacteria, and bacteria increase fertility. Of course tillage tends to reduce humus but in doing so increases fertility, therefore the farmer must bring in new humus formers to take the place of that destroyed by deep tilth.

Millet for Morning Glory

In one of your former numbers you advocated the planting of millet to drive out the morning glory pest. How much should one plant per acre on adobe soil and what is the best time to sow?—Subscriber, Oakland.

For the ordinary German millet the amount recommended is about a peck to the acre (25 pounds). On rich soil where the desire is to make such a complete shade that it will drive out the morning glory pest we presume that amount would be beneficial. It may be planted during the next month. However, we will be glad to hear further from our subscriber who furnished this hint.

Bluing Water in Septic Tank

We recently had an inquiry regarding the dumping of bluing water and other chemicals into septic tanks and as to effect on bacteria which live upon the refuse. The question was referred to Prof. W. T. Clarke of the college of agriculture and he answers:

"As a general assertion, the wasting of ordinary bluing water used in laundry work into septic tanks would have no effect upon proper bacterial action in such tanks. The bluings used in laundry work are either analine products or ultra marine. If a saturated solution of either of these were to be flowed into the septic tank, it would of course cause undesirable conditions, but such concentrates as these are never used in laundry work and certainly by the time the solution got to the septic tank it would be diluted to such a state that it would be absolutely harmless. The same idea holds in regard to the use of potash and caustics and acids for clearing greasy pipes and traps. If these are used in concentrated form they would undoubtedly cause stoppage of bacterial action, but the ordinary dilution that occurs in flushing overcomes completely their injurious possibilities.

Rabbits

What is the market value of rabbits in Los Angeles? What breed is best to raise for market? Is there a steady market demand for them and how does the price run?—Subscriber, Rosamond.

The buying prices will range from eight to ten cents per pound but the demand is not yet sufficient to give as stable a market as poultry commands. We would advise the Belgian hare breeder to begin in a very moderate way and build up his own market. We do not mean that it should necessarily be his own retail market, but a general outlet should be secured through a retail dealer, or otherwise. Some day we believe the rabbit will be as much of a staple as is beef and poultry, but until that time it is not well to go into the business too extensively without thoroughly understanding market conditions. It would probably not be possible for the largest market on the Pacific Coast to take a carload of Belgian hares and yet many carloads of poultry are handled every week. The Belgian and the Flemish Giant are probably the best meat breeds.

Grafting Apples

We have about 50 trees, 15 years old, variety a hard red apple. We wish to have them grafted into Jonathans,

From George Washington *to* Grover Cleveland

PURE IRON COFFIN NAILS

UNHARMED BY RUST AFTER A HUNDRED YEARS

ON the 6th of November, 1792, when George Washington had been elected President for his second term, one of the veterans of the Revolutionary Army was buried in the Cemetery at Fort St. Clair, Ohio. One hundred years later, within a day or two of the election of Grover Cleveland, this grave was opened. The nails which had been used in making the box were found to be as good as new. Chemical analysis showed that they had not rusted out because they were made of iron that was 99.83 *per cent pure*,—containing hardly more than a trace of Manganese, Sulphur and Copper.

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are made of iron even purer than these nails, every sheet or plate being guaranteed to be at least 99.84 per cent. Pure Iron, and the average actual purity being over 99.87 per cent. It contains altogether not more than 12 to 16 one-hundredths of one per cent. of Manganese, Sulphur, Copper and all the other impurities which cause steel and ordinary iron to rust in a short time to complete failure. Properly installed, these culverts give service for an immensely long period, and this without any repairs or attention.

It is because of their Lasting Quality, their strength and toughness and their adaptability to the requirements of highway construction and maintenance that road builders and engineers everywhere are now specifying Armco Culverts with the triangle trade-mark on every section. *Look for this brand on the culverts that go into your highways.*

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See Announcement at Head of Editorial Page

THE AUTO-OILED WINDMILL WITH DUPLICATE GEARS RUNNING IN OIL

Every bearing is constantly flooded with oil. Two quarts of oil in the gear case of this 8-foot auto-oiled windmill will keep the gears and every bearing flooded with oil for a year or more.

The galvanized steel helmet covers the gears, keeps out rain, keeps out dust, keeps in oil. The mill needs oiling but once a year.

There is a windmill, known the world over as "the windmill which runs when all others stand still." This new windmill with gears and bearings flooded with oil runs in much less wind than that well known windmill.

The two large gears, which lift the load straight up, are each independent of the other and each is driven by its own pinion on the main shaft and must take its half of the load at all times. The auto-oiled windmill, with its duplicate gears and two pitmen lifting the load straight up, is unbreakable. Every 8-foot mill is tested under a pumping load of 3000 pounds on the pump rod. For the larger sizes the load is proportionately greater. We know that every one of these windmills is unbreakable. We venture the assertion that this is the most nearly perfect, best made, best tested, best oiled, most nearly perpetual, automatic and self-sufficient of any machine of any kind ever made for farm work and the most nearly fool-proof.

There is no friction on any part of the furling device when the mill is running and very little when the wheel is furled.

DUPLICATE GEARS RUNNING IN OIL

Oil Annually

EVERY BEARING FLOODED WITH OIL

A small child can easily furl this windmill or an automatic regulator can take care of it. One of these mills has been furled 10,000 times in one day by a man on our premises—more times than it would ordinarily be furled in 30 years of service.

A band brake, of the automobile type, is used, and it always holds.

The gear case contains two pairs of gears and the supply of oil. From this gear case the oil circulates to every bearing in a constant stream. It flows out through the friction washers in the hub of the wheel and is automatically returned to the gear case. Not a drop of oil can escape. It is used over and over. So long as there is any oil in the gear case the gears and every bearing will be flooded with oil.

If you are tired of climbing a windmill tower; If you are tired of buying repairs and having them put on; or, if you are tired of waiting for a big wind, let us furnish you an unbreakable, self-oiling, ever-going mill to go on any old tower. It costs but little and you will get the difference between no water in a light wind and an abundance of water in almost no wind. The flooding of all the working parts with oil, the perfect balance of the wheel and vane on the tower, the very small turntable on which the mill pivots and the outside furling device make this difference.

Now there is no objection to a high tower. Have as high a tower as you need to get wind. You don't have to climb it. Your dealer can come once a year and put in oil, if needed, and inspect the mill.

Running water purifies itself—stagnant water, standing water, collects and retains impurities. If you pump from your well constantly all the water it can spare, the water that comes in to take its place will be pure. If the water in your well stands until you happen to want some, and you pump but little, then it is likely that surface water will flow into it and carry in impurities. The unsafe well is the one that has standing water. A flowing stream is the thing to be desired.

The auto-oiled windmill makes all this possible as it can run from one year's end to the other with practically no wear and no cost. If interested, write Aermotor Co., 1146 So. Campbell Ave., Chicago. Why not have flowing water, cool in summer and warm in winter, always fresh and pure? It will cost next to nothing. It will give health to your family and stock. Let the water run into a good size reservoir and raise all the fish of the choice kinds your family can eat, and have water to irrigate your garden and make it raise many times as much as it would otherwise. Water costs nothing. Use it. To let it stand is to abuse it.

We need and must have the best dealers everywhere. They need us if they are going to remain in the windmill business. Write right now.

Be A Producer

Don't waste your time. Spend it in your garden. The European war has caused a tremendous demand for American products, and has boosted all foodstuffs. In the midst of this high cost of living, your small ranch, back yard or old corral lies unproductive. A few cents in seeds will produce dollars for you in vegetables, and a wealth of bloom.

We offer the highest quality of seasonable seeds bought by our corps of experts, and tested at our famous Trial Grounds in our latest and best innovation

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Not the ordinary seed collection, but a collection to be selected by yourselves from a large variety of seasonable vegetable and flower seeds, plants, trees, insecticides, etc. We offer these collections at a reduced rate of 1½ to 1, for instance, $1.50 in seeds for $1.00, and as high as $75.00 in seeds, etc., for $50.00. We make this extraordinary offer because the observance of a few labor saving conditions enables us to give you the benefit of this saving.

With every order we will mail you our beautiful illustrated catalogue, which is so full of planting and cultural directions as to earn the title of the

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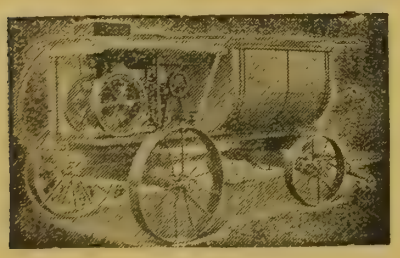
Hardie Sprayers



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Nursery stock grown under the most favorable conditions possible. Not the ordinary alligator pear trees raised under lath or in pots, but—

EVERYONE GUARANTEED TO BE VIGOROUS FIELD GROWN

I have made a special study of this new and promising fruit industry. Let me acquaint you with the wonderful possibilities.
Trees from 4 ft. to 7 ft. high, $2—$3.
Budwood—all standard varieties at reasonable prices.

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Spitzenberg, Rome Beauty or Banana. Is this practical, providing we can get a man who understands grafting? If unable to get such grafting stock from this vicinity where can we procure it cheaply? The variety we are to graft is not marketable. Elevation of orchard 2400 feet.—Subscriber, Santa Barbara.

The grafting over of apples is comparatively easy but in choosing the variety we would recommend investigating as to the variety which has proved most successful in your particular section. There are hundreds of different apples and some reach perfection in one section, but are of little value in another. If you cannot get the scions referred to in your own section it is fairly good evidence that they have not been tested out and we would be cautious about grafting trees to those varieties.

Muscats Not Bearing

I have Muscat grape vines on sandy land which make fine growth but do not bear much of a crop. Is this on account of the pruning? What shall I do to make them produce larger crops?—Subscriber, Selma.

This question was submitted to Prof. Bioletti, who writes:

"Regarding the best table grapes to plant, in the first place there is such a great number of good table grapes and the conditions you make are not sufficient to limit our choice among this number very closely. However, I will mention a few varieties which have shown commercial value and may do well under the conditions you have in mind. For early grapes the standard has always been the Sweetwater or Golden Chasselas. Equally good, or better, are the Rose Chasselas and the Luglienga. In the hotter regions the Khalili and the Persians 21 and 23 are equally early or more so and more striking in appearance. For midseason grapes the standard varieties grown in California are the Sultanina (Thompson Seedless), the Muscat, Malaga and Tokay. Among other varieties equal to, or superior to these, may be mentioned the following: Rose Sultanina. This is a rose-colored form of the ordinary Thompson Seedless which, however, does not seem to develop its color well except in the cooler regions. Pizzutello and Alhakahi are two of the so-called Lady Finger grapes which are very striking in appearance and come into the market in small quantities. The Flame Muscat is a red form of the ordinary raisin Muscat and will undoubtedly be profitable in some districts. The Muscatelle Fino or Muscat Hambro are black Muscats which are much preferred to the ordinary Muscat by most people. The Malvasia Bianca is a white Muscat which is of most excellent flavor and texture and bears well. Varieties similar to the Malaga are the Dattier and Olivette. The former is larger and earlier and the latter appears to ship a little better. The Golden Queen is a somewhat similar variety which is very promising. Of red grapes, the Zabalkanski and the Maraviglia di Malaga are worth trying. For late grapes, the bulk consists of Emperor, Cornichon and Black Morocco. To these might be added for fairly warm districts the Gros Colman."

LANGUAGE MIXED

"That," said the physician, as he examined the lump on the man's neck, "is the remains of an old boil that started to come and then became encysted there."

"Well," said the unlettered patient, "it sure has encysted on stayin' there."—Chicago Post.

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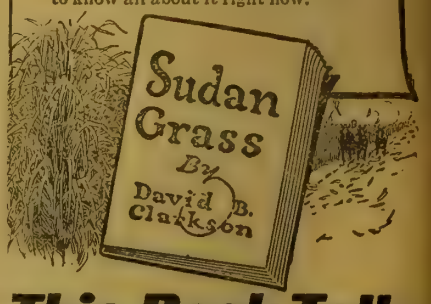
has proved to be the most profitable forage crop ever grown in America. Farmers who have planted it are making $20 to $100 an acre on hay, and from $300 to $700 an acre on seed. It yields the biggest tonnage to the acre of any high-class hay known. If you plant Sudan Grass, you never have to buy feed for your stock. As a catch crop, it turns loss into profit by replacing crops that have failed because of drouth or flood. By rotating it with other crops, you conserve and increase the fertility of your soil. Sudan Grass is one of the big factors that are bringing prosperity to the South. You ought to know all about it right now.



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I am the largest grower of Sudan Grass in America. I have studied it for years. This book contains everything I have learned about Sudan Grass. It is complete and absolutely reliable. It is the first and only book ever published that tells all that is known about Sudan Grass. Profusely illustrated with actual photographs of growing, harvesting and threshing Sudan Grass.

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Don't Start Wrong! —Don't commence growing Sudan Grass until you know how to secure, grow and keep seed pure, how and when to plant, where and on what kind of soil it will grow, how to cultivate and harvest for hay and seed, how to thresh, and all other particulars. My book tells you everything.

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One day of eleven hours we irrigated 18 acres on 55 gallons of distillate, or at the rate of 30-5-9ths cents per acre. It was our highest lift, including suction, 65 feet, pumping 250 inches.

We think the Commercial Engine has no superior."

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Use our two-hose, four nozzle "Pomona" Sprayer for healthier trees and bigger crops. Uniform pressure; non-corroding; outside packed plungers—no leather. Fits any barrel. Ask your dealer to show you

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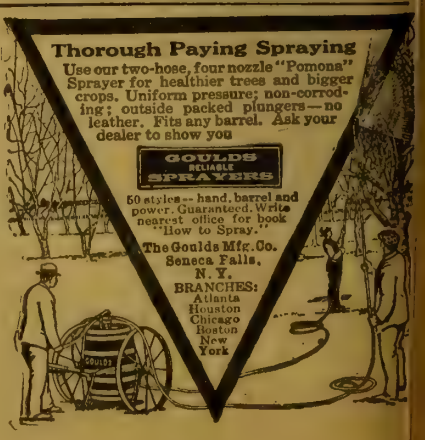


The Household Department

LINCOLN

By Edmund Vance Cook

Bulwark and barbacan, grim and tall,
Keep and turret and moated wall
Portico, peristyle, stately hall,
Palaces, castles, courts, and all;
Lofty minaret, lordly dome,
Humble yourselves at the childhood home.
Of Lincoln

Made of a few sticks, clumsily cut;
No window to open, no door to shut;
So wretched, indeed, that the name of hut
Were gilded praise of its poverty; but—
By the kernel alone we must judge the nut.
Who could have dreamed in that early hour
That out of such muck would have sprung the flower—
A Lincoln!

Reactionaries! who strive, to-day,
To hold that men are of different clay;
Oligarchs! plutocrats! ye who say
The fathers were wrong, and yea or nay
May answer a People's Rights, to-day,
That some are to rule and some obey,
One plain word shall command your shame;
Into your faces I fling the name
Of Lincoln

Whence did he come? From the rearmost rank
Of the humblest file. Was it some mad prank
Of God that the mountains were bare and blank
And the strong tree grew on the lowliest bank?
Not so! 'Tis the Law. The seed blows wide
And the flower may blossom as the garden's pride,
Or spring from the ditch. Nor time, nor place,
Conditions nor caste, nor clime nor race
Can limit manhood. The proof is the case
Of Lincoln

How was he trained—this untaught sage,
With nothing but want for his heritage?
Set to work at the tender age
Which should have been conning a primer page—
His whole youth spent for a pitiful wage
As axman, farmer, boatman, clerk;
Learned alone in the school of work
Was Lincoln.

What was his power? Not kingly caste,
Nor jingle of gold howsoever amassed;
Not Napoleon's force with the world aghast;
Not Tallyrand's cunning, now loose, now fast;
Not weak persuasion or fierce duress,
But strong with the Virtue of Homeliness
Was Lincoln.

Homely in feature. An old style room,
With its tall, quaint clock and its old, quaint loom,
Has very much of his home-made air.
Plain, but a plainness made to wear.
Homely in character. Void of pretense;
Homely in homeliest common sense.
Homely in honesty. Homespun stuff
For every weather, mild or rough.
Homely in humor, which bubbled up
Like a forest spring in its earthen cup.
Homely in justice. He knew the law,
But often more than the letter he saw;
And, sheathing the sword to its harmless hilt,
Wrote "Pardon" over the blot of guilt.
Homely in patience. His door stood wide,
And carping and cavil from every side
Dinned in his ears, but he went his way
And did the strongest that in him lay.
Homely in modesty. Never a claim
Of credit he made, and he shirked no blame;
Yet firm in his place as the hemisphere
When principle said to him, "Stand thou here!"
Homely in tenderness. Motherhood's breast,
Where the new babe cuddles its head to rest,
Is not more gentle than was his heart;
Yet brave as a Bayard in every part
Was Lincoln.

O, Uncommon Commoner! may your name
Forever lead like a living flame!
Unschooled Scholar! how did you learn
The wisdom a lifetime cannot earn?
Unsainted Martyr! higher than saint!
You were a Man with man's constraint.
In the world, of the world, was your lot;
With it and for it the fight you fought,
And never till Time is itself forgot
And the heart of man is a pulseless clot,
Shall the slow blood flow when we think the thought
Of Lincoln

THE COMFORTER

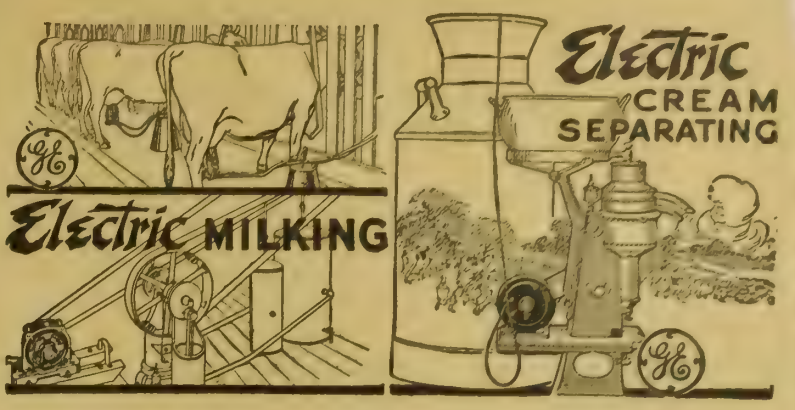
By F. A. Mitchell

When the great struggle between the Northern and Southern states come on Allan Fitz Hugh, twelve years old, was at school in Virginia. He was a boy of delicate physique, but was full of fire, and, hearing that Abraham Lincoln was coming Southward at the head of an armed force was much troubled because he was too young to shoulder a musket and repel the invader. He found it difficult during those exciting times to attend to his studies, and had it not been for the influence of his mother he could not have been kept at school at all.

> And having thus chosen our course, without guile and with pure purpose, let us renew our trust in God and go forward without fear and with manly hearts.—Lincoln.

In those days the passion attending war ran high on both sides. The songs, the gibes, the speeches and what was written concerning the great struggle were very bitter and usually far from the truth. In the North it was "We'll hang Jeff Davis on a sour apple tree," and in the South President Lincoln was called "the baboon." The Northern schoolboy conceived the idea that President Davis was an ogre, not realizing that he was an educated gentleman, had commanded a regiment of United States troops in the war with Mexico, had been a United States senator and secretary of war. The Southern schoolboy considered President Lincoln a wild man from the Western woods who delighted in bloodshed. Children whose minds are not developed must concentrate upon one head in any movement in which they are interested. So Allan's thoughts dwelt upon Mr. Lincoln, embodying in him the whole Northern army, which was to him a terrible horde coming down to destroy the South.

When Allan was fifteen he begged his mother to let him go to fight for the Confederacy. Naturally she clung to her son, and the matter was compromised between them in this wise:



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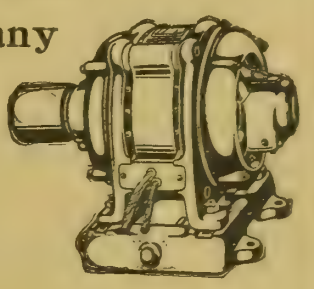

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(California)

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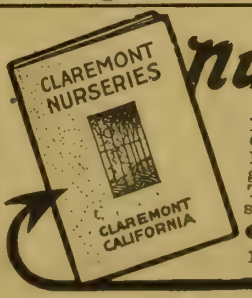

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See Announcement at Head of Editorial Page

If the war was not over in another year Allan was to enlist with his mother's consent. Many boys of his age, both in the North and in the South, broke away from parental restraint and enlisted without permission. Food for powder was in demand, and the recruiting officers often winked at the fact that the recruits were under age.

So Allan continued at his studies, though he read more about the battles that were being fought than the subjects treated of in his textbooks. He lived in Richmond and at one time had listened to the roar of cannon during the seven days' battles that had been fought between Lee and McClellan. His admiration for soldiers wore away some of his bitterness against the federal generals, but President Lincoln was still the embodiment of his repugnance for the Northern people. The two heads—Davis of the confederacy and Lincoln of the federal union—throughout the war continued to represent the bitter antagonism felt by either side.

In the early spring of 1865 Allan Fitz Hugh came to be 16 years of age and his mother reluctantly consented to his doing his part to fill the gaps in the Southern ranks made by Northern missiles. When the time came for him to leave his mother he was seized with a foreboding that he would not see her again. It is questionable which suffered the more at the parting, mother or son.

Allan enlisted in time to take part in one of the last battles of the war. He saw a dark line of blue on the edge of a wood behind earthworks. With the confederate line of battle he moved toward it. Suddenly a storm burst in his face. He felt himself collapse and sank down on the ground.

His companions in arms went on, but were soon driven back and over him, leaving him there with a stream of blood flowing from his side.

Later he was picked up by a federal ambulance corps and placed on a stretcher. He believed himself to be dying, and, oh, how terrible not to be able to bid his mother goodby!

"Mother!" he cried. "Oh, mother!"

A tall, spare man in citizen's apparel heard the wail and directed the carriers to put down the stretcher and, kneeling beside it, asked tenderly:

"What can I do for you, my poor boy?"

"You are a Yankee. You will do nothing for me. I wish to send a message to my mother, but it will never reach her."

"Give me your message and I promise you that I will send it for you."

The next morning Mrs. Fitz Hugh heard of the batle and knew that her son had been in it. While she was wondering what might have been his fate a man rode up to her and gave her a message, stating that it had come by a flag of truce.

Starting for the front at once, the anxious mother succeeded in bringing her boy home. He hovered for some time between life and death, then began slowly to recover. Not long after this Richmond was evacuated by the confederates, and President Lincoln went down there from Washington. When he was riding through the street on which the Fitz Hughs lived Allan was propped up in an easy chair on pillows, and his mother pointed out Mr. Lincoln to him.

"Oh, mother!" exclaimed the boy.

"What is it, Allan?"

"He's the man who comforted me when I was carried off that dreadful battlefield, and he sent you my message."

IDEAS FOR THE COOK

Written for California Cultivator
By Isabel Cottle

Breakfast

Baked Canned Pears
Broiled Pork Chops Creamed Potatoes
Cornmeal Cakes Honey
Coffee

Lunch or Supper

Cream of Spinach Soup
Baked Cheese in Ramekins
Cold Sliced Ham
Red Bean Salad
Warm Doughnuts
Spiced Baked Apples
Tea or Milk

Dinner

Baked Meat Dumplings
Creamed Turnips
Wilted Lettuce
Whole Wheat Bread
Blackberry Jelly
Prune Pie, Whipped Cream
Coffee

Whole Wheat Bread

Scald one cup milk and one cup water, when lukewarm add one cake compressed yeast dissolved in one-fourth cup lukewarm water, one-half teaspoon salt, and enough whole wheat flour, about three cups, to make a stiff batter. Beat well for five minutes, lifting the dough high in the air and folding it over. Scrape down the dough from the sides of the bowl, cover with a clean cloth and place in a warm place for two hours. By this time the mixture will be light and spongy. Stir in slowly enough whole wheat flour to make a dough. Turn out onto a floured board and knead until soft and elastic, and no longer sticky. Form into two or three loaves as desired, place in greased pans, cover and stand in a warm place until double in bulk, about one hour. Bake in a moderate oven three-quarters of an hour.

Baked Canned Pears

Place halves of canned pears in baking pan, sprinkle lightly with sugar, add a lump of butter for each half, and pour around the liquor remaining in the can. Bake until well heated through and a rich syrup is formed. Serve warm. For variety cinnamon may be sprinkled over before serving.

Baked Cheese

Take one and one-half cups grated cheese, one-half cup bread crumbs, one cup milk, one egg beaten light, a little paprika and salt to taste. Put in ramekins and bake 15 minutes in quick oven.

Baked Meat Dumplings

Make a dough as for shortcake, roll

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out and cut in squares. Take one cup of cold boiled meat, one cup of bread crumbs, one cup of hot mashed potatoes, two eggs, pepper, salt and butter to season. Beat all well together and place one large spoonful in the center of each square, bring the corners all together in the center and pinch them so they will hold. Bake in a quick oven.

Red Bean Salad

One-half cup kidney beans, cooked; one-half sweet pickle, chopped fine; one tablespoon chopped celery, dash of tabasco sauce, dash of Worcestershire sauce. Mix ingredients and serve with Mayonnaise dressing.

HOUSEWIVES' EXHIBITS AT NATIONAL ORANGE SHOW

To aid what the orange growers believe is a vital part of the citrus fruit industry, the National Orange Show, to be held in San Bernardino, February 17-24, will give a daily demonstration of the preparation of dishes which can be made from oranges and lemons. A committee of women is to have charge of the feature. Housewives in the citrus fruit sections have discovered how to make many delicacies from oranges and lemons that are unknown in the vast majority of homes even in California. The women will demonstrate how the various dishes are prepared and give recipes to the visitors who are interested.

In addition to the extensive housewives demonstration and exhibit there will be exhibits from manufacturers and from the domestic science classes of many schools of the state.

NEW USES FOR THE CRANBERRY

No other fruit contains the same acid as cranberry. This salicylic acid acts upon brass, tin or iron when brought in contact with it, and for this reason it is advisable to cook the berries in earthen or porcelain-lined vessels, agate or granite ware.

As soon as the cranberries are cooked turn them immediately into the mold. Never allow any article of food containing cooked cranberries to stand in anything but glass or stoneware. The best cranberries are inexpensive, yet they adapt themselves to various styles of dishes that may be surprising to the housewife who has never tried to use them in any other way than in jelly and in sauce.

Wash and remove all defective berries before cooking. Cranberries may be made into ornamental dishes without much trouble, and yet are sufficiently simple to be prepared by an inexperienced cook.

Cranberry Bavarian Cream

Whip two cups of double cream to a stiff froth, add one cup of sugar and one tablespoon gelatin which has been softened in four tablespoons of cold water and liquified over hot water. Keep the basin in a pan of ice until the mass begins to thicken perceptibly; then stir in one cup of strained and sweetened cranberry juice. Fill a mold and pack in ice and salt for four hours.

Cranberry Sherbet

One of the most appetizing ways of serving cranberries that require but little time for preparation is sherbet. The tart flavor will be found palatable in place of the many sweet varieties of sherbet. To four cups of stewed cranberry juice add the strained juice of six oranges and four cups of granulated sugar. Pour into an ice cream can and freeze until of a mushy consistency. Whip stiff the whites of four eggs, stir into the cranberries and complete freezing.

Cranberry Conserve

Pick over and wash sufficient cranberries to weigh five pounds, then chop them coarse. Put two pounds of cleaned seeded raisins through the food chopper, then mix them with the cranberries. Thinly peel the rind from four large oranges, boil it in water, changing the water several times until the rind is tender, then chop fine. Put it into a saucepan, add the cranberries, raisins, ten cups of sugar, the pulp and strained juice of five oranges. Heat and cook slowly until reduced to a jam, then seal. This is excellent with meat.

Cranberry Frappe

Boil one quart of cranberries and two cups of water for ten minutes. Strain through coarse cheesecloth, add two cups of sugar and boil until the sugar is thoroughly dissolved, stirring meanwhile. When cold add the strained juice of two lemons; if too tart add more sugar. Freeze to a mush, using equal quantities of ice and salt. Serve in glass cups with roast turkey.

Scalloped Cranberries

Moisten two cups of soft white bread crumbs with half a cup of melted butter. Butter a pudding dish, sprinkle in a layer of bread crumbs, add a layer of stewed and sweetened cranberries; twelve large seeded raisins, a little grated lemon rind and a little sugar; continue the layers until the crumbs are used, cover and bake for half an hour in a moderate oven. Serve hot with hard sauce.—Good Housekeeping Magazine.

AN ENGLISH RAILWAY'S BATTALION

To meet the case of men who would prefer to enlist among those whom they know, the directors of the North-Eastern Railway of England have asked Lord Kitchener's authority to enroll a North-Eastern Railway battalion for his new army. One thousand one hundred men are required, and a sufficient number are willing to join. Already over 4000 of the company's employes from all departments have enlisted as regulars and territorials. The directors have undertaken to make adequate provision for dependents of men who enlist, to keep their positions open, and to make the arrangements for equipping and clothing the battalion.

THE USUAL DISAGREEMENT

"Plaster me up!" called Justin, aged 7, to his astonished mother as he rushed into the house. "Me an' Red's been fightin'."

With the wisdom of past experience, she washed, bandaged and plastered him before inquiring:

"What was the disagreement about, Justin?"

"Well, mamma," replied her son, after considering the question for some moments, "it mostly was me a-thinkin' I could lick Red, an' him a-thinkin' he could lick me."

FEAR BLOCKS ACTION

"But little is accomplished, because but little is vigorously attempted; and but little is attempted, because difficulties are magnified. A timorously cautious spirit, so far from acting with resolution, will never think itself in possession of the preliminaries for acting at all. Perhaps perseverance has been the radical principle of every truly great character."—J. Foster.

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We make Mayer Honorbilt Shoes in all styles for men, women, children; *Drysox*, wet weather shoes; *Yerma Cushion Shoes, Martha Washington Comfort Shoes.*

F. Mayer Boot & Shoe Co., Milwaukee

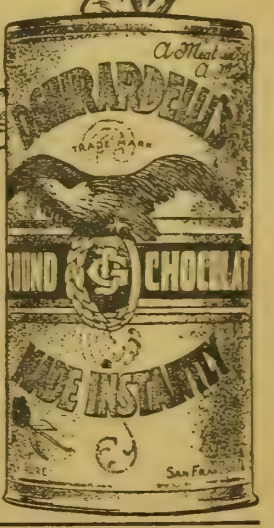
Chocolate Bavarian Cream

Soak one-half box gelatine in cold water until soft; add it to two cupfuls milk, which has been scalded, with four tablespoonfuls Ghirardelli's Ground Chocolate, stirring until dissolved. Remove from fire, add one-half cupful sugar, and one teaspoonful vanilla extract. Turn into granite basin, set in a pan of ice water, stirring until it begins to thicken; add two cupfuls of cream whipped to a stiff froth. Line a mould with peaches, turn in the mixture, set in a cold place until firm. Unmould and serve with whipped cream.

As a flavoring for cake, icing, cake filling, candy, ice cream and sauces,

Ghirardelli's Ground Chocolate

is unequalled in its purity, its economy, its flavor—It has enjoyed an unrivaled reputation for more than half a century.



As a daily beverage its health-promoting qualities as well as its low cost per cup recommend its use.

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San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, Feb. 3, 1914.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade 4 cents above following quotations:

Creamery Extras ... 27
Firsts ... 25
Country ... 22
Ladle ... 21

CHEESE

Prices to trade, 1 and 2 cents higher:

California Fresh ... 15@15½
Cheddar ... 20@21
Domestic Swiss ... 20@21
Eastern Daisy ... 18½@19
Longhorn ... 19@19½
Imported Swiss ... 36@38
Oregon Triplets ... 17½@18

EGGS AND POULTRY

Prices to trade, 3 cents higher than following quotations:

Fresh Ranch, case counts ... 26
Candled ... 28@30
Northern case counts ... 25
Petaluma-Santa Rosa ... 26

Prices to producers:

Hens ,lb. ... 14@16
Roosters, old ... 8@9
Broilers, lb. ... 26
Fryers ... 22
Roasters, lb. ... 17
Turkeys ... 17@21
Ducks ... 19
Geese ... 16
Squabs, doz. ... 2.00

LIVE STOCK

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs., per cwt. ... 7.40
Prime Steers ... 7¼@7½
Heifers ... 6¼@6½
Calves, lb. ... 8½@9
Sheep—
Ewes, head ... 4.50
Wethers ... 4.50@5.00
Lambs, head ... 4.50@4.75

POTATOES

Wholesale selling price:

Idaho ... 1.55@1.60
Early Rose Seed ... 1.90@2.00
White Rose Seed ... 1.50@1.60
Sweets, lug ... 75@80
New Potatoes, lb. ... 6
Northern Burbanks, cwt. ... 1.45@1.50
Salinas ... 1.90@2.00
Shimas ... 1.55@1.60
Lompocs ... 1.90@2.00

ONIONS

Australian Brown, cwt. ... 1.25@1.45
White Globe ... 4.50@4.75
Yellow Danvers ... 1.25@1.45
Spanish Red Globes ... 1.25@1.60
Sets—
Yellow ... 9
White ... 10
Garlic ... 20@25

VEGETABLES

Wholesale selling price:

Artichokes, Northern, doz. ... 75@1.00
Beets, doz. ... 30@35
Beans, String ... 16@18
Cabbage ... 75@85
Carrots, doz. ... 30@35
Cauliflower, doz. ... 75@85
Celery, crate, northern ... 3.00
Local ... 2.00@2.25
Cucumbers, hothouse ... 75@2.00
Egg Plant ... 14@15
Escarole, doz. ... 40
Horseradish, lb. ... 9@11
Leeks, doz. ... 35@40
Lettuce, crate ... 75@80
Mint, doz. ... 35@40
Mushrooms, Outdoors, lb. ... 25
Okra, lb. ... 9@10
Onions, Green, doz. bunches ... 15@20
Oyster Plant ... 35@40
Peas, lb. ... 15@16
Parsnips, doz. ... 30@35
Peppers—
Bell, lb. ... 18@20
Chili, lb. ... 7@9
Pimientos ... 14@15
Pumpkins, lb. ... 1@1½
Radish, doz. ... 20@30
Rhubarb, box ... 80@1.00
Spinach, doz. ... 20@25
Squash—
Summer, lug ... 1.25@1.40
Chayote, lug ... 75
Crookneck ... 50@60
Hubbard, lb. ... 1¼@1½
Turnips ... 30@35
Tomatoes, lug ... 1.65@1.75

FRESH FRUIT

Wholesale selling price:

Apples—
Bellflowers ... 75@1.00
Rome Beauties ... 1.25@1.75
Pearmains ... 85@1.10
Spitzenbergs ... 1.35@1.75
Bananas ... 3@3½
Berries—
Strawberries, basket ... 10@15
Casabas, crate ... 3.00
Cranberries, bbl. ... 8.75@9.00
Figs, box ... 1.50@1.75
Grapes, lug ... 1.25@1.35
Guavas, basket ... 4@6
Pears, Winter Nelis, lug ... 1.50
Persimmons, lb. ... 5@8
Pineapples, lb. ... 5@5½
Pomegranates, box ... 1.35@1.60
Quinces ... 65@75

CITRUS FRUIT

Wholesale selling price:

Lemons ... 1.00@2.00
Grapefruit, Seedless ... 2.00@2.25
Navels ... 1.75@2.00
Tangerines ... 1.50@1.75
Limes, basket ... 1.00@1.25

DRIED FRUITS

Wholesale prices to retailers are:

Evaporated Apples, Fancy, lb.
boxes ... 6¼@8
Apricots ... 8¾@11½
Nectarines ... 12½
Peaches ... 5¾@6¾
Pears ... 10@11
Prunes ... 5¾@16
Plums ... 10

HONEY

Wholesale selling price:

Comb, Fancy, Water White ... 14
White ... 12
Light Amber ... 11
Extr. Water White ... 7
White ... 6½
Light Amber ... 5½
Beeswax ... 32

NUTS

Prices named by California Walnut Growers' Association are:

No. 1 ... 16½
Budded Walnuts ... 20
Jumbos ... 19
No. 2 ... 12
Culls ... 9

Prices fixed by California Almond Growers' Exchange, f. o. b. California.

Almonds—
Nonpareil ... 21
I X L ... 20
N P U ... 19
Drake's Thinshell ... 15
Pecans ... 17
Peanuts—
California, Raw ... 6
Japan ... 7½
Eastern ... 7½
Rice Corn ... 5.00@5.25

RICE

Wholesale selling price:

California ... 4.75@5.00
Broken ... 3.75

BEANS

Wholesale selling price:
Producer's price not far from one dollar under these quotations:

Limas ... 5.35@6.00
Bayous ... 7.00
Lady Washington ... 6.00@6.10
Pinks ... 5.65@5.75
Black Eyes ... 6.00@6.25
Lentils ... 10.00@12.00
Navy ... 5.25@5.35
Small White ... 6.00
Garbanzos ... 7.00@7.25

HAY

Buying prices f. o. b. cars Los Angeles:

Barley ... 10.00@11.00
Wheat Hay ... 10.00@11.00
Tame Oat ... 11.00@13.00
Alfalfa ... 9.00@11.00

GRAIN

Wholesale selling prices f. o. b. Los Angeles:

Corn, Yellow ... 2.20
Corn, White ... 2.30
Wheat ... 2.85@2.90
California Red Oats ... 2.10
Oats, Red ... 2.50
Oats, White ... 2.20
Oats, Hulled ... 2.85
Millet ... 3.75
Popcorn ... 4.75@5.00
Egyptian Corn ... 2.30
Barley Seed ... 1.95
Barley, Hulled ... 2.10
Milo Maize ... 2.10
Cal. Seed Oats ... 2.10
Texas Seed Oats ... 2.50
Rye ... 2.40
Sunflower Seed ... 7.00

FEED STUFF

Wholesale selling prices f. o. b. Los Angeles:

Bran, Heavy ... 1.95
Alfalfa Meal ... 1.20
Alfalfa Molasses, per cwt. ... 1.25
Beef Scraps ... 3.00
Beet Pulp ... 1.25@2.30
Cracked Corn, cwt. ... 2.20
Cracked Wheat, cwt. ... 3.00
Cotton Seed Meal ... 1.80
Bloodmeal ... 3.45
Bone Meal ... 1.95
Meat Meal ... 3.00
Bone, Green ... 1.85
Charcoal ... 2.00
Oil Cake Meal ... 2.35
Fish Meal ... 3.15@3.25
Rolled Oats ... 2.25
Rolled Barley ... 1.85
Barley Hulled ... 2.20
Middlings ... 2.25
Feed Meal ... 2.25
Scratch Feed ... 2.50

San Francisco Market

SAN FRANCISCO, Feb. 2.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade, 4 cents above following quotations:

Extras ... 27
Prime Firsts ... 25½
Firsts ... 25
Fancy Creamery ... 29½
Seconds ... 22

CHEESE

Wholesaler to retailer.

Oregon Y. Am ... 16
Young America ... 12½@13½
California Flats ... 10@13½
Cheddar ... 20
Oregon Twins ... 14

EGGS AND POULTRY

Prices to trade 3 cents higher than following quotations:

Extras ... 24½
Storage Extras ... 31
Select Pullets ... 22½
Storage Select Pullets ... 21

Price to producer:

Hens, lb. ... 16@17
Eastern ... 16@19
Fryers ... 23@25
Roosters, old ... 12
Roosters, young ... 18@20
Broilers ... 25@26
Ducks ... 15@18
Geese, pr. ... 2.00@3.00
Squabs ... 2.25@2.75
Belgian Hares, lb. ... 9@10
Turkeys, live ... 16@19
Turkeys Dressed ... 19@21

LIVE STOCK

San Francisco prices, gross weight:

Steers ... 4@7¼
Cows and Heifers ... 3@6¼
Calves, lb., live weight ... 6@9½
Hogs ... 5@7½
Wethers ... 6½@6¾
Ewes ... 5¼@5¾
Yearling Lambs ... 7½@7¾

POTATOES

Wholesale selling price:

Delta Burbanks ... 1.10@1.30
Salinas Burbanks ... 2.00@2.10
Oregons ... 1.60@1.70
Washington ... 1.35@1.40
Idaho ... 1.20@1.25
Sweets, cwt. ... 1.50@1.75

ONIONS

Wholesale selling price:

Yellow, cwt. ... 90@1.00
Bermudas, crate ... 90@1.25
Garlic, new ... 17½@20

VEGETABLES

Wholesale selling price:

Beans—
Wax ... 5@7
Strings ... 10@15
Limas ... 10@12½
Brussels Sprouts, lb. ... 2@4
Cabbage, crate ... 1.00@1.25
Carrots, sack ... 30@40
Celery—
Southern, crate ... 85@1.15
Delta ... 1.50@1.75
Cucumbers, lug ... 1.25@1.50
Egg Plant, lb. ... 5@8
Lettuce, Sacramento ... 1.25@1.50
Peas, lb. ... 8@15
Peppers—
Bell, lb. ... 10@20
Chili, lb. ... 5@7
Rhubarb, box ... 90@1.25
Squash, sack ... 25@35
Summer, crate ... 75@1.00
Tomatoes, crate, Los Angeles ... 85@1.00
Imperial Valley ... 1.50@2.00

FRESH FRUIT

Apples—
Newton Pippins ... 50@1.00
White Winter Pearmains ... 50@75
Bellflowers ... 50@75
Bananas, Hawaiian, bunch ... 75@1.50
Cranberries, bbl. ... 8.50@9.00
Pears, Winter Nelis, wrapped,
box ... 1.00@1.50
Pomegranates, box ... 50@1.00
Pineapples, doz. ... 1.00@1.25
Persimmons ... 50@1.00
Quinces, box ... 25@40

CITRUS FRUIT

Wholesale selling price:

Grapefruit, Seedless, new crop ... 1.50@2.75
Lemons ... 1.50@2.50
Lemonettes ... 1.00@1.50
Limes, case ... 3.00@5.00
Navels ... 1.25@2.00
Tangerines, halves ... 75@1.75

DRIED FRUITS

Wholesale prices are:

PRUNES—1914 crop, bulk basis: 30-40s, 7c; 40-90s, 6½c; 90-100s, 6c. The above are for both Santa Clara prunes and stock from outside sections.

Other Fruits. 50-lb. boxes—	Standard	Choice	Extra Choice	Fncy
Evapt'd apples	....	5½c	5¾c	6 c
Apricots	9 c	9½c	10 c	11 c
Peaches	4 c	4¼c	4½c	5¾c
Pears	4 c	8 c	9 c	10 c

RAISINS

RAISINS—The following prices are f. o. b. Fresno, as given out by the Associated Raisin Company, for immediate shipment, and are guaranteed against a decline till April 1st: Fancy seeded, 16-oz., 7¼c; 12-oz., 5⅞c; bulks, 6c; choice seeded, 16-oz., 6⅞c; 12-oz., 5⅝c; bulk, 5½c; Thompson seedless, No. 1, 16-oz. pkgs., 7⅝c; 12-oz., 6¼c; 50-lb. cs., 6½c; loose, Muscatels, 1-crown, 5½c; 2-crown, 5½c; 3-crown, 5⅞c; 4-crown, 6c; Sultanas, 50-lb. cs., 5¾c; bulk, layers, 50-lb. bxs., $2.75; in 20-lb. bxs., 6-crown, $2.75; 5-crown, $2.25; 4-crown, $160; 3-crown, 5-lb. bxs., $1.50; on all bulk stock, 50c additional. Cartons—Clusters, 20 to cs., No. 1, $1.70; No. 2, $2.10; No. 5, 4 to cs., $2.25. Local representatives of the association are asking about ¼c higher, while several of the largest independent packers are quoting ½c under these figures.

NUTS

ALMONDS — Prices fixed by Almond Growers' Exchange to the trade, f. o. b. California:

Nonpareil ... 21
I X L ... 20
Ne Plus Ultra ... 19
Drakes ... 16

Wholesale selling price:

Peanuts—
Unpolished ... 5@8
Polished ... 6@6½
Shelled, Jap ... 6¼@6¾
Italian Chestnuts ... 6½@7

BEANS

Wholesale selling price:

Limas ... 5.60@5.70
Lady Washington ... 3.60@3.75
Pink ... 4.45@4.60
Black Eyes ... 5.35@5.50
Cranberry ... 5.00@5.25
Small White ... 5.40@5.50
Garbanzos ... 6.50
Large White ... 5.00@5.15
Bayou ... 5.50@5.70
Manchurian Speckled Bayous ... 3.90@4.00
Manchurian Butters ... 4.50@4.75
Manchurian Cranberry ... 4.15@4.25
Red Mexican ... 5.60@5.70
Red Kidney ... 6.00@6.25
Horse Beans ... 4.00@4.50
Bayou ... 3.50@3.70

HONEY

Comb, Water White ... 14@16
Amber ... 10@12
Dark ... 7@10
Extracted White ... 7@9
Light Amber ... 5½
Dark ... 4@5½
Beeswax ... 27@32

HOPS
1914

Sacramento Valley ... 7@9½
Sonoma-Mendocino ... 9½@11½
Oregon Clusters ... 9½@11½

HAY

Under date of January 30, Scott Magner & Miller say:

Receipts of hay for the past week were 1799 tons. Demand for all grades light. The alfalfa situation remains about the same as heretofore. Straw is nominal.

Oat ... 9.00@10.50
No. 2 Wheat or Wheat and
Oat ... 6.00@8.50
Choice Tame Oat ... 10.50@11.50
Other Tame Oat ... 6.00@9.00
Barley ... 5.00@8.00
Wild Oat ... 6.00@8.00

WEATHER CONDITIONS

For Week Ending January 30, 1915

Report from the various stations of the United States Weather Bureau, by George H. Wilson, director, San Francisco:

	Rainfall Data			Temperature Data	
	Past Week	Seasonal to Date	Normal to Date	Maximum	Minimum
Eureka	.90	24.03	24.24	64	42
Red Bluff	4.06	15.76	14.91	58	38
Sacramento	1.50	7.96	10.68	58	38
San Francisco	2.42	12.14	12.49	.60	46
San Jose	1.82	9.60	9.01	66	46
Fresno	1.22	4.79	5.10	64	40
Independence	1.07	2.25	5.03	44	20
San Luis Obispo	5.20	12.13	10.32	64	42
Los Angeles	4.86	9.58	7.91	66	46
San Diego	2.46	8.94	5.09	66	48

T—Means trace.

Alfalfa	6.00@9.00
Stock Hay	4.50@5.00
Straw, per bale	.30@45

GRAIN

Wholesale prices.

Alfalfa Seed	14@16
Wheat, Cal. Club	2.40@2.45
Corn, Eastern Yellow, blk.	1.78¾@1.80
Corn, Egyptian White	1.85@1.90
Barley, Feed	1.55@1.60
Shipping and Brewing	1.26¾@1.27½
Oats, White, Feed	1.85@1.90
Oats, Red, Seed	1.60@1.65
Oats, Red, Feed	1.55@1.65
Millet	3@3¼
Flax	6@6½
Rye	2.10@2.15
Sunflower	5@5½

FEED STUFF

Wholesale prices.

Alfalfa Meal, car lots	16.00@16.50
Bran, ton	32.00@34.00
Feed Cornmeal, ton	40.00@41.00
Cracked Corn	40.00@41.00
Rolled Barley, ton	33.00@34.00
Rolled Oats, ton	37.00@37.50
Middlings	34.00@36.00
Shorts	33.00@34.00
Oilcake Meal	38.00@39.50
Cocoanut Oilcake Meal	24.00@25.00

Citrus Fruit Market

Los Angeles, Feb. 3, 1915.

Another cold streak has frozen up another lot of California oranges in transit. Last week's blizzard, which covered almost the entire East, has caught to a greater or less degree some 300 cars. Of course many of these will be saved, but some are seriously frozen. This, together with the general dragging condition of the market, is making an uphill task for sales managers. Every sale has to be forced, which means often concessions in prices. Regarding prices, it may be in order to refer to the fact that a year ago this same week Florida oranges were commanding an average of nine cents more than California oranges. This year Californias are commanding 43 cents above Florida averages, a net difference of 52 cents, which is proof of the recognition the market is granting to California quality. Florida grapefruit is also in bad; many sales going at less than $1.50.

The lemon situation is practically the same. Foreigns are continuing to come in immense quantity, practically double shipments of any preceding year at this time. It was rumored that shortage of box shooks would discourage further shipping, but this has been overcome, at least to a degree.

Shipments.

Shipments of oranges to date since November 1, 1914, 3767 cars, lemon 799; total 4566. To same date last season, oranges 4137, lemons 369; total 4506. From Tulare county this season, oranges 5049, lemons 124; total 5173. Last year same date, oranges 4209, lemons 25; total 4234. From northern counties, oranges 555. To same date last season, 385.

CULTIVATOR—2-2 .. ..

PHILADELPHIA, Feb. 1.—Three cars navels, one car lemons sold. Cold, raining. Thirty-three cars Floridas selling today.

NAVELS—

	Avge.
Lincoln, Arlington Hgts. Ex.	$2.20
Alhambra, S. T., Ex., Alhambra	2.40
Don Quixote, S. T., Ex., Alhambra	2.15
Santa Anita, Baldwin Estate	2.20
Arcadia, Baldwin Estate	2.00

LEMONS—

Victor, O. K. Ex., Etiwanda	$2.70
Crest, O. K. Ex., Etiwanda	2.15

PITTSBURGH, Feb. 1.—Three cars oranges, one car lemons sold. Raining. Market is steady.

NAVELS—

	Avge.
Two Star, Sacramento Co. Ex.	$1.85
Monopole, A. C. G. Ex., Glendora	1.95
Daisy, imp, Covina Ex.	2.20
Gladiola, imp, Covina Ex.	2.05

LEMONS—

Summerland, Crocker-Sperry Co.	$2.30
Miramar	2.20
Las Fuentes	2.35
Montecito	2.10

CLEVELAND, Feb. 1.—Three cars oranges, one car lemons sold. Market is steady. Weather unfavorable, raining. Three cars Florida oranges sold averaging $1.45 per box.

NAVELS—

	Avge.
East Highland Red, High. Ex.	$2.35
Mars, American Ft. Dis.	2.10
Wildflower, Randolph Ft. Co.	1.45

LEMONS—

Basket, Cen. Cal. Ex., Lemoncove	$2.55

CINCINNATI, Feb. 1.—Cool. Market is advancing on navels and on Floridas. One car navels, three cars Florida oranges three cars grapefruit sold. Florida oranges sold from $1.35 to $2.15; average, $1.90. Grapefruit sold 90 cents to $2.00; average, $1.50.

NAVELS—

	Avge.
Cycle, Fillmore Cit. Ex., Fillmore	$2.10

BOSTON, Feb. 1.—Nine cars oranges, one car lemons sold. Raining. Market is unchanged on both oranges and lemons.

NAVELS—

	Avge.
Orangedale, Sacramento Co., Ex.	$2.10
Priscilla, Redlands-High., Ex.	$2.25
John Alden, Redlands-High., Ex.	2.10
Kenilworth, Arlington Hgts., Ex.	2.30
Peasant, Arlington Hgts., Ex.	2.25
Red Globe, Riverside Ex.	2.80
Alta Cresta, Arlington Hgts. Ex.	2.80
Robusta, Arlington Hgts. Ex.	2.40
Hobo, Arlington Hgts. Ex.	2.10
Gold Buckle, Redlands-High. Ex.	2.45
Blue Banner, Sutherland Ft. Co.	2.30
Redlands' Best, Bryn Mawr F.G.A.	2.25
Green Banner, Sutherland Ft. Co.	2.20
Halfmoon, C. M. Brown, Redlands	2.15
Native, Sutherland Ft. Co., Riv.	2.10

LEMONS—

La Habra, Semi-Tropic Ex., La H.	$3.05
Reliable	2.80

ST. LOUIS, Feb. 1.—Cloudy, cold. Market is strong on navels, steady on lemons. Five cars navels, one car lemons sold.

NAVELS—

	Avge.
Carrier, Redlands-Highlands Ex.	$2.15
Garibaldi, Redlands-Highlands Ex.	2.05
Cardinal, Orange Co. Ex., Orange	2.20
Searchlight, Orange Co. Ex., Orange.	2.10
Native, Sutherland Fruit Co.	2.15
Dirigible, Crafton, Mentone Assn.	2.20
Orchid, Dalrymple Fruit Co., Riv.	2.10
Defender, Dalyrmple Fruit Co., Riv.	2.00

LEMONS—

Red Spray, O. K. Ex., Alta Loma	$2.50
Arrowhead, Redlands-High. Ex.	2.75

FARM INSTITUTES

(Continued from Page 139)

Bryant. Afternoon, 2 p. m.—Farm Business, R. L. Adams; Poultry Husbandry, W. E. Lloyd. Tuesday morning—Cooperation in Selling Farm Products (local speaker); Nut Trees for Galt District, T. Francis Hunt. Tuesday afternoon—Soils, Dr. C. B. Lipman; Pruning Grapes, followed by field demonstration, Prof. F. T. Bioletti; ladies' meeting, Miss L. D. Clark. Chairman of committee, J. E. Maxwell, Galt.

Corning Extension School in Horticulture

Wednesday—Using the College of Agriculture, T. Francis Hunt; Farm Management, R. L. Adams; Olive Culture (propagation, grafting, budding, etc.), W. F. Oglesby; Citriculture, Dr. J. E. Coit. Thursday—Olive Culture, Pruning, Care, Varieties, etc., W. F. Oglesby; Almond Culture, R. H. Taylor; Pruning Deciduous Trees, R. H. Taylor; Handling the Irrigation Supply for Orchards, R. D. Robertson; Orchard Irrigation Methods (illustrated), R. D. Robertson. Friday—Control of Plant Diseases, T. Francis Hunt; Soil Improvement, Prof. W. T. Clarke; Control of Insect Pests, Prof. W. T. Clarke; Olive Pickling and By-Products, W. F. Oglesby; Ladies' Meeting, Domestic Science, Miss L. D. Clark; Farm Hygiene and Sanitation (illustrated), Dr. W. B. Herms. Saturday—Inter-cropping.

COUNTRY LIFE CLUBS

(Continued from Page 141)

Remember that "great oaks from little acorns grow." Show your appreciation of the efforts being made for bettering the conditions in the community by being cordial and friendly towards the instructors being sent to us. If anything has especially interested or benefited you, tell them so. Let them feel that their efforts have not been in vain. Do you think that our public school teachers are benefited and encouraged by the hearty cooperation of the parents? It will be the same in this work.

The boar should not be used for service until eight months old; and from 15 to 20 sows are enough for the young sire to breed the first year. The young boar should be handled carefully, and until fully developed should be fed a strong growing ration, and given plenty of exercise. Afterwards during idle periods he can be kept on a maintenance ration, preferably grass and a limited amount of grain. Instead of risking a new, untried sire each year it is usually the best practice to keep a boar as long as he can be used to advantage.

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She—What of it? Don't you think the imitation is successful?

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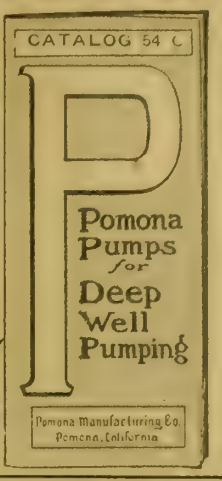
When writing state the depth of your well, and be sure to ask for Catalog No. 54 C.



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NO. 49

Leave Los Angeles	7:30 p.m.
Arrive San Francisco	2:50 p.m.

THE LARK

Leave Los Angeles	8:00 p.m.
Arrive San Francisco	9:45 a.m.

VALLEY EXPRESS

Leave Los Angeles	10:00 p.m.
Arrive San Francisco	4:10 p.m.

SUNSET LIMITED

Leave Los Angeles	10:15 p.m.
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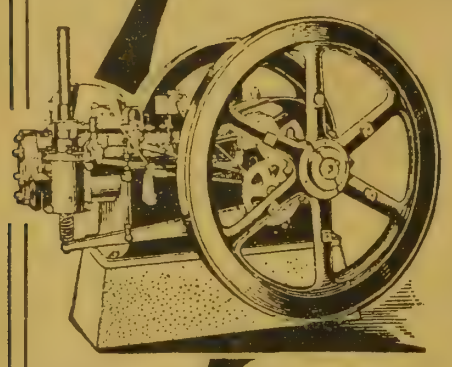

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Studebaker

WAGONS BUGGIES HARNESS

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I am using a Studebaker Farm Wagon which has been in constant use for 35 years. The wagon was bought from J. D. Lester by Fred. Gruner and was used for hauling grain to Telena, fifteen miles away.

I bought the wagon from Mr. Gruner and have hauled as high as 50 bushels to the load.

The wagon has been in several runaway accidents but has never had a broken wheel or axle, nor has a new felloe or spoke been put in.

The wagon is in excellent condition and is being used every day.

C. E. Stephenson,
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Hauls his grain to market in 35 year old Studebaker

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And this isn't an exceptional Studebaker, for we have thousands of testimonials telling similar stories about the long life and good service Studebaker wagons have given.

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These many long lived wagons are the result of Studebaker superiority; a superiority which comes from the long ageing and weathering of the timber, tested steel, the splendid standardization of the manufacturing processes and the rigid requirements of test and re-test through which each wagon has to pass. Even Studebaker paint and varnish is analyzed before it is used.

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Studebaker Buggies and Harness are also built to outlast others.

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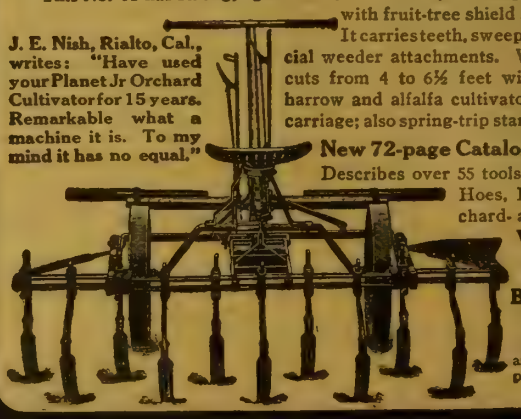
This No. 41 has strong, light frame, low wheels, and tongue, all of steel. Is equipped with fruit-tree shield and side-hitch for low trees. It carries teeth, sweeps, furrowers, plows, and special weeder attachments. Works deep or shallow, and cuts from 4 to 6½ feet wide. Convertible into disc-harrow and alfalfa cultivator. Can be fitted with fore-carriage; also spring-trip standards, and irrigation steels.

J. E. Nish, Rialto, Cal., writes: "Have used your Planet Jr Orchard Cultivator for 15 years. Remarkable what a machine it is. To my mind it has no equal."



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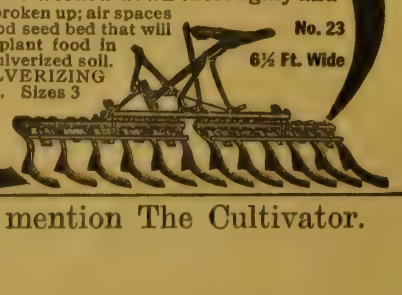
ACME Pulverizing Harrow

AFTER plowing sod or stubble, it must be worked down thoroughly and pulverized. Sods, clods and lumps must be broken up; air spaces and voids worked out and filled to insure a good seed bed that will give BETTER CROPS. Make available the plant food in plowed in manure by thoroughly mixing with pulverized soil. BETTER CROPS will result. The "ACME" PULVERIZING HARROW makes possible the perfect seed bed. Sizes 3 to 17½ ft. wide, for one to four horses.



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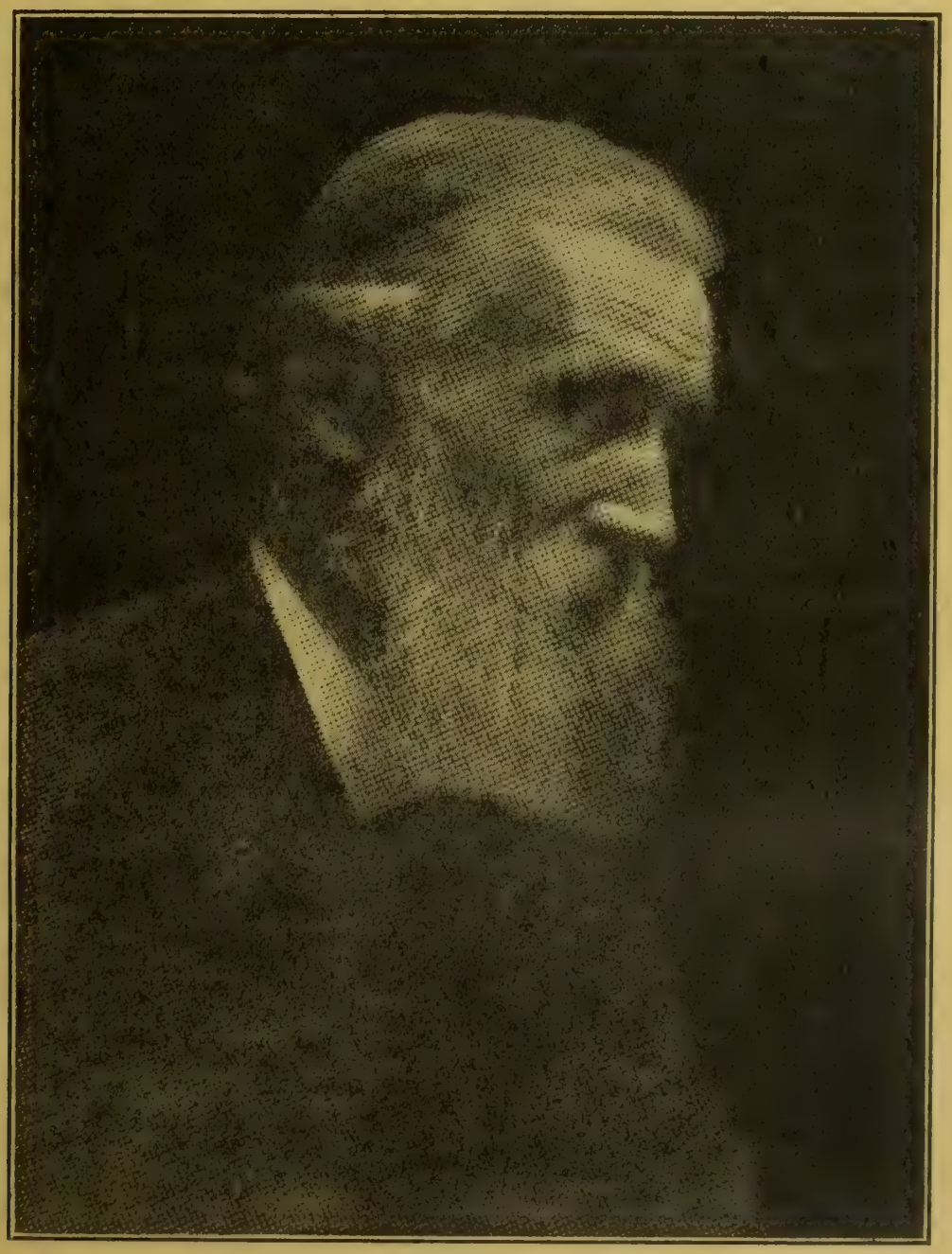
CALIFORNIA CULTIVATOR

Rural Californian combined with California Cultivator

An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES February 11, 1915 SAN FRANCISCO

A California Tree Lover



"The coniferous forests of the Sierra are the grandest and most beautiful in the world, and grow in a delightful climate on the most interesting and accessible of mountain-ranges, yet strange to say, they are not well known. But few indeed, strong and free with eyes undimmed with care, have gone far enough and lived long enough with the trees to gain anything like a loving conception of their grandeur and significance as manifested in the harmonies of their distribution and varying aspects throughout the seasons, as they stand arrayed in their winter garb rejoicing in storms, putting forth their fresh leaves in the spring while steaming with resiny fragrance, receiving the thunder showers of summer, or reposing heavy-laden with ripe cones in the rich sungold of autumn. For knowledge of this kind one must dwell with the trees and grow them, without any reference to time in the almanac sense. The giant pines, and firs, and Sequoias hold their arms open to the sunlight, rising above one another on the mountain benches, marshaled in glorious array, giving forth the utmost expression of grandeur and beauty with inexhaustible variety and harmony."—John Muir, born April 21, 1838, died December 24, 1914.

WHAT THE
Sacramento Valley
THE HEART OF CALIFORNIA
Offers the Home Seeker
40 Acre Equipped Farms

Hundreds of prosperous and progressive farmers are already located in the upper part of California's great interior valley—the Sacramento Valley—the heart of California.

Have you ever stopped to consider what you could do on a farm of your own? Do you know that successful farm management calls forth the best that there is in a man and makes him utilize his foresight and ingenuity to a much greater extent than other work? Do you realize that the farmer works for himself and does not see some one else reap the benefits he himself has earned?

In the Sacramento Valley lie some of the most fertile tracts in the State. The fine deep loamy soil is waiting to produce the crops to which it is so admirably suited. An unlimited supply of water can be obtained by gravity or by drilling a well a few feet deep. All that is needed is man's labor and brain to convert these lands into veritable gardens. Here one has the long, warm summers, which give ample time for any crop to mature, and the mild rainy winters store moisture in the soil for the following season's growth.

The successful farms already seattered throughout this district are fine examples of what the conjunction of ideal climate and soil, with intelligent labor will do.

There are gently sloping lands with good drainage. They are ready now for the plow. No clearing to do; no brush to handle; no stumps to remove. It is clear, clean strong land which offers ideal home sites for thrifty men who desire to make immediate headway under most favorable conditions.

All sorts of fruits thrive here; banner crops of rice and alfalfa are produced, and the earliest vegetables and garden truck which come to the San Francisco market, are sent from this vicinity. Thousands of miners and lumber men and several large cities afford unlimited markets; railroads and river boats near at hand facilitate disposal of the crops. Farmers' co-operative societies by parcel post and express and sending directly to market are saving more and more of the profits for the growers.

A 40-acre farm, properly planted, is better than any life insurance policy. Not only does it constantly produce an income during your lifetime, but every bit of work put into the place increases by just so much its permanent value.

I want to talk with every one who is interested in securing a specially located piece of land.

Our **40-acre completely equipped farms** offer new, clean, strong lands. They are selected to suit the trees or products you wish to grow—prunes, apricots, almonds, figs, oranges, lemons, olives, walnuts, or for alfalfa, dairying and stock. They are in selected districts, close to good markets.

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I am positive that these 40-acre equipped farms will prove immensely profitable for every one who wants a home in the country or country income property.

Every one who has in mind obtaining a piece of country land should get the circular "What the Prospective Settler Should Know." The University of California, Berkeley, Cal., will send this to you FREE. It gives an accurate, unbiased statement on matters which you who want country property should know.

The lands which we offer are absolutely free from overflow; the titles are clear and guaranteed; there is no bonded indebtedness; there are not irrigation or reclamation assessments. You are buying good land, without incumbrances.

To make this offer still more attractive, we are placing these tracts on the market at a reasonable price—$150.00 per acre, the equipment included. If you want to obtain one of these farms in the early fruit district of the upper Sacramento Valley, write us for further details.

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Formerly Deputy Commissioner of Horticulture of California, Expert, United States Department of Agriculture

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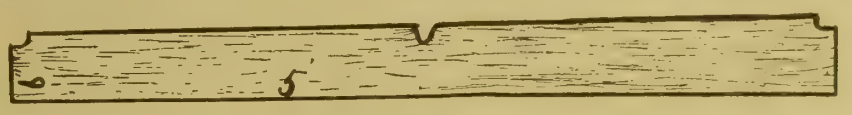
Vol. XLIV No. 6 LOS ANGELES: THURSDAY, FEBRUARY 11, 1915 One Dollar Yearly

Begin the Orchard Right

Plant Thrifty Young Trees in Well-Prepared Ground. Hints from Practical Orchardists.

PLANTING season has not yet ended though the orchardist who yet has deciduous trees to plant should be busy. Presumably long before this he has discussed with himself his general location and its adaptability to the various fruits. Possibly some are yet studying as to fruit growing possibilities, and for such—and for those who have not yet planted—we give this week a symposium of great value.

First, merely a hint as to general location. There are abandoned orchards in California and still more in evidence are the orchards which have been made over many times. Without proper investigation the first orchardist planted, perhaps oranges, which proved the location to be adapted to some other fruit, then came almonds and some other fruit and finally alfalfa. The above is not overdrawn, at least in some cases. Therefore investigate fully. To determine these points take the score card. We note in a book on productive orcharding such a card and while it might need some revision for California conditions it is suggestive. In this card 30 counts were allowed for soil. Of the 30, 15 were given to surface soil, considered as to its fertility, adaptation to fruit grown, ease of working, sourness, humus content. The other 15 points were given to subsoil, ease of penetration by the roots, and fertility. Then came water drainage with 30 points, of which 10 were given to surface drainage and 20 to sub-drainage. Fifteen points were given to atmospheric drainage; will the cold air drain off, is there slope enough, does cold come down from slopes above, or is there obstruction at the bottom which will hold back cold air? The aspect or slope of the orchard was given 15 more points, slope with reference to the sun and with reference to winds. Windbreaks called for ten points as to whether they were near by or distant, kinds of trees, etc. This makes up a complete list of 100 points for the orchard.



PLANTING BOARD

For the purpose of determining soil quality perhaps nothing is better than the ordinary soil tube. These are comparatively new in orchard practice and are almost necessary for best information as to soil and subsoil conditions before planting, also as to moisture conditions when the orchard is growing.

All points as to location and fruit to be planted, trees bought of responsible nurserymen, ground levelled so that best results may be had in irrigation, deep plowing,—if sub-soiled so much the better, harrowing and planking the entire surface should be attended to. There are various devices for this smoothing or dragging or planking, the point being to secure a surface over which the chain or wire for staking the site for the tree to be can be readily handled. Most rapid work is secured with the ordinary wire marker with its tags or marks every 20 feet, or whatever the distance apart may be. The square method is usually preferred, but the contour of the land, planting closer one way than the other on account of winds and other factors, must determine the method for each orchard.

After the wire is removed use the planting board. This is shown in engraving on this page. Place the center notch of the board against the peg which stands where the tree will be. Two other pegs will then be placed at the end notches. Then the center peg is removed and the hole excavated.

If the test tube shows any indication of hardpan the use of dynamite is almost essential if best results are to be secured. One-third to one-half of a stick will usually "lift" the hardpan so as to give good large hole for spreading out of the roots.

When the trees are brought to the orchard use care that they do not dry out. The good old method of using barrels containing water in which the trees are kept until lifted to be placed in the hole is excellent. We have seen trees carted to the orchard and thrown where the holes were yet to be dug. allowed to lie in the sun and wind half a day before the moist earth was packed about the roots. This is fatal to best results. Even the hardiest of deciduous trees should be given more careful attention. Citrus trees will not stand for any such neglect at all and call for quick handling from nursery to tree hole. The planter should work roots out as nearly in the natural horizontal position as possible and insist on the shoveler delivering the dirt into the hole in a way which will not mat them all down against the tap root. It is an easy matter for the shoveler to sprinkle the dirt off the point of the shovel in a way which helps wonderfully in getting the dirt about the roots, but there are few who will follow this practice and work rapidly unless it is insisted upon. Tramp the dirt about the roots and follow with water as quickly as possible. These points are many of them referred to, however, in the articles which follow, every one of which is written by a practical planter of years of experience.

Tree Planting Ideas

A Practical Orchardist Submits Suggestions with Special Reference to the Sacramento Valley

PRUNING time is here, in fact many forehanded orchardists have already begun the work. Deciduous trees, those that lost their leaves in the winter or dormant period, may be pruned almost any time after the leaves fall until the buds start in the spring. Some extend the period even longer than that in particular cases. For instance, one man started to prune in an old prune orchard that has been neglected, soon after the crop was off and while the leaves were all on, so as to be able to more easily locate the dead branches there being many of these to be removed. There are others who believe that by the early fall pruning the late flow of sap in the tree goes to the fruit buds that will bear the fruit next year instead of being distributed to all of the buds, some of which will be removed by the prunings. Then some orchardists who are backward with their work for some reason prune their trees late in the spring after buds or even leaves have started rather than let them go unpruned. Besides that there is a summer pruning of young trees to shape the heads and summer pruning of old trees to induce fruiting.

But there are many thousands of young trees in California, one, two and three years old, that are ready to be pruned now, and the sooner it is done the better.

Arguments are advanced by different tree pruners for doing the work early or late in the dormant period. Those who advocate being forehanded with the work believe that it is a good thing to get it over with and out of the way of any unforeseen delay, that might postpone it until after the sap starts in the spring and the leaves are out. Others are of the opinion that the wounds will heal more quickly if the work is done immediately preceding the time of sap flow in the spring. Practically there is probably very little in this latter argument, and it is doubtful if any one could tell by the middle of summer whether a tree had been pruned in December or March.

In the pruning of trees there are some sound, practical and scientific reasons for different things, and dozens of superstitions and notions that have not a very sound basis. An intelligent orchardist should consider everything that he may learn from anyone about pruning, but the lack of a good sensible reason "why" some things should be done will eliminate many notions.

There is one orchardist in the Sacramento Valley who makes a careful study of his problems and who seeks the help and advice of the university authorities and practical growers as well as the so-called "tree experts," often half tramp cranks who drift through orchard sections. This man is responsible for the success of the planting in his charge, and his experience has taught him that the best class of help he can get to work with him at pruning time consists of men who will take an interest in the work and do as he directs, rather than "old fogy experts" who will do their own way regardless of whether it fits the conditions or not. The first question he asks a prospect is, "Are you an 'expert'"? If the man confidently says, "yes," he is not hired.

The first and most important thing for the tree pruner to have in mind is an ideal tree, when it is grown and bearing. There must be a realization of the reason for cutting back branches that this is to make strength in the limbs when they have to bear the load of the superstructure of fruit leaves and branches, and one must know that of all the branches that grow the first year only three or four must be saved, for otherwise the head of the grown tree would be so thick and dense that foliage would be too heavy for any fruit to grow therein, and that the next limbs, two or three on each lower branch, must be built up and out so as to give symmetry to the tree and provide the greatest possible bearing area so that the sun can have access all around, and still maintain a maximum of strength.

An Easterner's Observations

Mr. J. H. Hale Submits Genial Observations Made Upon a Trip to This State a Few Months Ago

AT the close of the Fruit Growers' Convention at Los Angeles in November I made a trip up your great state and on into the apple regions of Oregon and Washington, arriving home in early December more than ever impressed with the agriculture and horticulture of the Pacific Coast and the unbounded hospitality of your people, and I can assure all that here at least is one cold blooded Eastern Yankee, who does not have to eat ice cream to warm him up to an appreciation of California and her people. If you did not live so pesky far away I surely would come and see you more often.

Have just been reading in your issue of December 17 Mr. Roeding's extremely interesting and practical peach article and am stimulated thereby to chip in a word myself, realizing, of course, that Mr. Johnnie-on-the-Spot Roeding knows far more about California conditions than I possibly can.

In the matter of peach tree pruning he is absolutely right; everlastingly pruning, pruning thoroughly each and every year, building broad spreading, low headed trees, with plenty of new fruiting wood each year, and then a thinning out of the fruit so that maturing specimens shall be at least six inches apart, is essential to the securing of full sized, high colored, full flavored, perfect fruit, and such is the only kind that will surely pay a profit year after year, whether it be in California or the East.

Knowing very little of the canning or dried peach trade from the manufacturer's side of it, possibly I ought not to touch upon this subject, but as one who has been a producer of peaches for almost half a century, and as an almost daily consumer of fresh or canned peaches at home or abroad, I long ago became convinced that the canned and dried peach business could be doubled up several times over simply by canning the best dessert eating peaches obtainable, regardless of "color at the pit," and "rag in syrup." Canning and drying for appearance rather than quality has done more than all else to curtail consumption and sale of these products, and when some one comes along with wisdom and capital enough to put up only high class eating products and properly advertises to the consumers, they will do the rest.

The man who eats the product and finally settles the bills must be reckoned with, more in the future than in the past.

For more than 25 years now I have been supplying peaches for a very exclusive cannery whose products sell at extremely high prices; their one and only demand upon me is for peaches of largest size and fine eating quality, never any question as to color at the pit, rag in the syrup and other such foolishness, but it must be size and quality, and then I make the price; never a kick on that and I can assure you I make one that shows a good profit to the producer.

What Mr. Roeding has to say of fuzzy peaches having helped to kill off California trade in fresh peaches in Europe and in the East is undoubtedly true also, yet as most peaches are more or less fuzzy, and some varieties more so in your state than when grown in the East, there has been in the past little help for this situation. Now however that there is a new fuzzless peach also of great size, beauty and superb eating, shipping and keeping qualities, it would seem as though this objection could be done away with, though just how seriously the Georgia and other southern states' peach production may interfere with eastern trade conditions I am not able to predict. However as your peaches are of more lasting quality than those of the Southeast, there would appear to yet be plenty of markets for your peaches if right varieties be grown. Any way if I were living in your state, with all its wonderful peach possibilities, I should expect to keep on growing peaches, and if the old varieties you have been growing do not pay a profit I would try all new ones in sight and originate others if need be to fit the situation. Some way and some how I should expect to grow peaches at a profit. Since my return from the Coast I have had a big, big dream of locating an orchard of several thousand acres in California, planting exclusively of my own pet peach and establishing a cannery for this one peach only; packing for size and high table quality, under orchard name and brand that would show the consumer where to come again when he wants canned peaches that have the real peach flavor, rather than the pale yellow tasteless product now on the market which is a block to what should be an increasing consumption. Probably I am too old or too lazy now to make this dream come true to me personally, yet I feel confident there are others who can and will, and back of it all will come a great revival of profitable peach orcharding in California that will require the product of a pruning shear factory to keep the trees in shape to produce the high class fruit needed. For in closing I still want to insist that the intelligent use of pruning shears is after all the greatest factor in successful peach culture.

Planting Berries and Small Fruits

Observations on Practical Methods by a Practical Small Fruit Grower, Mr. Louis F. Scribner, of Pasadena

DURING these mellow spring days when the call of the ground comes to even the busy housewife, the questions of what, where and how to plant are often discussed and rarely satisfactorily answered. The wise ones have already pruned their orchards and planted such trees and vines as they wished so that they might have the benefit of whatever rainfall there might be; for whatever may be said of irrigation it seems to lack the nitrogenous and beneficial effect of rain upon plant growth.

We have not all been wise ones, however, and the bulk of the planting remains to be done. The nursery catalogues are full of good ideas for the garden and orchard and no one should be without one or more. Plants of many varieties can be used as orchard fillers for two or three years if land is scarce, but it should be borne in mind that there will be a loss to the trees which should be made up with fertilizer if rapid, steady growth is desired. It will be supposed that whatever space is allowed for berry plants, whether in the orchard or a plot by itself, the soil has been worked deeply, subsoiled if possible, and if the rains have fallen since this was done, the surface should be finely worked so as to leave a mulch.

There are numerous methods of planting strawberries. The best for sections where seasons are dry and frequent irrigations are required is to smooth the soil thus prepared and lay off the rows so that water will flow along them without washing. I like to have the rows from 14 to 18 inches apart and not more than 200 feet in length. Plants can be set in the rows from 14 to 20 inches apart, depending on the purpose for which planting is made and the care that can be given. Even for large fields where it might be possible to use a horse in cultivating some such method has been demonstrated to be better than any I have seen.

The plants as they come from the nursery should be carefully unpacked, and if the least bit dry should be soaked in water for an hour or so and set in the soil. If the ground is not

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It is good advice to procure and plant the best nursery stock obtainable,—otherwise results will not be satisfactory. You cannot afford to plant fruit trees of unknown origin, and wait in suspense until fruiting time. A "label" on a fruit tree, stating its kind and quality is not a sufficient assurance for you, before handing out your money for nursery stock. You should investigate your nurseryman—obtain a report on his reliability.

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ready for them they should be heeled in carefully. When ready to start planting about a third of the roots should be cut off with a shear or sharp knife. There is no rule for this, but the amount to be trimmed from the roots depends on the condition of the root system. All the old leaves and stems should be removed. With a dibble or trowel in hand and a bundle of plants one may follow the line or mark very rapidly, setting the crowns just above the surface. The soil should of course be firmed about the roots not only at the surface but from the bottom of the hole up so that there will be no air spaces. I have found it good practice to dip a bundle of roots before planting into a syrupy mixture of clay loam, manure and water as this surrounds the roots with a texture of soil particles that clings to them and overcomes in a measure carelessness in planting. If the weather be rainy it may not be desirable to irrigate for awhile after planting, the object of this irrigation being to settle the soil about the roots.

A method I have tried with good results is to make a small furrow on the line of the proposed row, and after irrigating set the plants in the mud, drawing the loose soil about the crowns.

The disastrous experience with the red spider last summer has taught many growers the value of lime-sulphur spray for this pest. The leaf borer needs a little arsenate of lead or zinc arsenite and Bordeaux mixture is a good medium for either of these poisons, the while controlling any tendency toward fungoid diseases.

No poison should be put on plants while berries are forming. If plants are carefully sprayed early there is little likelihood of any trouble during fruiting season. Strawberries like fertilizer, and chicken manure is excellent, especially if some phosphate can be added. The plants should be irrigated at least once a week during the dry season.

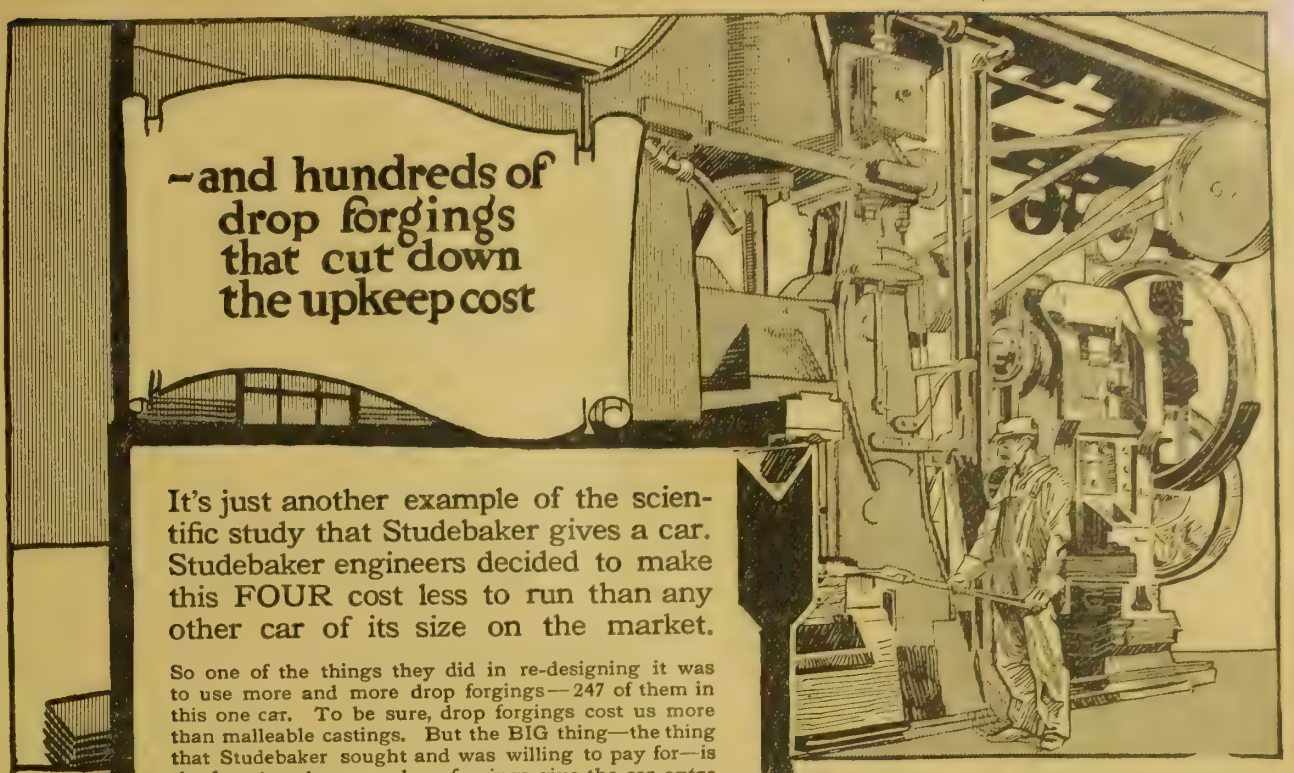
Along with strawberries comes the desire for other small fruits such as blackberries, raspberries, currants, etc. These can be had in straight caned varieties that do not take much room and are easily cared for. What has been said about soil preparation for strawberries applies equally well to other small fruits. The Crandall blackberry seems to be the accepted favorite in Southern California though we have tried other varieties with success. The Mammoth Black is a vigorous climber and needs a six or seven-foot trellis to make a proper showing. The Himalaya is in this class and if kept pruned will amply repay the attention given to it. The earliest blackberries on the market are dewberries, low ramblers of which every garden should have a few.

Red raspberries may be planted two feet apart in rows as desired. Two wires strung on either side of posts set in the row will hold the canes in an upright condition. The canes may be pruned in early spring and fall. The choice in these may be Cuthbert, Surprise, St. Regis or a yellow variety called the Golden Queen. The Red Antwerp is grown extensively in the North. Other names might be given of very good varieties which are not sold by Western nurserymen as yet.

The loganberry has come to stay and increases in popularity every year. I have in my files a letter from Judge Logan written some months before his death telling of his experience in finding the plants that now bear his name.

The loganberry is the blend of raspberry and blackberry, to use popular terms, and for general all-around purposes it is unsurpassed. The field for its use is unlimited save by human appetites for food and drink. The Phenomenal is a Burbank creation along similar lines but partaking of the dewberry type. I venture to say that a Phenomenal berry pie would have cured the Roman epicurean's appetite for canary bird wings. In setting tip plants such as these the roots should be trimmed much the same as strawberries but more care is necessary in planting. The soil should be well settled about the roots with just enough water to do the work.

In field planting the rows are marked and a plow is run both ways in a furrow. If not deep enough a shovel



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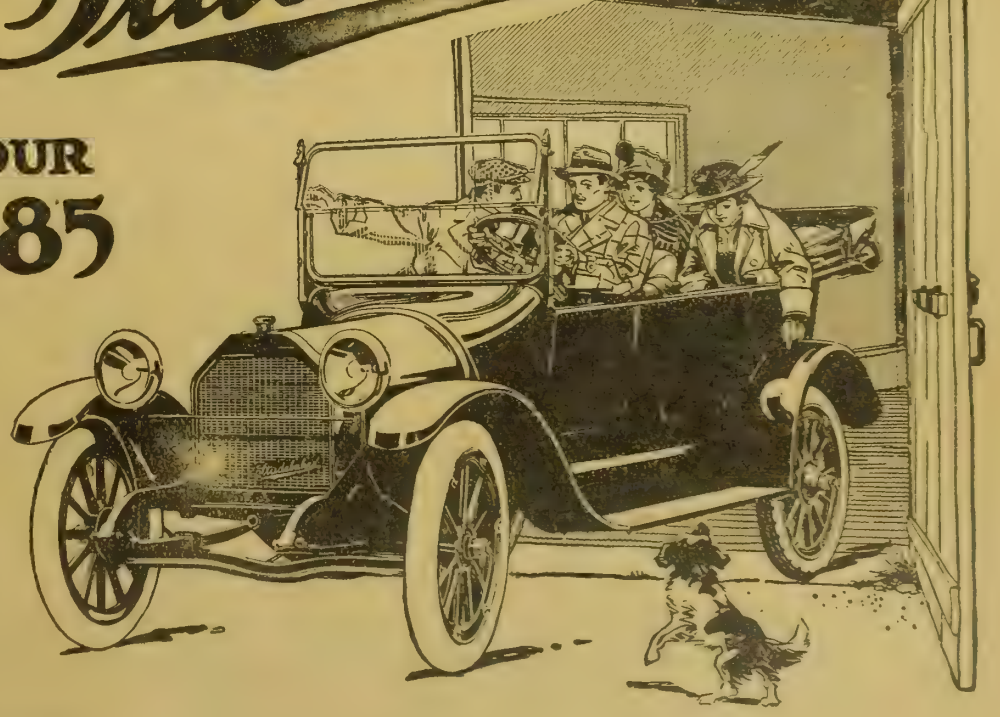

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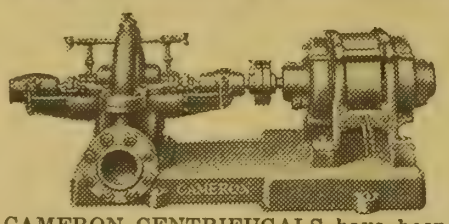

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should be used to give the plants proper setting. Five to eight feet apart in rows five to nine feet apart is the most approved method. No trellis will be needed until fall or early spring. A lady came to me yesterday and asked for some berry plants for her garden "that would take care of themselves.' I had to confess "there aint no sich animal." If one would have fruit there must be the husbandry. All nurserymen and seedmen worthy of the name are anxious that their goods shall give satisfaction and to that end some maintain a service department to aid the grower in obtaining results.

Planting a Walnut Orchard

J. B. Neff of Anaheim Has Been One of California's Most Successful Walnut Growers He Writes for Cultivator Readers of Planting Methods

TO be successful in planting a walnut orchard the beginning must be made in the nursery. The best walnut trees are grafted, or budded trees, just as the best apple and peach and orange trees are budded or grafted, and the best grafted walnut trees are those grafted with scions from trees producing large crops and on roots which are adapted to conditions under which they are to be grown. The native black walnut has accommodated itself to the conditions of the country and forms a root system much larger than the seedling English walnut, hence is much more likely to be able to support a large tree and to furnish the material for profitable crops of walnuts, consequently makes the best stock on which to graft or bud. There has been considerable discussion as to the relative values of the southern and northern strains of black walnuts for stocks but nothing has so far determined one to be superior to the other. Good deep soil, free from alkali, should be selected in a locality not subjected to late spring nor early fall frosts.

Grade the land to an even slope before planting and lay out the rows with reference to convenience of irrigation rather than the points of the compass. Do not plant trees close unless you are sure you will take out part of them when they begin to crowd each other. If the soil is good the trees should be 60 feet apart at 20 years after planting, because of their size, and if the soil is poor they should not be closer than 60 feet at that time because they will need all the fertility of the square. Select only sturdy trees from the nursery. This will mean those which have not grown too closely together.

Trees should be taken from the nursery with tap roots three feet long and laterals 18 inches long with all the laterals on the tap root, but before planting all the roots should be trimmed smooth at the ends and any bruised or crushed roots cut off back of the bruise.

Dig the holes amply large so that each root can have the position it occupied when growing. Plant as soon as possible after the trees are taken from the ground.

Use the surface soil to fill the holes, putting it in place with the hands so as to be sure the roots are in their proper places, but do not put stable manure nor commercial fertilizers in the holes, either before or during the process of filling. If heavy rains are likely to come soon after planting, leave a slight depression around the tree when filling so the water may gather and settle the soil, but it is better to run a small stream of water along the rows and settle the soil thoroughly, taking care that the trees do not settle deeper than they stood in the nursery and do not settle out of alignment. The walnut tree has an inclination to grow away from the sun, so it is well to lean the tree slightly to the southwest when planting.

One-year-old walnut trees have but a single stem and if they have been taken from the nursery as described above will not need heading back, but if the roots have been badly mutilated they should be cut back to within two to three feet from the ground.

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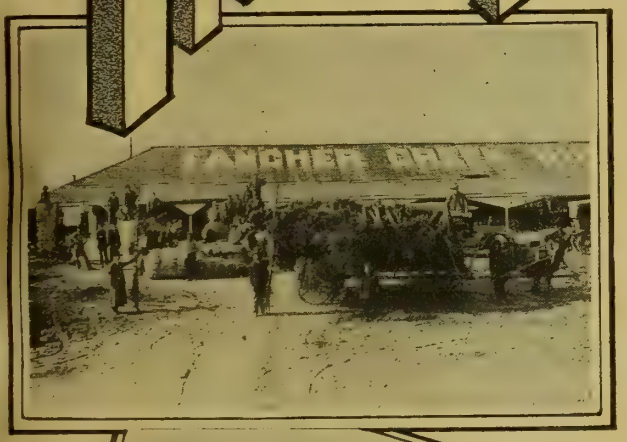

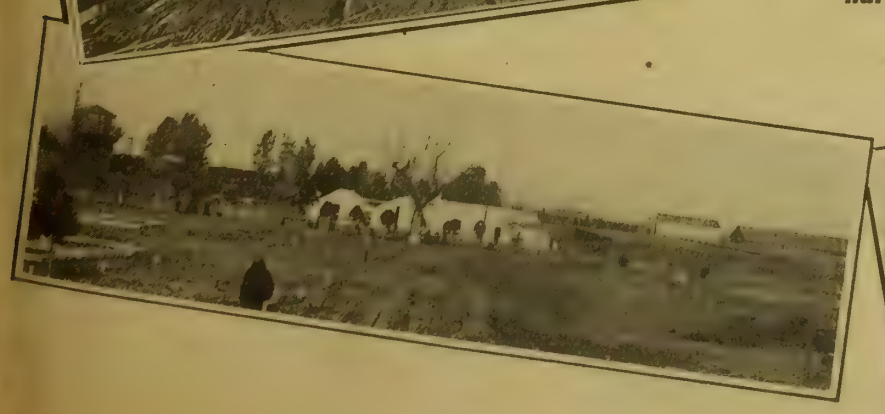

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With Mr. J. H. Hale
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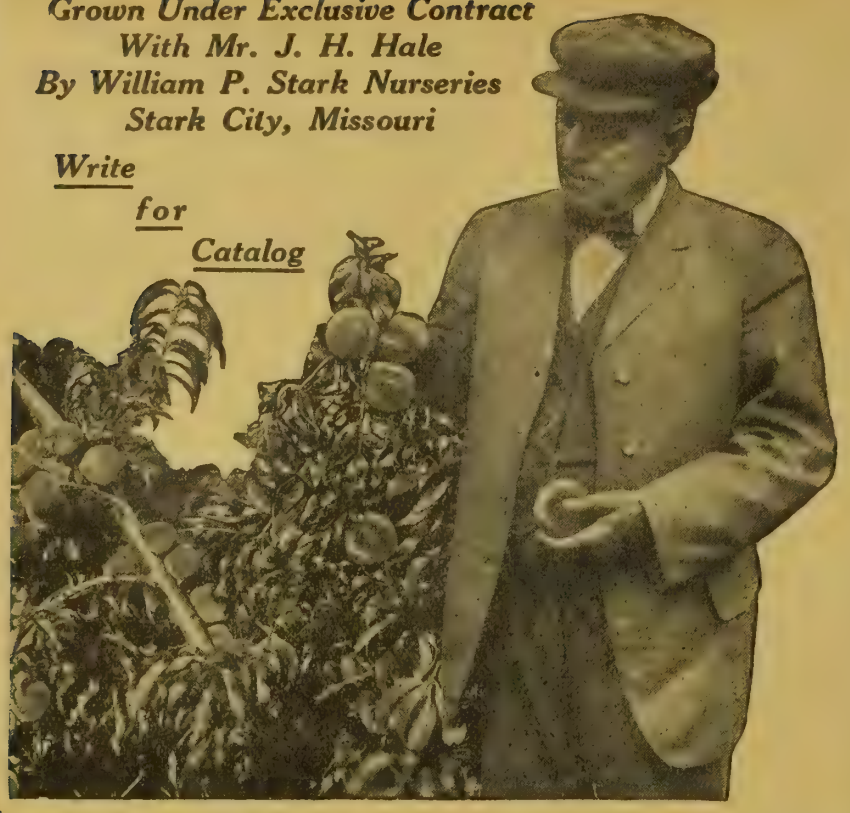

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Ripens early—hangs late
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Tree Planting Hints

Leonard Coates of Morgan Hill Gives Valuable Planting Hints. Written Especially for California Cultivator

IN size of the hole made in which to plant a tree, the diameter is of more importance than the depth. If the hole were always dug one and one-half feet by one and one-half feet there would not be so much reason for criticism, but it is often much smaller. Two feet wide by one and one-half feet deep should be the minimum size, with bottom of hole convex and roots spread outwards and downwards in a natural manner. In heavy soil a tree should be planted shallow, certainly no deeper than it stood in the nursery; in sandy or light soils it would do no harm if it is set an inch or two deeper. While a tree will often do well if the roots are cut quite close, the fact remains that it is a safer policy to retain all the young fibrous roots that are alive; these are always the first to grow and to sustain life in the newly planted tree. Occasional instances which seem to disprove this should not be heeded, but the general results following what is most widely practiced.

The time for planting deciduous trees in California is any time after the ground can be prepared and dormant trees secured. Usually this is about the first of January. This gives about three months in which to plant, and then let the work be done as quickly as possible, weather conditions being favorable.

A deciduous fruit or almond tree should be not less than two feet from the ground after it is planted, and this may be a guide for heading back. This length of trunk allows for proper spacing of branches which are to form the head, and of which there should never be more than four, preferably three.

The only rule governing irrigation is to see that the tree or plant has sufficient moisture, and to apply water to that end. Extremes should be avoided. Never wait till soil is dry and then "give a bucketful" or flood the land, but add water in the manner most practicable under existing conditions while soil is moist enough to absorb it. In other words, little and often is better than extremes of drouth and flood. A little water applied to newly planted trees in the spring, after rains are over, will keep roots active and do much more good than a large quantity given after soil gets dry and roots have stopped growing.

Cherries should be pruned regularly, like other fruit trees. The main branches can be kept full of fruit-spurs by so doing and if on Mahaleb root, the tree is stockier, and will bear earlier; this root also stands better in uncongenial soil. In deep, alluvial soils, where gigantic trees are desired, by all means use the Mazzard stock, but I prefer a smaller, stockier tree with fruit within sight without the aid of field glasses.

Pears are the best crop on heavy, moist land. The Japanese pear seedling makes an excellent root, and stocks rooted from cuttings of Le Conte as well as seedlings of the Chinese Sand pear are coming into favor, as being more resistant to root aphis. The much maligned nurserymen are up against all these problems and search the world for stocks which shall prove best under all conditions.

Walnut trees need not be treated with any less or more common sense than any other fruit trees. It used to be the inexorable law that a walnut tree must never be cut back or even pruned. Now some say, "Cut them down to near the ground and let them do their growing all over again." Why not be reasonable and treat a walnut tree reasonably? In our own walnut orchard we head back and prune just as we would any other fruit tree, and the results are all that anyone could desire. And for the walnut in California there is no stock better than seedlings selected from our native black walnut, except in shallow or wet lands, where the Eastern Black walnut is more desirable.

Planting Prunes

The Following Remarks Regarding Planting and Care of Fruit Trees are from an Address by E. N. Richmond Before State Fruit Growers Convention at Davis

THE question of planting on the square or triangular system is largely a matter of choice. On the triangular system a few more trees can be planted to the acre. Do not plant your trees too close together. Plant anywhere from 22 to 27 or 28 feet apart. The farther apart you plant, the better opportunity are you going to give the trees to develop into large thrifty trees—they have more air, sun, and room to develop.

Prior to planting, plow your soil and plow deep. Plowing in the orchard business does not mean skimming over the surface of the ground. It means getting down from 8 to 11 inches. This can be done with a disk plow and good stock or through the use of a tractor. Use a subsoil plow and put it down deep along the rows in which you are going to plant your trees, so as to break the under crust and give the young root of the tree an opportunity of easy growth.

During the past few years dynamite has been used in the starting of a young orchard with excellent result by blowing up the hole in which you are going to place a young tree. You loosen all of the soil and give the root every advantage of growth.

Planting for the most satisfactory results should be done either during the latter part of December or through January or February.

The selection of nursery stock is a very important factor toward success. Select one-year-old trees, good clean roots and plenty of them, with a straight top from four to six feet high. As soon as you get your stock from the nursery, heel in the ground in good shape until such time as you are ready to plant, for it must be remembered that the small rootlets are very sensitive to cold or lack of moisture.

Before planting examine the roots closely, cutting off the bruised or broken ends that have been damaged while being handled at the nursery. Examine closely for blackknot or for indications of the peach borer.

Have your ground carefully laid off so that each tree may be placed in its proper position. When you are ready for planting, use the planting board (which is made by taking a one-inch by four-inch piece of wood four feet long, cutting a notch in each end and one in the center), placing it so that the stake which indicates where the tree is to be set will be in the notch in the center of the board and then place a stake at each notch at the ends. Remove the board and center stake and you are ready to dig the hole.

When planting dig a hole deep enough so that when the end of the long root going downward rests on the bottom of the hole the tree will rest two or three inches deeper than it did in the nursery. This means that the point at which the tree is budded is just about on the surface. Very great care should be taken so that the soil is well worked between the roots, using as fine a dirt as possible, and that every root goes out naturally from the tree. If this is not done and

he soil is thrown into the hole carelessly, the roots will all be crowded together to the detriment of the future growth of the tree. Head the tree back to within from one and one-half to two feet from the ground.

Tree protectors should be placed about the young trees very shortly after planting. Tree protectors not only protect from sunburn, but will start the growth in a much more uniform manner, owing to the fact that buds under the tree protectors will not develop, and the vitality of the tree goes toward developing the buds which ultimately make the limbs of the tree.

The most careful consideration should be given to the question of pruning, and here again judgment must be used. Remember you are going to produce fruit for a profit and not wood. At the end of the first year you can commence to mould your tree into shape. About four main limbs from the trunk should be allowed to grow and develop. These limbs should be trained through pruning so that the center of your tree is left open for sunshine, air and the development of fruit producing twigs. Judgment must be used as to the number of branches and laterals which are allowed to grow from the main limb. By proper pruning it is possible to bring a young prune orchard into producing from 1,000 to 2000 pounds of fruit per acre at the end of the fifth year; at the end of the sixth from 2000 to 5000 pounds of fruit to the acre. From that time on there is a gradual and steady increase in production as the tree ages. The inside twig wood will be the first to produce. Many growers make the mistake of pruning their orchards only once in every three or four years. A prune orchard should be pruned, not less than every other year, and the grower who trims his orchard each year secures the most satisfactory results. Strive to keep new wood growing and renewing the tree.

BALLED OR BARE ROOTS

A great many purchasers of citrus trees demand that they be balled or taken up with a small ball of earth about the roots. In fact, where shipments are made long distances such treatment is necessary, but where the orchard is planted reasonably near a nursery we believe the planting of "bare roots" is fully as satisfactory. In this way a large root system is secured. We have seen trees taken from the nursery, dipped in a soil grout or thin mud, packed in wet straw and set the same day 20 miles from the nursery without showing a withered leaf. It is more a matter of care than it is a matter of particular method. We have asked Mr. J. S. Armstrong of Ontario as to planting either balled or bare root trees, and he writes:

"Relative to giving you some pointers on planting citrus trees, will say that the subject is rather broad and would require a little time in preparing same in order to make it intelligible. Will say, however, that the balled tree is considered the safer way of handling citrus stock from the nursery to the field, as the roots are thoroughly protected by the ball of earth retained, whereas in bare roots they must be handled very carefully, not allowing the air or sun to come in contact with the roots. However, a bare rooted tree is preferable to a balled tree if same is judiciously handled from the nursery to the field."

SEPTEMBER BLOOM

We have just had the pleasure of eating a most excellent banana apple picked late in December from a tree which had been culled of its entire crop early in September. At that time, however, a number of blossoms were observed on the tree and these set and matured the fruit which was gathered late in December. The fruit was grown on the place of Dr. J. A. Munk near Compton, Los Angeles County. California has some reputation as a fruit producer, but if we can encourage our orchards to give two full crops per year it will materially increase our output. More seriously however we may add that while such abnormal production is of scientific interest it will hardly prove of economic importance, a doubling of the quantity of the one crop may be a possibility through a more thorough understanding of soil, pruning and other conditions.

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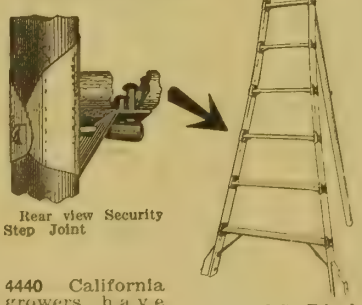

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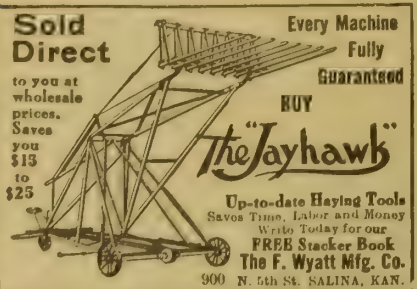

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These figures are the results of **actual tests**, and we want to tell you how and by whom they were made.

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Note: Tell us how many acres you will plant; when you will plant; fully describe character of your soil; how many plants per acre, or how many pounds seeded per acre; how many sacks per acre last produced.

Why till the soil for only half a crop when a little of our fertilizer will double the net results from your hard work?—Think this over!

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A WARNING TO PLANTERS AND AN APPEAL TO NURSERYMEN

Written for the California Cultivator
By J. W. Garthwaite

A lemon tree which up to the end of its third year had been in a strong and healthy condition, began at that period to turn yellow and lose its leaves. On the theory that there was something wrong with the roots an investigation was started. Just below the surface of the ground a deep cut was found which completely circled the trunk and in the cut was imbedded a fine wire.

It was the wire from the nurseryman's tag, of course. And was it not the heighth of carelessness for the planter to have left that wire there? Perhaps. But consider the man who is planting a few acres of trees. Some are tagged and some are not. Where

WIRED-ON LABELS

The lower engraving shows tree ruined by wired-on label. Upper engraving piece of rawhide on which name or number of tree is written and attached to tree in a way which makes it impossible to cause injury. Photo by Garthwaite.

he sees the tag he, no doubt, removes it. But what of the wires that are left when the tags are broken off in shipment? In many, if not most cases, rusted and dirty, so nearly the color of the trunks as to be virtually invisible, they are left, tightly twisted about the trees, hidden under the ground to inevitably make trouble in the future.

That the tagging of trees is necessary is admitted, but the use of the dangerous wire and wood tag is not necessary. There are others which are harmless, effective and cheap. For example, a strip of tough paper half an inch wide and six or seven inches long with a slit in one end is easily attached, shows the writing well and is no more liable to tear off than the wire.

It is most earnestly to be hoped that planters using wire tagged stock will make very sure that all wires are removed; and that before long all nurserymen will use a safe method of tagging.

Oakland

Safety on the Road—

is assured when you drive the Oakland—whether the road be rough country highway or paved street in the city.

There is lower weight suspension—a low center of gravity that removes dangers of sideway, skidding or turning over.

Yet this *safety* is made possible without reducing the car's road clearance—which is the usual ample clearance. This makes the Oakland the car for any road, therefore

The Car for the Farm

Oakland safety is increased by marvelous strength—coupled with reduced weight.

And in this strong, light car there's a high-speed motor that will make 2500 revolutions per minute with constantly increasing power.

This means speed when you want it—power to climb the steep hills—and the ends of economy served by Flying Wedge Body Lines which lessen wind resistance.

Get in an Oakland and see it perform in a way that proves its points of superiority. Your Oakland dealer is ready to give you a demonstration.

Write for Catalog and watch for the next Oakland Ad—on a subject of vital interest to car purchasers—ECONOMY

Oakland Motor Company, Pontiac, Michigan

5

Leading Oakland Superiorities

Low Center of Gravity with Usual Road Clearance

Great Strength with Light Weight

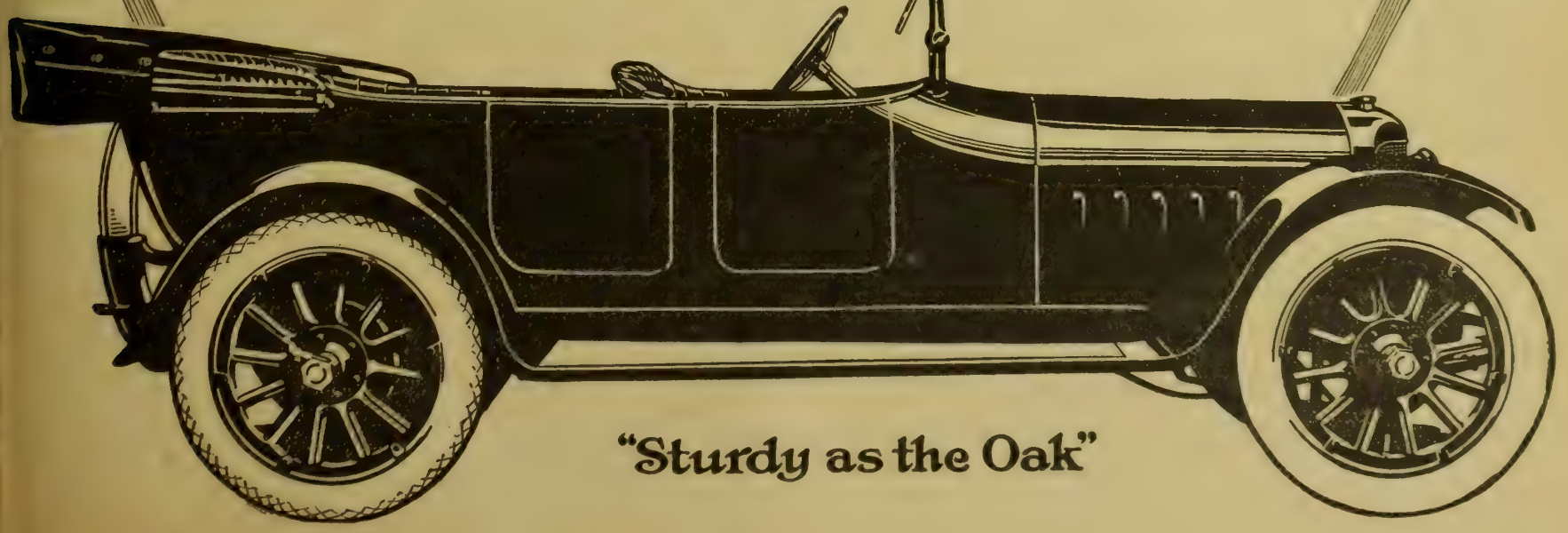
High Speed Motor with Great Power

Flying Wedge Lines with Least Wind Resistance

Economy with Luxury

Fours and Sixes—Speedsters, Roadsters and Touring Cars—$1100 to $1685 f.o.b. factory

Write for the Oakland catalogue, giving illustrations and descriptions



"Sturdy as the Oak"

POTASH

is food for thought as well as for crops this year.

When shipments were interrupted by the war, it was estimated that there was enough Potash on hand in the United States to provide two and three per cent Potash in mixed fertilizers for this spring's trade. Some manufacturers had more than enough for these percentages.

Since then minor sources of Potash have been fully utilized, and additional shipments from the usual source are still being received.

The supply is below normal, but this need not prevent farmers securing some Potash in their fertilizers, nor should it lead farmers to decide not to use fertilizers.

There is no reason to return to the out-of-date goods without Potash, although some authorities may try to "wish" them on us.

We have not used enough Potash in the past. The largest annual import of Potash was only one-seventieth of the Potash *taken from the soil* by our *1914 corn crop* and only one-fifteenth of the Potash lost every year in drainage water.

Spring crops use from two to ten times as much Potash as Phosphoric Acid. Get as much Potash in the fertilizer as possible. A few firms are offering to furnish from four to ten per cent.

There is no substitute for Potash. It may be harder to get just now, but **POTASH PAYS.**

GERMAN KALI WORKS, Inc., 42 Broadway, New York
Chicago, McCormick Block — San Francisco, 25 California St.
Atlanta, Empire Bldg. — Savannah, Bank & Trust Bldg.
New Orleans, Whitney Central Bank Bldg.

SAFETY FIRST
in purchasing
CITRUS TREES

Will save years of labor and expense.
DON'T BUY CHEAP STOCK
We are selling
Guaranteed Citrus Trees
at reasonable prices.
SUBSTANTIATED BY 20 YEARS IN BUSINESS
Write, wire or call, you take no chances
POLLARD BROTHERS
Mission and Los Robles — *SOUTH PASADENA, CAL.*

EXTRA FANCY CITRUS STOCK

Late Valencias — Eureka Lemons
Navels — Marsh Seedless Grape Fruit
— grown on famous —
LEMON HEIGHTS, TUSTIN

All selected buds from proven prolific bearers, budded on sour stock, trees all standard size, straight, clean, thrifty, finest large block in California.
Write or telephone for prices or appointment to see trees to
Tustin Packing Co. — **Tustin, Cal.**

Have about 12,000 4 to 6 ft. trees. Strong and Vigorous — Bartlett Pears — Better order soon. They are getting scarce and higher.

I also have a good supply of Mayflower and Southern Beauty Peach Trees. Also early fruit trees of all kinds. All who want early fruits for market or home use will do well to write me. I may surprise you.

W. D. ROSE
Early Fruit Specialist
FULLERTON, - CALIFORNIA

First Class Citrus Seed Bed Stock
Nothing better in the market — Clean and Thrifty
Genuine Florida Sour Stock. Sweet Stock grown from carefully selected California seed. Before buying see us. Prices right.
Locke Nurseries, Chas. H. Harle, Mgr.
Correspondence Solicited — 27 N. Olive St., Alhambra, Cal.

When writing advertisers, mention The Cultivator.

A SUGGESTION TO OLIVE PLANTERS

Written for the California Cultivator

Olive planting has been heavy in California for the past two or three years and there will be thousands of trees planted this season.

To any who are planning to plant olives in heavy soil let us suggest the advisability of hauling sand and leaving a big shovelful or so at the place where each olive tree is to be planted, so that when the tree is set at least a percentage of the dirt placed around the roots will be of this sand or sandy loam. And if the soil is very heavy the bigger the hole dug for the tree and the larger the amount of sand available for mixing with the silt or clay, the better it will be.

This sandy soil warms up quickly with the first bright sunny days of spring and provides better drainage in the tree hole than any heavier soil. The rootlets from the transplanted tree start quickly and are well established by the time they reach the heavier soil outside the area of the tree hole, and by the time they have grown that far they have the strength and impetus to penetrate readily into the more compact and colder root feeding area and are able to take up the nourishment found there.

When once established in it, trees grow rapidly in heavy land. It generally contains a far greater quantity of the elements of plant food than that which is more sandy and consequently is made up of a large per cent of inert silica from which plants can receive no nutriment.

All that is necessary with heavy soils is to work them so as to keep them open and filled with air and to keep up the supply of vegetable matter from the roots of plants of various kinds. This makes bacterial life active, bringing about a large liberation of plant food.

But in starting young trees, to haul in sand, sandy or gravelly soil for putting in the tree hole will be a distinct benefit.

APPLE GROWING IN CALIFORNIA

The California state commission of horticulture is mailing to those interested in apple growing "Apple Growing in California," written by Chief Deputy State Commissioner of Horticulture George P. Weldon. It is a practical treatise designed to cover some of the important phases of apple culture within the state. In his preface Mr. Weldon says:

"The great importance of the apple in our state, the many failures among those who have attempted to grow this fruit, the common opinion that an apple orchard cannot be made a paying proposition, and the hopeless neglect and consequent failure to produce what might be beautiful and profitable orchards, together with a dearth of literature on the subject, are some of the things that induced the author to write this little book. It is published with a realization of its incompleteness and possible errors, but if it will in a small way, at least, serve as a guide to future profitable apple culture in California, the efforts put forth will in no way be regretted."

This is the most complete treatise yet issued regarding the apple in this state. Every apple orchardist should have a copy. It is a book of 124 pages of cultural information. There are 19 chapters, and everything from planting to harvesting and even the treatment for diseases and pests is included. Write State Horticultural Commissioner Cook, Sacramento, for it.

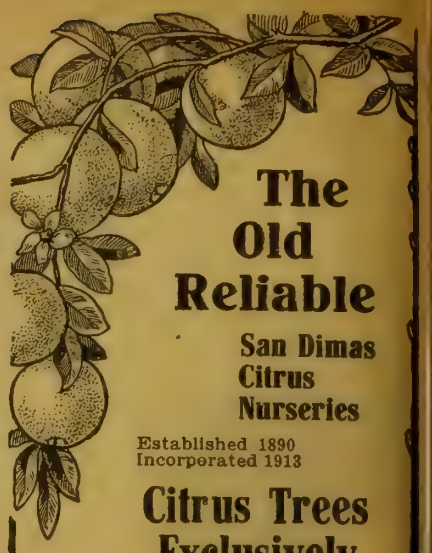
ROEDING'S PRACTICAL GUIDE

We have not yet seen Roeding's Practical Planters' Guide but we venture a guess that it will be true to name as to its being practical. Roeding has the faculty of seeing and of telling what he sees in a way which enables anybody else to reach successful practice. One of the best features of the book is its cheapness for it may be had for 25 cents or, to one who has been or will be a purchaser of Fancher Creek trees it may be had practically for the asking.

MORE FOR YOUR CASH

"It costs more to live now than it did in the old days."

"Yes, but you get more kinds of life."



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San Dimas Citrus Nurseries

Established 1890
Incorporated 1913

Citrus Trees Exclusively

All Leading Varieties

REMEMBER, MR. PLANTER

Practically anybody can grow a citrus tree, but it takes years of experience to produce a tree that will prove a money-maker when it comes into bearing. Nice-appearing nursery trees are desirable and promising, but do not always prove to be good bearing trees in the long run. Plant for profit and not for appearance only. Our trees are straight, thrifty, well rooted and have strong, full heads, but the main consideration is that: Our buds are carefully selected from heavy fruiting trees and will prove true-to-name revenue producers.

OUR TWENTY-FIVE YEARS

of experience in the growing and handling of citrus nursery trees gives the buyer the advantage of starting out RIGHT, thus avoiding disappointment at the end of four or five years' labor in bringing the young orchard into bearing.

ANOTHER POINT TO CONSIDER

Growing a good tree is only part of having it do well after planting. Many a good tree is ruined in the taking up from the nursery and shipping. We give the best of service in the proper handling and delivering of our trees.

WRITE,

'phone or call on us before buying your trees. Tell us your wants and we shall be glad to give you the benefit of our wide experience as to planting, soil conditions, fertilizers, etc.

Our illustrated new booklet on citrus culture mailed to any address upon receipt of 25 cents.

QUOTATIONS GLADLY GIVEN

San Dimas Citrus Nurseries

(INCORPORATED)

Established in 1890 by R. M. Teague

San Dimas
California
U. S. A.

Teague trees are started right, grown right, and shipped right.

Apple Planting and Early Care

From an Address by C. E. Bremner at a Recent State Fruit Growers Convention

THE planting of an orchard to fit all future conditions is no small matter. First, how far apart must I plant to assure proper root feeding surface? We have seen 12-year-old Baldwins growing in sandy soil and planted 28 feet apart, well shaped and pruned regularly, but whose branches were interlapping. Surely under normal conditions no orchard should be planted closer than this and should vary to 40 feet to suit habits of growth and the congenial conditions of soil and climate. It is better to plant too far apart than too close, especially where the trees are intercropped for the first eight or ten years as is the case in Sonoma County.

The land should be in perfect condition at the time of planting. All subsoil or plow sole should be broken up either by dynamite or a subsoiler, and stumps and forest trees carefully removed, preferably with dynamite, and all roots possible removed before decay sets in, for oak root fungus is a deadly enemy of the Gravenstein orchard, which cannot be cured or even checked, but may be prevented. Apple trees should be planted as carefully as oranges. If in an old vineyard, orchard or grain land, not only should the subsoil be removed, but good top soil placed in the hole, mixed with some well rotted manure.

The young trees should have all broken or partially decayed roots cut back, and as properly spaced in the holes as you expect to train the branches. It is a pretty good rule to clip off the end of each root. Budded trees are always preferable to grafted ones for several reasons; a better root system, less liability to physiological complaints and external troubles. They can usually be planted deeper without placing the union too deep. But whether grafted or budded, do not plant the trees too deep; the union should be just at the surface and never over two inches below. While apples are not so susceptible to ills caused by deep planting as stone fruits, yet it does work against their proper development and often causes distress. A grafted tree is apt to send out numerous small roots around the calice, which forms an ideal condition for a severe attack of wooly aphis. It is also a pretty safe statement to say that grafted stock is more susceptible to the attack of crown gall. In passing, it is important to emphasize the value of clean trees at planting. Trees infested with such insects as wooly aphis or flat head borer, San Jose scale, or with root knot, canker or oak root fungus, should not be tolerated. In fact I do not believe they should be treated, for it is almost impossible to exterminate the trouble when once introduced. Commissioners and inspectors are generally too lenient. I do not believe in any form of treatment at the point of entry; absolute rejection or destruction is the only safe rule for infested trees.

In selecting nursery stock we do not favor overgrown stock, either forced by irrigation or fertilization, or two-year-old trees. The medium tree from four to six feet high, straight without a single lateral, is ideal. When planted cut to 18 or 20 inches. The average orchardist measures with his knee and cuts at the bud that comes the closest to that height, which, on the average man, is 19 inches. Apple trees should be protected during the first few years of growth from the direct rays of the sun on the south and west sides. Whitewashing is good, but two shakes placed about four inches from the tree is best.

Cultivate the young orchard, keep a good dust mulch, and never under any conditions plant hay or other feed that is allowed to mature in the orchard. Cover crops turned under are, of course, beneficial if plowed under early enough, but in the case of young trees are seldom necessary and often detrimental. They give rise to attacks by cut worms and other insects as well as attracting moles which do much damage in girdling young trees. In any case, if a cover crop is turned under, plow away from the trees. Always make the first plowing away from the trees. We find a deep rooted belief that plowing to the trees retards their spring development and thus protects against frosts, but this is absolutely wrong; this early plowing does not retard the tree and often gives rise to conditions which seriously injure, if they do not cause the death of the tree. The planting of berries, either strawberries, logans, mammoths, or raspberries, in the young apple orchard is universally practiced and results in a very favorable opportunity for the orchardist. It enables him to make a good living on the land while waiting for the apple trees to come into bearing—in fact, he sometimes makes more on these secondary crops than he afterwards does on his apples. It is not uncommon to have men clear $200 and more per year an acre on these berry crops. On new land, potatoes are usually planted the first year, followed by berries, which are allowed to remain until the trees are from eight to ten years old.

Medium: "Is there any question you would like to ask your first wife?" "Yes, I should like to ask her to give my second wife her recipe for mince-meat."

John Deere Implements

John Deere Spreader

The Spreader with the Beater on the Axle

The beater—the business part of the spreader—and all its driving parts, is mounted on the rear axle. This is a patented feature. You can't get it on any other spreader. The beater on the axle means there are no clutches to give trouble, less than half the parts heretofore used on the simplest spreader, big drive wheels and a low down spreader without stub axles. Only hip high to the top.

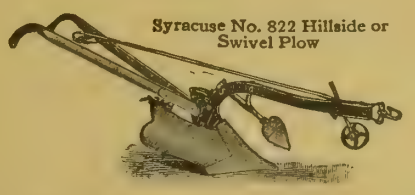
Write for more facts. Also ask for "Farm Manures and Fertilizers", a valuable textbook you can get free.

John Deere Syracuse Hillside or Swivel Plows

Nos. 821, 822, 823, 824 and 825

The Syracuse Chilled Plow Company has devoted over forty years of careful study to the proper shape of chilled plows in order to get proper suction and perfect running qualities. Syracuse Hillside or Swivel Plows have several special features that will appeal to the man who has used other hillside plows—read them over:

1. Do equally good work on hillsides or level land.
2. Option of white iron or hardened soft center steel moldboards.
3. Ample throat room and absence of open joints allow best of clearance.
4. Body securely locked and easily released by means of patented foot latch having adjustable tension.
5. Renewable shoe protects standard and fulfills the purpose of landside.
6. Moldboard of a new design turning furrow up or down on hillside land.



Syracuse No. 822 Hillside or Swivel Plow

Nos. 821, 822 and 823 have automatic jointers or coulter shifters. Nos. 824 and 825 furnished with wheels only.

Write us for information on these plows. We will be glad to send you literature free.

John Deere Wheel Plows

With Quick Detachable Shares

John Deere Wheel Plows, known the country over as "Quality Plows" are now fitted with John Deere Quick Detachable Shares—an exclusive John Deere feature.

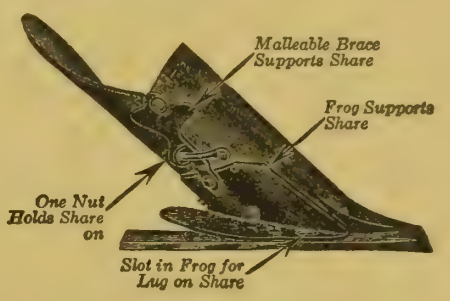
These shares are popular with farmers—they make hard work easy.

Superior Features

Unscrew One Nut—That's All

Unscrew one nut and the share comes off—slip share on, tighten the one nut and you are ready for work.

The share can be removed in thirty seconds and replaced in sixty seconds. Takes from eight minutes to half hour to change old style bolted shares.



Here's what John Deere Quick Detachable Shares mean to you:

1. No trouble to change shares.
2. Eighty per cent of time saved.
3. No danger of damaging share.
4. Share is drawn up closer.
5. Share is stronger—not weakened by bolt holes.
6. Resharpened or sprung shares can be drawn into place—no drift punch necessary.
7. No unequal strain on share.
8. No danger of injury to hands in taking share off.

We have beautifully illustrated booklets on the following plows with John Deere Quick Detachable Shares:

New Deere Sulky and Gang
(High Lift Frame Plows)

John Deere Stag Sulky and Gang
(Low Lift Frameless Plows)

John Deere Two-Way Sulky
(Side Hill or Irrigated Land)

John Deere Engine Gangs
(For Traction Engines)

Write for the booklet above that you want and we will send it to you free.

Better Farm Implements and How to Use Them

FREE BOOK Illustrates and describes the most complete line of farm implements. Tells how to adjust and use farm tools under varying conditions. It is a practical encyclopedia of farm implements worth dollars to you—a 168 page text book.

It tells about John Deere Implements: Steel plows, cultivators and harrows; corn planters, discs harrows and beet tools; farm and mountain wagons; manure spreaders; portable and stationary grain elevators and corn shellers; hay loaders, stackers, sweep rakes, mowers and side-delivery rakes, motor hay presses; grain drills and seeders; full line of chilled plows; grain binders and corn binders; hit-and-miss and volume-governing gasolene engines.

To get this book, free, state what special implements you are interested in and ask for the book as Package No. X111

John Deere, Publicity Department, Moline, Illinois

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MOLINE, ILL.
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John Deere Farm Implements

for Los Angeles County

Established 1888. Twenty-seventh Year.

The California Cultivator

Rural California combined with the California Cultivator

A Journal of Horticulture and Agriculture

By
THE CULTIVATOR PUBLISHING CO., Inc.
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Thursday, Feb. 11, 1915

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

JOHN MUIR

The genial face of California's great nature lover, which appears on the cover of this issue of the Cultivator, is from a photo taken by W. E. Dassonville, which appeared in Camera Craft.

FULL MOON

This is not a good potato planting month according to those who plant potatoes "in the moon." Astronomers who have long pencils have figured out that it will be some millions of years, or thereabouts, before another month will come in which there will occur no full moon. So, while we have to deny ourselves in potato planting, we will have a long time to wait before another similar occurrence.

A GREAT SHOW

We are told that preparations are practically completed for the National Orange Show which is to be opened in San Bernardino on next Wednesday, February 17. It will remain open until the evening of the 24th. With California producing the highest grade of fruit it has ever sent out, and in great quantity, with the promise of a successful year to come which abundant rains are now giving, it is announced this will be the most wonderful exhibit of citrus fruits, by-products, and implements concerned with the citrus industry that has ever been held.

SECRETARY OF AGRICULTURE

Assembly Bill Number 164 was introduced by Assemblyman Avey who is chairman of the public utilities committee and member of the agricultural committee of the assembly, on January 13. On January 18 it was sent to the committee and will probably be referred back to the assembly for action. What the recommendation will be or what the action of the assembly will be remains to be seen. The full title of the act is: "An act creating a department of agriculture and creating the office of secretary of agriculture; defining his powers and duties and fixing his salary; providing for the reorganization and consolidation of various departments and the administration of said departments under one head to be known as the Department of Agriculture, and defining the powers and duties of its officers."

This bill, or rather its essentials, was endorsed at the last State Fruit Growers' Convention. We think that as a rule the producers of the state will favor it, but as it makes such a radical change along lines which have been so closely connected with the politics of the state for years, it will without question meet with fierce opposition. Another couple of weeks should show something as to the chances which it has for success.

CHEAP GRAPE FRUIT

Florida grape fruit growers are insisting that the consumer receive more for his money. Grape fruit which is sold in carloads at $2.00 per box advances several hundred per cent before it reaches the consumer, for restaurant and hotel men have a habit of charging 15 and 20 cents for a half fruit. The grape fruit people have induced the diners on the railways up and down the east coast to serve the fruit at ten cents for half and 15 cents for the whole fruit. To secure this change the growers have contracted with large companies to furnish them for the entire season grape fruit at $1.65 per box, f. o. b. Jacksonville. Perhaps California fruit growers can take similar action with some of our California restaurants and hotels. This year is an excellent year to advertise California fruits, but if hotel tables are to be supplied with culls or fruit of inferior quality, and even that at prohibitive prices, the Easterners visiting our great exposition will not go home prepared to demand a continuation of the California fruit eating habit.

ENTHUSIASM

In a personal note which accompanied the article written by J. H. Hale, and which appears on another page of this issue, he refers to the great interest which he felt in reading the article which recently appeared in the Cultivator, written by Mr. Roeding on pruning and general culture of the peach. He refers to Mr. Roeding as being a practical and pushing sort of man whose work he appreciates greatly, and regarding him and the rest of us Californians, he says:

"Like most of the rest of you Californians, he is enthusiastic, and that counts for a great deal, providing you keep it up. We in the far East, who are a little slow and pokey, sometimes have a quiet laugh at your fresh sort of ways, but at the same time those of us who are onto the job know you are right, because you believe in your cause, and that is why we like you."

We believe Mr. Hale is correct as to Californians believing in themselves and in their state. It is born in some, but in some of us perhaps it is acquired with the spirit of the West which is sure to take possession of everyone living here. So, in spite of the quiet laugh which our Eastern friends have at our expense now and then, we doubt not we will continue to show our "fresh ways" and continue to keep California on the map as no other section of the world—outside of Europe—is doing.

RURAL CREDIT

This paper had occasion some time ago to criticize, or rather to use a criticism furnished by the federal department of agriculture of a certain concern in the Northwest which has been advertising extensively its ability to furnish three per cent loans to farmers. The scheme called for the borrower "becoming a member," paying certain dues, and in course of time it was promised the money would be advanced at the three per cent rate. This all looked good, but the loan did not materialize in every case as was anticipated by the would-be borrower. The dominion government finally took charge of the affairs of the concern or at least caused a change in its manipulations, all of which we doubt not was for the protection of the farmer.

There is so much unjust treatment on the part of some banks and money interests that farmers are driven to these concerns, which, if they would consider fully, they would remain away from. As to money loaning, we quote almost entire a letter from a large financial concern in California. It is addressed to the farmer who had made request for a loan:

"In regard to yours of the 4th inst., wanting a loan of $1500 on your ranch, the interest rate in the (section) is not less than 10 per cent and the cost of securing the loan would be at least five per cent. If you will send me a full description of the improvements, together with the legal, we will see what we can do."

Such a proposition shows a disposition akin to that of the thug behind the gun. The concern presumes on having power to hold up a man who is compelled to borrow. In the first place it insisted on its regular ten per cent. Then the cost of "securing the loan" would be at least five per cent. On top of this the "legal" is to be sent before the loan is made. The "legal" in this case was $25 and was to be paid, when the application for the loan was made, for an expert appraiser to visit the land and determine whether the concern would make the loan at all or not. If the loan was refused, as it probably would have been in this case, for we understand that banks as a rule do not loan very extensively in that particular section, then the borrower's $25 would be forfeited. This makes a total of about 17 per cent. No farmer living can lift a mortgage with the products of a farm under such a rate of interest. If the funds of the nation are to be controlled by people of this class, there is abundant reason for more cooperation or possibly more socialism.

Deciduous Planting Notes

Many Practical Ideas by J. W. Mills of Yuba County

THIS is the proper time to plant deciduous trees. Plenty of rainfall after planting insures a higher percentage of thrifty trees.

The customary size for tree holes is two feet wide and two feet deep. This is no rule to follow as the character of the subsoil determines how elaborate the preparations of the soil should be. On a stiff heavy soil with this condition intensified with the depth, a hole four feet wide and deep filled with loose soil would give the young tree a better start than if planted in a hole two feet by two feet. But even in the four-foot hole in such soil a fruit tree will not make the growth that it will in the loose moist loam of some of our river and creek bottom lands even if the roots were crowded into a hole barely large enough to receive them. The object is to make an adequate volume of soft soil in which the roots may grow the first year of the life of the tree and as long thereafter as possible. There is a limit to this artificial loosening and mellowing. By the aid of dynamite this can be done much cheaper and more thoroughly than by hand and the size of the hole made is only limited by the size of the pocketbook.

Blasting Holes

The holes are most enonomically made by driving a pointed bar to the depth desired. Two simple methods are effective in removing the bar from the hole. One is to pry the bar out with a lever. Another way is to hammer it up by means of some heavy weight with a hole in it through which the bar is passed before driving. The weight may be a heavy piece of iron or an iron wheel. For instance, a plow wheel is laid down with the hole in the hub at the point where the hole is to be made in the ground. A collar is welded on the bar a few inches below the top. After the bar is driven in the ground the wheel is jerked up by a man on each side so as to strike against the collar on the bar, driving it out of the ground. This method was invented by Mr. Carnes of the Natomas.

Where hardpan is encountered a chisel-pointed bar is the best tool. With plenty of water and a mud-spoon, rapid progress is made. In ordinary soil half a stick of 25 per cent dynamite at a depth of three to four feet will do good work. Nothing short of one stick will be effective where the hardpan is five or six inches thick. The powder should not be placed entirely below the hardpan. When placed just at the lower edge of the hardpan it fractures it sidewise and lifts it at the same time. A charge properly guaged will lift the mass so that it will fall back and fill the hole. Too small a charge will bulge out a cavity which must be opened up and filled by hand. A charge that blows all the dirt out is either too large or insufficiently tamped. Water should be turned on at the time of planting to settle the soil clear to the bottom of the hole.

Pruning

It is immaterial whether the tops are trimmed before or after planting. There is less chance of injury if the tops are cut after planting. The newly set trees should be headed to about two feet. This leaves the branches above the frame of the cultivator and barking of the limbs is avoided. When the trees have developed lateral branches in the nursery, that are properly placed on the stem, use should be made of them when pruning at planting time. To be properly placed they should be distributed as far apart on the stem as possible. This is not so essential with peaches as with other fruits.

The pruning of the first season's growth in the orchard should be confined to establishing a good crown for the top of the tree. Not more than four branches, preferably three, should be left and cut back to about eight or ten inches.

Roots

Stone fruits, other than cherries, are usually grown on peach root where soil conditions are favorable to it. Peaches should not be planted where soil conditions are not congenial to the peach root. Peaches on apricot root will bear much heavier and younger than when on their own root. Though most apricots are grown on peach root, apricot root is often used with good results. Perhaps the only objection to it is the fondness gophers have for it. Cherries are budded on Mazzard and Mahaleb root. The former is used in this state almost exclusively. Prunes and plums should be grown on Myrobolan root where moisture is liable to be excessive, but on well drained soils, peach is a good root. Pears and apples are grown on their own roots except when it is desired to grow dwarf trees. For this purpose quince is used for pears and Paradise for apples. Doucin roots are used for half dwarfing apples.

Agricultural News Notes of the Pacific Coast

Northern California

Yolo County dairymen met at Woodland last week.

Several Sutter County orchardists are planting pecans.

A few farmers of Sutter County are testing out licorice growing.

Mendocino County farmers are working to secure a farm adviser.

Yuba County producers are holding 25,000 sacks of rice for higher prices.

Richvale, Butte County, is planning a reclamation district for a 40,000-acre tract.

Waste basin lands, to the extent of over 70,000 acres, are to be reclaimed in Sutter County.

Orange growers of Fairoaks, Sacramento County, are organizing a cooperative marketing association.

Hop men of Ukiah, Mendocino County, are contemplating plowing up hop acreage and planting wheat.

Glenn County has purchased right of way for a new road through the eucalyptus farm at Germantown.

Dairymen at Gridley, Butte County, are gratified at results of the cow testing association organized there some months ago.

A department ruling authorizes the grazing of 1,000 cattle and horses, 25,000 sheep and 5,000 swine in the Shasta national forest.

The Yolo County Dairymen's Association has decided to take over a large creamery at Woodland and operate it cooperatively.

The California Fruit Exchange of Sacramento has given growers shipping through it another dividend on last season's grape shipments.

The Glenn County Commission, having in hand the preparation of exhibits for the expositions at San Diego and San Francisco, has a force of men at work picking and packing oranges at Orland. The fruit is wrapped in attractive papers advertising the county and the government irrigation project, as well as the grower. The fruit is to be given away at the expositions to advertise the citrus possibilities of the section.

Central California

Visalia recently made its third shipment of mules to the Hawaiian Islands.

The San Joaquin Counties' Association is installing a great exhibit at the Panama-Pacific.

It is estimated that over 2,000,000 ground squirrels were destroyed in this state during the past year.

The planting of orchards will be immensely increased around Hollister and other San Benito County sections.

The Green Fruit Association at Fresno is still agitating for a more general movement for standardizing fruit output.

The Associated Raisin Company has purchased all the holdings of four large raisin packing concerns of Central California.

A bill has been introduced in the legislature to remove protection from black birds and robins because of their destructiveness.

Professor Dougherty of the state university made an address before the recent meeeting of the Visalia Cooperative Poultry Association.

The Merced County Swine Breeders' Association was recently organized. Its principal object will be a well organized fight against hog cholera.

Lands in Kern County, valued at $10,000,000, which had been secured by railway companies through what the government charges to have been fraudulent representations, have been returned to the government.

Turlock melon growers are joining with other producers of Stanislaus County and are working for the State Produce Exchange and for any movement which will enable them to command living prices for their output.

A meeting of raisin growers was recently held at Dinuba to discuss the matter of membership in the California Associated Raisin Company. Five year contracts were signed by the new members.

The Tulare County Poultry Association closed the last year's operations, according to report at the annual meeting, with a total business of over $60,000. The cost of operating was somewhat less than $2,500.

Southern California

Los Angeles County has planted miles of roses along its roadsides.

The Hemet Agricultural Association is discussing methods of spraying.

February 6 was flower planting day at Santa Maria, Santa Barbara County.

Sugar beet sections generally report sufficient seed on hand for the coming season.

Walnut growers of Simi Valley, Ventura County, are planning a marketing association.

Fullerton's chamber of commerce has received propositions looking to the establishment of a cannery.

The anniversary of the navel orange will be celebrated at the National Orange Show, February 17 to 24.

The Imperial Valley Poultry and Produce Association is growing rapidly. It already has 200 members.

Farm Adviser Parker of Ventura County reports most effective work in squirrel poisoning throughout the county.

In its annual estimate of the orange and lemon crop of the state for the coming season the Riverside Press forecasts an output of 43,950 cars.

An Orange County citrus grower was seriously burned by the explosion of a frost fire pot filled with distillate, which he was endeavoring to light.

State Highway Commissioner Stern has prepared a definite plan for using convicts on the state highway. This will be submitted to the legislature for formulation into a bill.

Eighty Japanese cantaloupe growers of the Imperial Valley have filed suit in the United States district court against commission merchants of New York, Pittsburg, Chicago and Los Angeles for defrauding them of just returns from their melons.

The National Orange Show, to be held at San Bernardino February 17-24, has inaugurated a new feature in judging contests by students of schools in the state which have horticultural courses. Dr. H. J. Webber of the citrus experiment station is in charge of the contest.

The Coast

February 5 was observed as arbor day in Arizona.

Arizona ranges report almost complete cessation of imports of feeder cattle from Mexico.

Farmers near Phoenix, Arizona, are moving for the establishment there of a demonstration farm.

Arizona cattlemen are supporting a bill authorizing the granting of bounties on wolves and lions.

Montana agricultural college has installed a professor of horticulture and more attention will be given to instruction in fruit culture.

Farmers attending the state short course at the agricultural college of Arizona are reporting intensely interesting and instructive lectures.

Farmers short courses ended at the University of Idaho last week. The attendance was very large. The housekeepers' courses were an especial feature.

Governor Withycombe of Oregon is urging investigation of possibilities of flax growing in that state and the installation of a flax factory in the penitentiary.

Many coyotes have been shot near Vale, Oregon, which have been found affected with rabies. The disease is being conveyed to dogs and live stock of that section.

The quantity of corn which will be planted at Lapwai, Idaho, will be much greater than any preceding year. It has been found a most profitable crop in that section.

Some of Oregon's legislators are proposing to wipe out a state expenditure of over $50,000 by abolishing the state livestock sanitary board and the office of state veterinarian.

Oregon is having a mad coyote scare. State Bacteriologist Saurman reports conditions in affected sections more serious than reported. Many dogs and cattle have been infected by the coyotes.

A bill is before the Oregon legislature, urging the appropriation of moneys for irrigation investigations in that state. It is suggested that nearly a half million dollars be set aside for the work of the first year.

Kirkman's Reliable Trees

Make Horticulture Profitable

Our stock of fruit trees in several of the leading varieties will be entirely exhausted before March 1st. We hope to be able to supply at least all of our old customers with what they will need. Write us at once please, letting us know what varieties you expect to plant. We want to supply you if we can.

Kirkman Nurseries

2519 Tulare St. FRESNO, CAL.

YUCAIPA VALLEY

"Where the Big Red Apple Grows"

San Bernardino County

Eight Miles from Redlands

Many of the young apple orchards in this wonderful valley will produce fruit this year. Land suitable for the apple in Southern California is not to be found outside of this valley, and among the owners are men who spent many years in the northwestern part of the United States. Why did they come to the Yucaipa Valley? Because the altitude (2600 to 3000 feet) is the best for producing winter apples that have the keeping qualities. The best method we have of proving this is to take you to Yucaipa and show you. Many level acres on the South Mesa at $285 per acre, including one share of water stock. This is the time of year to plant trees. Call on or write

Redlands & Yucaipa Land Co.

DIKE & LOGIE, General Sales Agents

209 Orange Street REDLANDS, CAL.

THE GARDEN

Written for California Cultivator
By Ernest Braunton

NOW is the time to garden and garden intensively. Every day is valuable, for the most active season is upon us. Now that we have had heavy rains warm weather will follow, every dormant plant will start into action and he who gardens will have to rush to keep up with the vegetative progression.

First get rid of all the rubbish you can find, either through burning, burying, or composting. All sorts of rubbish provides fine places for harboring insect pests and fungus diseases, and if this rubbish is burned all will perish, even eggs and embryo insects.

Rose bushes will now begin to send forth new growth whereon to support the spring crop of blossoms, and this activity of new growth will continue through March. If you have not pruned yet do so at once but pass by double and single Cherokee, Beauty of Glazenwood or Gold of Ophir, the white and yellow Banksia, as their bloom is produced all along the branches and if you cut off these you cut off flowers. Prune these at close of flowering period in the spring; they then have all summer in which to grow long branches for the next season's bloom.

Fertilize lawns now for heaviest rains are doubtless past and much of the food supply will remain on the land. Also frost danger is largely over so that new and tender growth will not suffer a check. While natural manures are best, the possible danger from weed seeds contained therein bids us hesitate. If stable manure has been wetted and turned over several times so that weed seeds have been started into growth or burned, or both, it is safe to use. Otherwise the use of commercial lawn fertilizer is advised.

Break up old clumps of chrysanthemums and root tips in sand, or divide into small pieces and transplant. Also sow seeds for many hardy annual and perennial plants. Some of these are: Asters, phlox, dianthus, salvias, stocks, etc. Plant gladioli and other hardy summer flowering bulbs. Tender bulbs, as begonias, are best left until later, also seeds of the tender annuals. Get busy and keep busy. Now is the season of garden activity upon us.

The Downy Coffee Berry

From Merced I have just received a sample of the Downy Coffee berry plant, Rhamnus Californica var tomentella. It is superior in general appearance to the normal type or species found farther south, and the two together or in contiguous zones in massing make for varied landscape beauty. I do not know that this variety is on the market yet but do know of a nursery firm having acres of it on a ranch and am advising them to get some ready for sale. In the South the species type finds a ready market.

Our Wild Fuchsia

All through the summer there has been blooming, throughout much of California, a lowly, small-leaved shrub having brilliant scarlet pendent flowers much resembling fuchsias. The popular name is California Hummingbird flower, rather too long for practical use. This shrub is one of the most drouth-resistant of California native plants, flowering without water supply throughout our long summers, a truly splendid recommendation. At time of first autumn rain they may safely be moved if cut back to six inches high and shifted quickly.

The Bauhinias

In looking over an illustrated catalog of the plants in the botanic garden at Buenos Ayres, I find a number of species of bauhinia. Some of these we grow, some we do not, yet all are good that thrive in local territory. All we grow become small trees except one, B. Galpini, and why this most excellent shrub has not become more than ordinarily popular I do not know. Possibly it has proven too tender for California in general, but I have seen it at Santa Barbara, a solid mass of

TRUE TO NAME

"Behind ... is O...

SILVA-BERG...

Our buds are selected for propagating only from parent trees having the best record for quality of fruit and productiveness, thus insuring a pedigreed tree and a tree that is true to name.

Fruit Tr...

Growers and Sh...

Trees in...

The time to plant Fruit Trees

IS NOW

Look over this list—it shows the number, size and price of each variety available at this date.

Fruit growers are fast depleting our stock, so we would advise an early selection or it will be impossible for us to fulfill your wants. Our list shows how low our stock is. By ordering now we can make immediate shipment of TREES TRUE TO NAME.

We specialize on foothill grown stock for hardiness, good, well branched roots, freedom from root knot and disease.

They are superior to those grown in any other soil or location.

Order today, if possible.

A special discount of 5% allowed for cash with order.

ALMOND ON ALMOND AND PEACH ROOT

	Each	10	100	1000
4 to 6 feet	$0.35	$3.00	$16.00	$135.00
3 to 4 feet	.30	2.50	15.00	125.00
2 to 3 feet	.25	2.00	14.00	100.00
1 to 2 feet	.20	1.75	11.00	80.00

ON ALMOND

	4/6	3/4	2/3	1/2
Drake's Seedling	.....	5000	2645	1202
I X L	2434	197	1046	1965
Nonpareil	.....	.....	.....	2717
Ne Plus	1101	603	2166	1759
Peerless	2078	8359	4075	2660
Texas Prolific	.....	1200	2554	1411

ON PEACH

Drake's Seedling	4843	434	469	.....
I X L	621	609	414	62
Peerless	1210	1318	660	70
Texas Prolific	165	696	195	.....

APRICOT ON APRICOT AND PEACH ROOT

	Each	10	100	1000
4 to 6 feet	$0.35	$3.00	$20.00	$170.00
3 to 4 feet	.30	2.50	16.00	125.00
2 to 3 feet	.25	2.00	10.00	90.00

ON APRICOT

	4/6	3/4	2/3	1/2
Blenheim	.....	1500	725	[illegible]
Moorpark	625	477	303	160
Newcastle Early	2384	1208	904	180
Royal	1500	2000	3105	1100
Routiers Peach	973	445	358	40
Tilton	4626	1944	816	220

ON PEACH

Blenheim	669	153	170	60
Moorpark	47	27	61	15
Newcastle Early	638	74	474	58
Royal	1000	.....	.....	70
Routiers Peach	160	36	30	.....

APRICOT ON MYROBOLAN ROOT

	Each	10	100
4 to 6 feet	$0.40	$3.50	$27.50
3 to 4 feet	.35	3.00	23.50
2 to 3 feet	.30	2.50	18.50
1 to 2 feet	.25	2.00	15.00

	4/6	3/4	2/3	1/2
Blenheim	.....	.....	.....	55
Moorpark	14	28	23	.....
Royal	81	50	132	104
Boutiers Peach	51	98	29	25
Tilton	.....	45	25	6

PLUM ON ALMOND AND PEACH ROOT

	Each	10	100	1000
4 to 6 feet	$0.40	$3.50	$22.00	$185.00
3 to 4 feet	.35	3.00	19.00	150.00
2 to 3 feet	.30	2.50	14.00	115.00

ON ALMOND

	4/6	3/4	2/3	1/2
Beauty	61	21	89	312
Burbank	120	.....	160	150
Climax	636	515	.....	240
Diamond	219	1113	1299	1100
Formosa	941	553	8	49
Fellenberg	.....	.....	30	.....
Giant	167	30	60	80
Grand Duke	817	369	241	260
Gaviota	387	409	145	90
Hungarian	387	.....	.....	.....
Kelsey	14	87	138	60
Santa Rosa	.....	.....	224	510
Tragedy	.....	.....	71	130
Wickson	376	10	50	.....
Yellow Egg	10	10	50	10

ON PEACH

Beauty	.....	105	98	100
Burbank	716	51	20	20
Climax	532	297	1	150
Coe's Golden Drop	104	100	.....	50
Diamond	.....	40	88	.....
Formosa	1099	457	5	100
Giant	253	348	102	40
Grand Duke	415	14	2	30
Gaviota	473	236	80	50
Hungarian	289	104	43	.....
Kelsey	159	480	.....	10
Santa Rosa	.....	447	199	.....
Satsuma	1000	600	567	540
Tragedy	557	193	239	.....
Vacaville	130	....	167	360
Wickson	1604	49	138	25

PLUM ON MYROBOLAN R...

	Each
4 to 6 feet	$0.40
3 to 4 feet	.35
2 to 3 feet	.30
1 to 2 feet	.25

	4/6	3/4
Beauty	1	94
Burbank	141	...
Climax	109	...
Clyman	106	22
Coe's Golden Drop	38	10
Diamond	5	6
Damson	92	...
Formosa	192	...
Fallenberg	344	100
Giant	524	99
Grand Duke	385	390
Gaviota	621	42
Imperial Gage	92	145
Jefferson	105	...
Kelsey	110	...
Quackenbos	.....	...
Santa Rosa	347	...
Satsuma	168	...
Tragedy	.....	...
Vacaville	63	58
Wickson	12	58
Yellow Egg	120	144

PRUNE ON ALMOND, PEACH AN... ROOT

	Each	10
4 to 6 feet	$0.40	$3.50
3 to 4 feet	.35	3.00
2 to 3 feet	.30	2.50
1 to 2 feet	.25	2.00

ON ALMOND

	4/6	3/4
Conquest	282	15
French	1747	853
Imperial	.....	91

ON APRICOT

French	150

ON PEACH

Conquest	494	25
French	2451	...
Imperial	109	28
Robe de Sargeant	.....	7
Standard	348	30
Sugar	195	21

PRUNE ON MYROLAN R...

	Each
4 to 6 feet	$0.4...
3 to 4 feet	.40
2 to 3 feet	.35
1 to 2 feet	.30

	4/6	3/4
Conquest	486	7
French	719	108
Imperial	100	45
Robe de Sargeant	27	44
Sugar	.....	50
Standard	.....	4

PEAR ON PEAR ROO...

	Each	10
4 to 6 feet	$0.40	$3.00
3 to 4 feet	.35	2.50
2 to 3 feet	.30	[illegible]
1 to 2 fee...	.25	1.75

	4/6	3/4
Bartlett	1250	130
Beurre d'Anjou	1494	48
Beurre Bose	21	1
Beurre Hardy	.....	...
Beurre Clairgeau	907	164
Comet	335	18
Comice	430	30
Winter Nelis	118	1
Wilder	.....	...

PEAR ON QUINCE

	Each	10
4 to 6 feet	$0.40	$3.00
3 to 4 feet	.35	2.50
2 to 3 feet	.30	2.00

	4/6	3/...
Bartlett	166	...
Beurre d'Anjou	1824	72
Comic	390	48
Winter Nelis	1027	47

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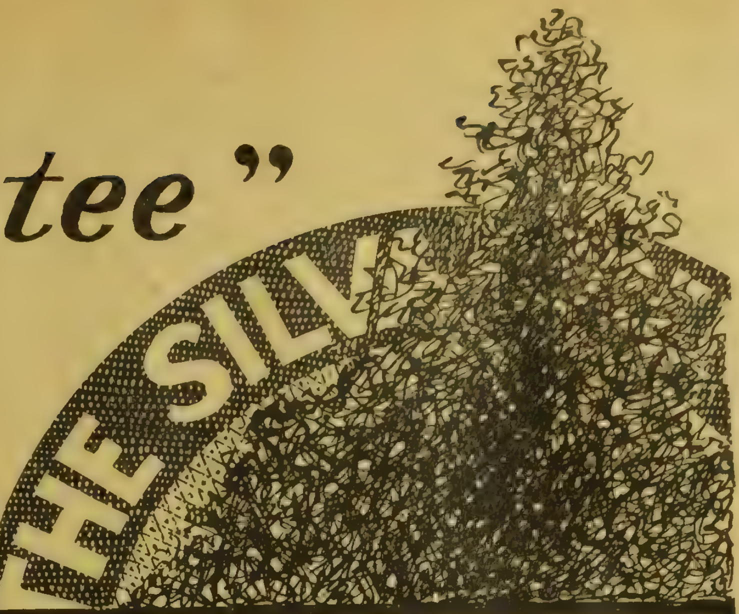

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...ock Feb. 5, 1915

CHERRY ON MAZZARD ROOT

	Each	10	100	1000
... feet	$0.40	$3.00	$22.00	$185.00
... feet	.35	2.50	17.50	140.00
... feet	.25	2.00	13.00	100.00
	4/6	3/4	2/3	1/2
...	1125	829	258	.....
... Tartarian	1000	500	198	10
... Oregon	606	252	228	150
... Purple Guinge	128	.....	27	.....
... Ann	1471	486	494	100

CLINGSTONE PEACH

	Each	10	100	1000
... feet	$0.35	$3.00	$22.00	$180.00
... feet	.30	2.50	19.00	155.00
... feet	.25	2.00	15.00	125.00
... feet	.20	1.50	12.00	85.00
	4/6	3/4	2/3	1/2
...	8601	3603	2112	280
...itt	296	517	306	.....
...itt	2	99	242	.....
...	1500	.....	.....	1490
...	.....	.....	500	1315
... Heath	19	49	76	.....

FREESTONE PEACHES

	Each	10	100	1000
... feet	$0.35	$2.50	$18.00	$150.00
... feet	.30	2.25	16.00	125.00
... feet	.25	2.00	13.00	110.00
... feet	.20	1.50	10.00	70.00
	4/6	3/4	2/3	1/2
...iders	285	186	433	.....
... Crawford	200	[illegible]	19	.....
...a	1411	1021	[illegible]	6
...lberta	1982	1283	499	80
...	367	19	173	100
... Early	279	149	25	25
... Crawford	124	183	163	55
...	1304	1500	257	.....
...	1963	576	1777	512
...y	95	35	250	.....
...berry Free	.....	151	[illegible]	20
...ohn	100	.....	43	30
...ph	15	.....	296	.....
... Swan	19	50	.....	.....

OLIVES ON PICHOLINE ROOT

	Each	10	100	1000
...3 feet	$0.75	$5.50	$45.00	$275.00
	4/6	3/4	2/3	1/2
...on	.....	.....	6292	.....

OLIVES ON CUTTINGS

	Each	10	100	1000
... feet	$1.15	$9.00	$70.00	$625.00
... feet	.90	7.50	60.00	525.00
... feet	.75	6.00	50.00	350.00
... feet	.65	4.50	35.00	275.00
	6/8	4/6	3/4	2/3
...m	1570	1017	1080	1250
...anillo	250	361	63	32
...ano	.....	42	33	.....

...NUT GRAFTED ON BLACK WALNUT ROOT

	Each	10	100	1000
...8 feet	$1.50	$12.50	$80.00	$700.00
...6 feet	1.25	9.00	65.00	600.00
...4 feet	1.00	7.00	50.00	450.00
...3 feet	.75	6.00	40.00	350.00
	6/8	4/6	3/4	2/3
...d	1	6	8	.....
...uette	188	57	.....	.....
...te	500	1191	500	104
... Prolific	.....	2	7	7

QUINCE ON QUINCE ROOT

	Each	10	100	1000
... feet	$0.40	$3.50	$23.00	$200.00
... feet	.35	3.00	20.00	175.00
... feet	.30	2.50	16.50	125.00
	4/6	3/4	2/3	1/2
...	240	157	.....	.....
...ple	.....	387	.....	20
... Mammoth	202	140	29	.....
...a	459	129	136	.....
...Deman	917	744	377	20

APPLE ON APPLE ROOT

	Each	10	100	1000
... feet	$0.30	$2.50	$15.00	$125.00
... feet	.25	2.00	13.50	115.00
... feet	.25	1.75	12.00	100.00
	4/6	3/4	2/3	1/2
...nder	42	.....	.....	.....
Ark. Black	209	122	2	.....
Bellflower (Yellow)	1341	153	13	.....
Baldwin	22	13	9	.....
Delicious	513	100	75	.....
Early Harvest	50	25	.....	.....
Gravenstein	500	152	17	.....
Grimes Golden	47	48	.....	.....
Jonathan	159	26	7	.....
King David	100	50	.....	.....
Mammoth Black Twig	41	31	.....	.....
Ortley	150	50	.....	.....
Red June	143	44	.....	.....
Rome Beauty	201	15	.....	.....
R. I. Greening	24	8	.....	.....
Red Astrachan	200	25	.....	.....
Spitzenburg	40	58	.....	.....
Wine Sap	30	70	.....	.....
White Winter Pearmain	152	54	.....	.....
Winter Banana	73	65	.....	.....
Wagner	15	45	.....	.....
Yellow Newton	825	260	.....	.....
Yellow Transparent	23	25	.....	.....

APPLE ON RESISTANT ROOT

	Each	10	100	1000
4 to 6 feet	$0.35	$3.00	$18.50	$160.00
3 to 4 feet	.30	2.50	16.00	135.00
2 to 3 feet	.30	2.00	13.50	120.00
	4/6	3/4	2/3	1/2
Alexander	373	21	87	.....
Bellflower (Yellow)	126	25	106	.....
Ben Davis	108	37	.....	.....
Delicious	245	91	15	.....
R. I. Greening	56	67	8	.....
Red Astrachan	365	79	21	.....
Spitzenburg	356	55	28	.....
Stayman Winesap	352	45	7	.....
White Astrachan	379	.....	.....	.....
Yellow Newton	233	35	1	.....
York Imperial	.....	60	.....	.....

CRAB APPLE

	4/6	3/4	2/3	1/2
Red Siberian	53	84	.....	.....
Hyslop	65	88	.....	.....
Yellow Siberian	.....	47	.....	.....

PERSIMMONS

	Each	10	100	1000
3 to 4 feet	$0.35	$2.50	$20.00	$125.00
	4/6	3/4	2/3	1/2
Hyakume	.....	1441	.....	.....
Hachiya	.....	883	.....	.....
Mammoth Goshio	.....	289	.....	.....
Tane Nashi	.....	1627	.....	.....

NECTARINE

	Each	10	100	1000
4 to 6 feet	$0.40	$3.50	$25.00	.....
3 to 4 feet	.35	3.00	20.00	.....
On Peach	4/6	3/4	2/3	1/2
Boston	50	25	.....	.....
Stanwick	42	.....	79	.....
New White	18	.....	.....	.....
Victoria	100	.....	.....	.....

PECAN GRAFTED

	Each	10		
4 to 6 feet	$1.75	$15.00		
	4/6	3/4	2/3	1/2
Stewart	93	.....	.....	.....

GRAPE—AMERICAN VARIETIES

	Each	10	100
Strong 2-year-old vines	$0.20	$1.50	$10.00

	Vines		Vines
Concord	135	Worden	117
Catawba	17	Isabella	134
Niagara	23		

GRAPES—EUROPEAN VARIETIES

	Each	10	100	1000
Rooted vines	$0.10	$0.75	$2.50	$17.50

	Vines		Vines
Black Morocco	675	Malaga	1164
Black Ferrera	528	Purple Damascus	293
Fountainbleau	247	Rose Peru	1763
Lady Finger	5	Thompson Seedless	8297
Muscat	2000	Tokay	2251
Mission	400		

FIG

	Each	10	100	1000
4 to 6 feet	$0.60	$3.50	$22.50	$200.00
3 to 4 feet	.50	3.00	20.00	170.00
2 to 3 feet	.35	2.50	17.50	140.00
	4/6	3/4	2/3	1/2
Calimyrna	39	106	276	.....
Mission	200	59	62	.....
White Adriatic	200	224	186	.....

BLACKBERRY

	Each	10	100	1000
Rooted plants	$0.10	$0.75	$2.50	$15.00

Lawton ... 3000 Lucretia Dewberry ... 4000
Mammoth ... 634

RASPBERRY

	Each	10	100	1000
Rooted plants	$0.10	$0.75	$2.50	$15.00

Cuthbert ... 5000 King ... 2000
Hansel ... 200 Kansas ... 50

LOGANBERRY

	Each	10	100	1000
Rooted plants	$0.10	$0.75	$5.00	$30.00
Loganberry				2325

PHENOMENAL BERRY

	Each	10	100	1000
Rooted plants	$0.15	$1.00	$7.50	$50.00
Phenomenal				1734

STRAWBERRY

	Each	10	100	1000
Rooted plants	$0.10	$0.50	$2.00	$10.00
Dollar Berry				100,000

GOOSEBERRY

One-year plants	$0.25	$2.00	$15	.....
Oregon Champion				394

CURRANT

Strong 1-year plants	$0.15	$1.25	$10.00	.....
Cherry				134
Fay's Prolific				424
White Grape				196

SEEDLINGS

We quote strong, well-rooted Seedlings in lots of 100 or more:

		Each
Bitter Almond	500	$0.10
Myrobolan	3000	.10
Mazzard	100	.08
Natural Peach	2000	.08

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For pleasure, attractiveness and profit, nothing will enhance the value of your home or ranch so much as a dozen or more well-kept citrus trees. Oranges, Lemons and Pomelos can be successfully grown in every section of California up to an altitude of 1200 feet. NOW IS THE BEST TIME TO PLANT. We have a fine lot of trees in all varieties, on which we are prepared to make immediate delivery.

Prices on All Varieties

	Each	10	100
⅝ to ¾-inch caliper, balled	$1.25	$11.00	$80.00
½ to ⅝-inch caliper, balled	1.10	10.00	70.00

Prices are F. O. B. Newcastle, with a nominal charge for boxing.

Varieties

	⅝ to ¾ in.	½ to ⅝ in.
Washington Navel Orange	596	200
Valencia Late Orange	350	150
Thompson's Imp. Navel Orange	20	20
Golden Nugget Navel Orange	20	.....
Oonshui Orange	35	.....
Satsuma Tangerine	30	.....
Dancy Tangerine	45	.....
Eureka Lemon	175	125
Lisbon Lemon	115	45
Villa Franca Lemon	254	60
Marsh Seedless Pomelo	250	25
Triumph Pomelo	150	40

ORNAMENTALS

We offer also a few fine, large trees in several of the Standard Ornamental Varieties.

Prices

	Each	10
8 to 10 feet	$0.60	$0.50
6 to 8 feet	.50	.40
5 to 6 feet	.40	.30

Varieties

	8/10	6/8	5/6
Texas Umbrella	200	200	[illegible]
American Elm	200	500	300
Norway Maple	20	50	50
Silver Leaf Maple	50	50	20
Mountain Ash	20	50	10
American Sycamore	200	200	100
Catalpa Special	100	150	25
Carolina Poplar	100	20	.....
Russian Mulberry	.....	20	100

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...ALIFORNIA

brick-red blossoms. The other species are also good but will not stand heavy frosts.

Charm of Water

If I lived in the country and needed a reservoir for strictly irrigation purposes, not for domestic water, I would make it ornate and embellish it with plant life. It will cost but little more than a circular or square reservoir and prove, if rightly planted, "a thing of beauty and a joy forever." Water in natural streams or bodies is so scarce in California, especially in the southern end of the state, that it holds a charm for mankind above that of any other inhabited section of the United States. On the farm, where utility is the first demand and the foundation of all things, it is as well to determine how we may also provide beauty and combine the two in one harmoniously and without great additional cost.

Special Eucalyptus

Though the eucalyptus craze has come and gone, so far as heavy commercial plantations are concerned, let us not forget that these still have many uses on the farm, both economic and ornamentive. There are so many species, adapted to so many special purposes (aside from the general timber species), that one should give them some thought before planting indiscriminately. If landscape beauty is in view it may be as well to avoid planting species which make but poles or gigantic exclamation points on the local outlook. Yet nearly all make umbrageous trees if standing more or less isolated, as single specimens or in groups of a few trees.

Live Oak

The more I plant and observe live oaks the more I believe in planting them freely everywhere, especially upon streets. When less than ten years of age they are not especially impressive but after a decade of growth, even if not well cared for, they have developed into beautiful umbrageous young trees. It is my candid opinion we should plant more of live oaks everywhere and see that they are watered frequently and heavily throughout the summer, for upon water depends their rate of growth.

The Shrubby Grevillea

The cold snap of January 1913 removed many fine specimens of the scarlet flowering shrubby grevillea, G. Thelemanniana. But previous to this time it had enjoyed an uninterrupted run of a dozen years and had become both popular and common. For dry localities it is especially good and should still be freely planted for it has many good points to recommend it as an ornamental. In fact, it has no superior that I now recall.

CHANGING PLANT SEX

Written for California Cultivator
By Ernest Braunton

The following is submitted without comment. The United States department of agriculture in 1914 issued Bulletin No. 32 of the Hawaii experiment station, entitled: "The Papaya in Hawaii." On page 26 occur the following statements:

"The complete change of a male tree to one purely female, with fruits of the form of the ordinary dioecious papaya, is perhaps the most remarkable. A well authenticated case of this character has been reported and the tree in its present state has been examined. * * * Dr. John T. Gulick, a scientist of wide reputation, whose studies in evolution published by the Carnegie Institution would alone be sufficient to establish his accuracy of observation and statement, has kindly furnished this station with the history of this tree, which has grown in his garden:

"'When the tree was a year and a half or two years old, it had produced only staminate flowers. It was then six feet high, and we cut off the leaves and the top of the tree, that were in the way of a clothesline. It was not till many months later that we noticed that the new branches were bearing fruit and that the flowers were all pistillate. During the three years that have passed since its head was cut off it has developed ten branches * * * all of them producing pistillate flowers and fruit.'

and fruit.'" (Signed) John T. Gulick.

What Those Who Know Say About Ideal Green Feed Silos

San Luis Obispo, Jan. 28, 1915.

De Laval Dairy Supply Co.,
San Francisco, Cal.

Gentlemen:—

We are anxious to tell you of the good results we are having since erecting an Ideal Green Feed Silo. The corn we put in is coming out perfect silage, **no waste and good to the very edges.**

This amount of feed, for as you know we erected a silo of two hundred tons capacity, is going to practically **double the income of our dairy.**

We raise a great amount of feed in the shape of corn on a comparatively small acreage for the silo, giving the extra land to raise grain, thus **cutting the expense of mill feeds to a minimum.**

We can honestly recommend this Ideal Green Feed Silo to any dairyman and firmly believe a silo will prove very beneficial and remunerative to our coast dairymen. **It is an insurance policy that makes its own payments and pays the amount of the policy in a short time besides.**

Sincerely,
SINSHEIMER BROS.

AN IDEAL GREEN FEED SILO WILL DO AS MUCH FOR YOU

Write for special circular A

DE LAVAL DAIRY SUPPLY CO.

San Francisco Seattle

Everything for the Dairy

Mr. Dairyman

Now is your opportunity to save money on Dairy Supplies. The Western Dairy Machinery & Supply Co. of 818 So. Los Angeles St. have purchased the

Bankrupt Stock of Guy F. Kelsey Co.

At a price that will enable them to make ridiculously low prices on everything in order to make room for their new and complete line of supplies now in transit.

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If You Are Looking for a Bargain

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Agents for Sharpless Separators and Milking Machines

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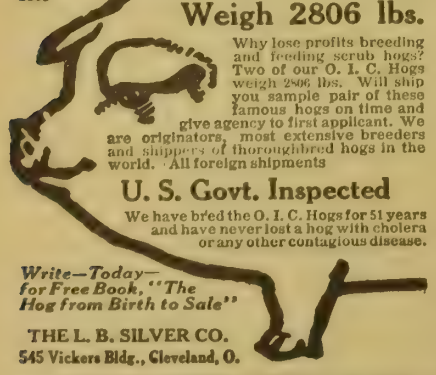
For Sale

Originators of the Famous O. I. C. Swine 1863

Two O. I. C. Hogs Weigh 2806 lbs.



Why lose profits breeding and feeding scrub hogs? Two of our O. I. C. Hogs weigh 2806 lbs. Will ship you sample pair of these famous hogs on time and give agency to first applicant. We are originators, most extensive breeders and shippers of thoroughbred hogs in the world. All foreign shipments

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Live Stock and Dairy

SILOING ALFALFA

SUCCESSFUL experiment made made last season by the experiment farm of the University of California at Davis in putting the first crop of alfalfa, which was heavily mixed with foxtail, in a silo and feeding the silage to stock to fatten them for market, was of great assistance to the farmers, dairymen, and stock raisers of California, for it proved beyond doubt that the first crop of alfalfa, which has heretofore generally been discarded because of its mixture of weeds and foxtail, can be successfully used and saved.

Instead of throwing away this first cutting of alfalfa it should be cut while the alfalfa is in bloom and before the foxtail is too dry, run through a cutter, put into a silo and allowed to cure. After three weeks or a month in the silo it can be fed to beef cattle or dairy stock with exactly as good results as silage made from the later cuttings of alfalfa or from corn and alfalfa mixed.

In order to take advantage of this plan, farmers contemplating its use should begin to build their silos so as to have them ready for this first cutting before it is too dry.

The value of this method is not only the saving of this first cutting of alfalfa, which has previously been of no value, but the increase in the weight of the beef cattle and the milk flow in the dairy stock during the hot summer months.

A silo can be filled with this first cutting of alfalfa, emptied, and again filled in the fall either with the last cutting of alfalfa or with a corn crop, or a mixture of both. In this way a farmer would practically save the cost of his silo the first year.

Several of the largest hog raisers in California are now feeding silage to hogs with splendid results. The Huston Farms at Winters have two redwood stave silos which are used exclusively for hog feeding, and the results of their experiments in this line have been so successful that they are contemplating more silos.

It would pay the California farmers who do not now possess silos to investigate the points mentioned above thoroughly and carefully.

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Period of Gestation

Will you please tell me when is the proper time for a mare to foal that was bred on April 11, 1914? Just one of our mares last year went full 11 months and I was not sure of the exact time they should go before foaling. They are range mares that run out most of the time with only mountain pasture for feed.—Subscriber, Santa Maria.

The period of gestation of the mare is given as 11 months, but mares vary oftener from the regular time than any other animal. They usually go the full 11 months and often run over two to four weeks. You may know when they are about ready to foal by wax appearing on the ends of the teats.

Diarrhoea

I have a three-year-old colt that for the last three months has had frequent evacuations of liquid manure. Sometimes the diarrhoea is so bad it seems to be half liquid. I am feeding her good alfalfa hay. She gets good water. Her teeth are good and she is in good condition. What can I do for her?—Subscriber, Kingsburg.

Alfalfa seems to give some horses the diarrhoea and more especially when it is cut green. When alfalfa is intended for horse feed it should be allowed to mature so the stalks are dry when made into hay. You had better feed oat hay part of the time. Medicine will be of no benefit.

Lumps in the Skin

I have a mare nine years old that has hard lumps on her about half an inch in diameter. They seem to be a thickening of the skin and do no harm except that where the harness rubs they become sore. What will remove them?.—Subscriber, Santa Rosa.

Give her a handful of epsom salts in the feed once a day for a week. Then get a pint of Fowlers solution of arsenic and give half an ounce once a day for three or four days; then one ounce a day for ten days, and finish the bottle by giving half ounce doses daily while it lasts.

Scours

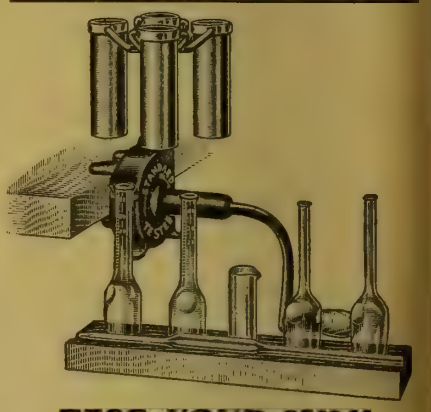
What can I do for some eight-months-old heifers that have the scours? They are on grass and are fed oat hay.—Subscriber, Gualala.

Probably the new grass, being full of water, is the cause of the trouble. If it lasts too long get the following powders: Tannic acid one ounce, powdered gentian four ounces, powdered nux vomica two ounces, bicarbonate of soda four ounces and enough farina to make one pound. Mix and give each a desert spoonful once a day.

Bog Spavin

Have a three-year-old mare that has not been worked yet but has a bog spavin. Is there any cure for it? Would like to breed her. Would the bog spavin have any bad effect on the colt?—Subscriber, Gualala.

Colts from mares affected with bog spavin are more likely to have the same trouble than those from perfectly sound mares. In this case it may have been caused by an accident which would make it less liable to be



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A Perfectly Safe and Reliable Remedy for Sore Throat, Chest Cold, Backache, Neuralgia, Sprains, Strains, Lumbago, Diphtheria, Sore Lungs, Rheumatism and all Stiff Joints

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The LAWRENCE-WILLIAMS COMPANY, Cleveland, O.

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Write us for valuable free book, "The Cow Doctor."

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has been known as the complete milk substitute since the year 1800. It prevents scouring and contains just the ingredients necessary to promote early maturity. Sold by your dealer or direct from the maker.

Write for Actual Figures

Send your name and address and get actual figures that show the possibilities for making money from your calves.

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transmitted to the young. Feed sparingly and reduce the flesh. Use the following ointment on the spavin: Iodine tincture one ounce, iodine crystals one dram, lard oil four ounces. Clip off the hair and once a day apply some of the ointment. Rub it in well.

Indigestion

I have a heifer about two years old due to freshen in two or three weeks, in good flesh but for some time she seems to breathe very hard at times. I can hear her breathe two or three hundred feet away but at other times she breathes naturally. I feed alfalfa hay and ensilage. What can I do for her?—Subscriber, Gardena.

Probably the trouble is due to overeating. Watch and see if she is not bloated some when she breathes hard. Reduce the quantity of feed and give the following: Aloin three drams, turpentine two ounces and enough raw linseed oil to make one pint. Mix, shake and give at one dose.

Stomach Worms

Kindly advise me what to give a horse for intestinal worms. They are quite large and are nearly as thick as a lead pencil and taper to a point at both ends. I noticed one with a protuberance about the middle from which dangled a mass of thread-like matter that evidently were young worms.—Subscriber, Exeter.

Overfed horses are usually infested with worms. First reduce the feed and give the feed regularly; not over a pound of hay in 24 hours to each 100 pounds weight of the horse. Get of your druggist: Aloin three drams, turpentine four ounces and raw linseed oil enough to make one quart. Shake well and divide into six doses. Give one dose every other day. Another good remedy for worms is to mix three parts of salt with one part of wood ashes and give a tablespoon in the feed once a day.

Melonotic Tumors

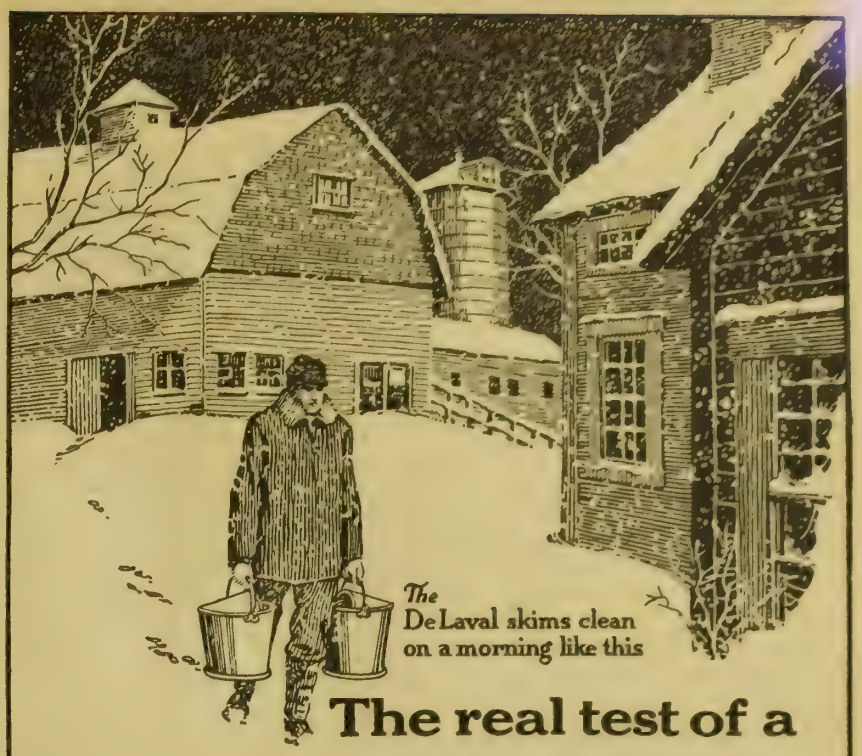
I have an old white mule that has a tumor on one side of the body and also a growth imbedded in the muscles of the breast which, according to a local veterinarian, presses on a nerve which causes a partial paralysis of her fore leg. He thinks it is caused by the black pigment of the hair gathering and making a tumor. The tumor on the breast is quite deep. Do you think it advisable to have it operated on or will an absorbent do any good?—Subscriber, Exeter.

As gray animals grow old and become whiter from year to year the black pigment that the system has been secreting to color the hair may gather in lumps and form what is called melonotic tumors. No one can say that the lumps or tumors of your mule are such or not without having opened them. The tumor on the breast is more likely to be a cold abscess. In those the pus is very deep. It should be lanced deep enough to reach the pus but in no case should any of the flesh be cut out. After opening it, if pus is found, the cavity should be dressed once a day until healed with a solution of carbolic acid; one part to 16 of water.

Thrush or Canker

I have a horse that has deep holes around the frogs of his front feet. When I have cleaned them out a very strong and disagreeable odor is noticeable. He walks a little lame. Would this disease cause the lameness? What is the best treatment?—Subscriber, San Dimas.

The trouble with your horse's feet may be thrush or canker. The latter is very hard to cure. Remove the shoes and poultice the feet over night with a poultice made of bran and hot vinegar. Next day clean out the holes and scrape out everything that does not seem to be healthy tissue. Then pack the holes full of cotton soaked in a solution of one ounce of chloride of zinc to one pint of water. Wrap the feet with something that will keep the packing in and change this every day or two until you think the disease is entirely stopped. Then fill the places with cotton or oakum soaked with equal parts of tar and vaseline. Cover this with a thick piece of leather and put the shoes on. When he needs to be reshod the feet will probably be all right.



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SKIMMING cold milk, or milk from stripper cows, or both, is the real test of a cream separator. If your separator is small, necessitating a long run, it's still harder to skim clean in cold weather.

The De Laval is the only cream separator that can be depended upon to do good work under such conditions.

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For this reason the De Laval will skim clean under the very hardest conditions, whereas other machines which may do fairly good skimming under favorable summer conditions are the worst kind of "cream thieves" in winter.

A De Laval catalog, to be had for the asking, will explain fully why the De Laval can be relied upon to do good work under any or all conditions, or the local De Laval agent will be glad to explain to you this and other reasons for De Laval superiority.

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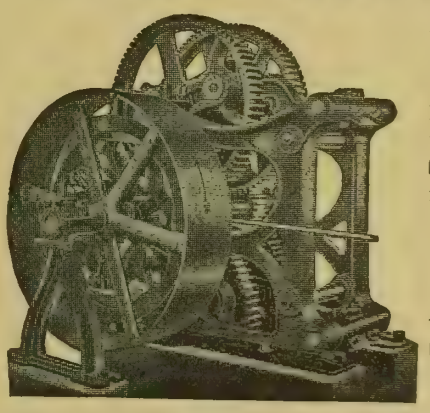

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That millions more chicks are going to be hatched from the same number of eggs and the new principle which is proving such a great success in the Mandy Lee Incubator is going to give the same certainty to all operators.

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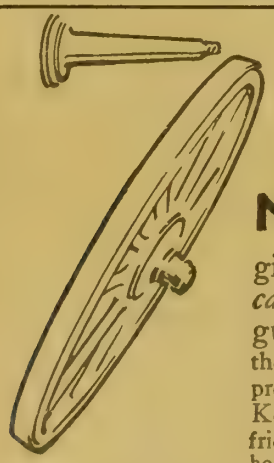

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Poultry for Profit

POULTRY AS AN ADJUNCT TO FRUIT GROWING

By J. E. Dougherty

As the tide of population has moved westward it has steadily pushed the frontier, that great boundary line separating the new and virgin soil from the land under tillage, farther and farther and finally dumped it into the Pacific ocean. Now the new farming land is practically all taken up by settlers, yet the population of our country continues to increase from within, and a steady stream of immigration from Europe and Asia is flowing to our shores.

Within the last decade we have come to strongly realize that methods of farming have got to become more and more intensive if our food supply is to keep pace with the increased demands as a result of an increase in population. Agricultural education has received its greatest impetus in this last decade because of the need for more exact and detailed knowledge in the successful management of intensive farming. The very words "extensive" and "intensive" significantly express the difference between the two types of farming. We can no longer take up a piece of virgin soil, work and exhaust the vitality and fruitfulness and profit of it by indifferent and careless methods and move to another virgin piece. We have no more virgin soil to squander; it is all gone; our frontiers are gone. The numbers of people who want land are steadily increasing, but the limit of our agricultural expansion over new lands has been reached. From now on our attention must be turned to the more efficient use of the land we now have, which means the cutting up of large ranches into small holdings that will be intensively farmed and their productivity most zealously conserved.

Five, 10, 15, 20 and 40 acre farms are going to become more and more common in this state. The great ranches will gradually disappear as more people come here, and transportation facilities, such as good roads, steam and interurban roads and (last but not least) low-priced, substantial autos, increase and render traveling facilities between all points in the state quicker and less expensive.

The type of farming on the small ranches, because of the very economic fact that the owner cannot better himself by moving since there is no other land of equal value to be had cheaper, and because the highest productivity of the land must be secured and conserved so that worth-while profits may be secured at once and continue to be secured in the future, requires scientific knowledge and a thorough utilization of every resource.

Poultry as an adjunct to orcharding represents one of the means by which the orchards can be more thoroughly utilized. If this is true, why should not poultry and tree fruits be raised on exactly the same land? In the hot valleys of California, especially, shade is an absolute necessity to poultry in summer. And where can be secured a more ideal and cooler shade than under a tree where every breeze can circulate and where the ground is protected from the intense sunlight and is therefore cooler?

Not only do the fowls benefit from the shade of the trees and from the natural tonic action on the digestive organs of the ripe fruit itself in many orchards, but the trees benefit greatly from the fowls. The chickens eat a great many harmful insects and worms; they help to clean up the fallen fruit and destroy the larvae of parasites that develop in such places; they help to keep down weeds; and most important of all, they are continually adding new fertility to the soil to replace that which is being taken away in the form of fruit.

We are all of us coming to realize more and more strongly that the most economic type of farming in general is that type which utilizes livestock as a medium for marketing the vegetable products produced. The alfalfa and grain grower who feeds these products of his land to cattle and then markets the cattle or their by-products, such as milk, is able to return the fertility taken from the land by the crops back to the land in the form of manure. The fruit grower is unable to do this because the fruit is grown expressly for man's consumption and must therefore be shipped off the farm. If this fertility is not replaced and the productivity of the land maintained, in a few years' time it will be worn out and useless.

Poultry can occupy the same land that the trees do, thus double cropping the land, and both will do better and give better returns than if they were raised on separate pieces of land and two incomes are secured for each acre.

In very young orchards the trees may be protected where necessary with three-foot wire netting until they become large enough so that there is no further danger of their being defoliated. In this connection one will find that if green stuff, such as alfalfa, rape, kale, chard, barley, etc., is grown between the young tree rows so that the fowls can get plenty of green stuff without bothering the trees they will seldom eat the leaves of the trees.

The laying houses may be built at the sides of the orchard so that they face south and east, or they may be portable and scattered in rows between the trees like the tents of an army. With citrus fruits the houses should be built clear of the shadows cast by nearby trees so that the sunlight can freely reach all parts of each house in winter. With deciduous trees which lose their leaves the houses can well be built close so that the open fronts are shaded on the south side in summer.

From 120 to 160 square feet of range should be allowed per hen. If it is desired to divide the orchard into large yards so that a double-yard sys-

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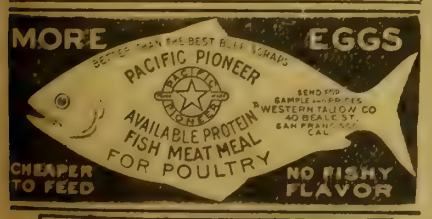

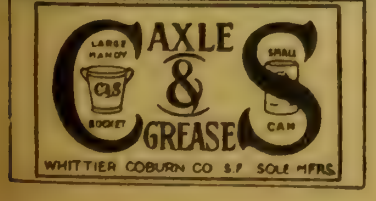

tem is used having two yards for each flock, then only one-half this amount, or 60 to 80 square feet, need be allowed per hen in each run. In this way the fowls in a flock can be shut out from one of the yards while the trees are being sprayed, the land plowed and sown, while irrigation is being done or fruit picked, or during any period when it is desired to have the chickens off the land for any reason. The double-yarding system is especially valuable in preventing the fowls from killing out the green crops such as alfalfa between the rows. After the fowls have cropped one run fairly close they can be turned into the other run while the growth in the first run is growing up again. With such a yarding system practically all the difficulties are eliminated and yet with the layers in flocks of 400 to 500, it is not necessary to cut the orchard up into less than one to one and a half acre runs.

A fowl produces between 30 and 40 pounds of night droppings per year in addition to the droppings deposited during the day time. The plant food in a ton of such fresh manure based on current fertilizer prices is worth from $7 to $12.

Observations and experiments indicate that poultry manure deteriorates very rapidly unless properly handled. This material is too valuable to the horticulturist for him to fail to care for it so that none of the plant food is wasted. Being rich in nitrogen, which is readily lost through decomposition unless steps are taken to render it stable, it must be cared for intelligently.

The free use of fine, dry loam, raw rock phosphate, kainit, acid phosphate, muriate of potash, land plaster or a combination of the above will effectively prevent the loss of nitrogen from poultry manure. Fine loam alone must be used in such quantities as to considerably increase the cost of handling.

The use of dry, fine sawdust as an absorbent, together with raw rock or acid phosphate to fix the ammonia and prevent its escape, preserves the manure in fine condition. Where it is not possible to apply directly to the land the night droppings should be collected three times per week and deposited in a manure bin or pit protected from the weather and dampness. When the manure is put into the bin after each collection it should be sprinkled over with the phosphate at the rate of 15 pounds to every 100 pounds of manure. The droppings boards may be sprinkled with sawdust or fine loam to make cleaning easier and dilute the manure.

Never use lime or wood ashes on poultry manure for these liberate all of the nitrogen by their chemical action.

Apply poultry manure at the rate of one to two tons per acre.

The litter used in the scratching sheds is very valuable for mulching to prevent evaporation and has some manurial and humus value.

One hundred fowls running at large on an acre should in one year have added to its fertility the equivalent of 400 pounds sulphate of ammonia, 200 pounds acid phosphate and 120 pounds of kainit.

POULTRY FOR PROFIT

Poultry for Profit, a practical manual for the beginner, the farmer and the side-line poultryman, by Jean A. Koethen, published by the Cultivator Publishing Co., Los Angeles, at $1.00.

For many years the California Cultivator has been busy in producing a practical farm paper which should give to all departments of agriculture in California as much cultural information as possible to pack within its 32 pages. It has been felt that every moment was so filled that it was hard to take time sufficient to enter into any publication effort. But it has had so many compliments for its poultry department that some months ago it was determined to bring out a poultry book. Mrs. Koethen, who has for some years been engaged in raising poultry and in telling of her methods in the columns of the Cultivator, was induced to take up the matter of gathering together a fund of information which should be of value to the beginner, the practical poultryman and the general farmer. Her copy was submitted to practical poultry people

(Continued on Page 191)

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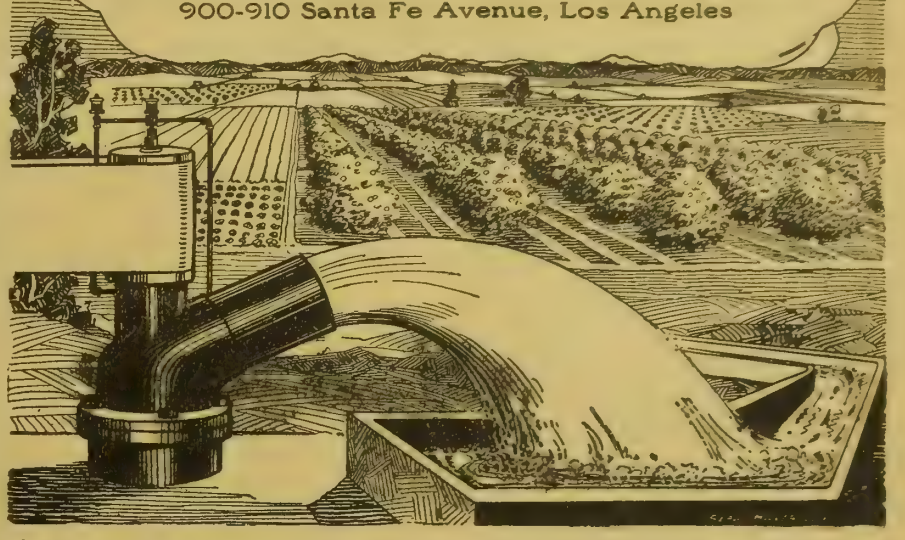

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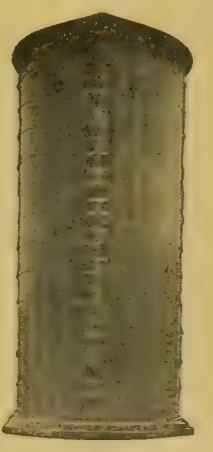

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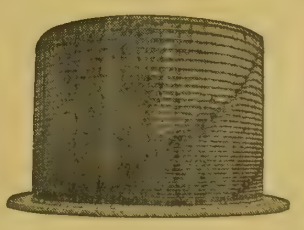

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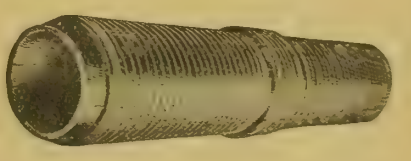

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For Sale—On March 12th we will have 1500 choice White Leghorn pullets, three months of age, to sell. Price $7.50 per dozen. In lots to suit. Order now. Must Hatch Incubator Co., 418 Seventh St., Petaluma, Cal.

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Rhode Island Reds and S. C. W. Leghorns; greatest laying strains in California. Baby chicks: Reds, $15.00 per hundred; Leghorns, $12.50. Rainescourt Poultry Ranch, Zelza, Cal.

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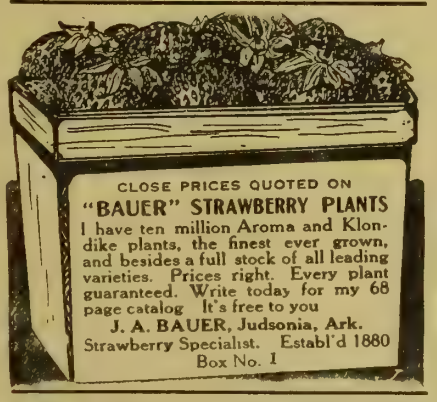

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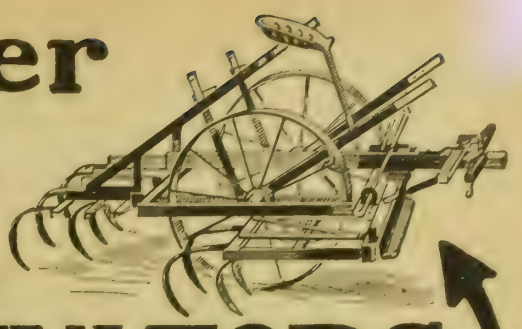

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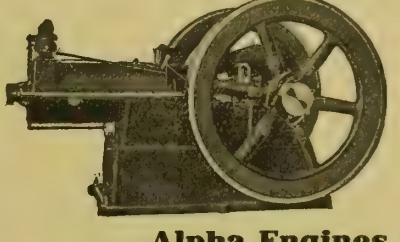

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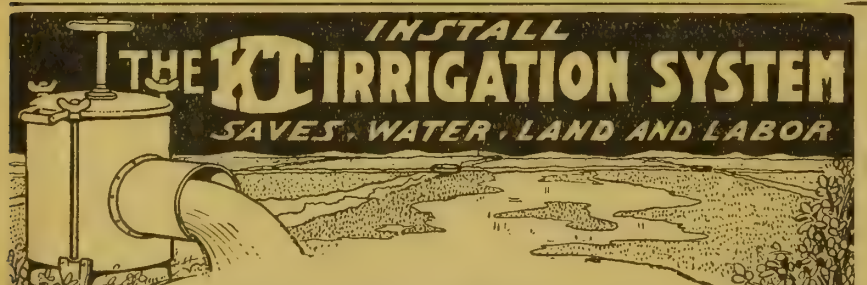

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Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Incubating Duck Eggs

Can you give instructions for successful incubator hatching of ducks in this climate?—Subscriber, San Diego.

The main differences between the incubation of duck eggs and that of hen's eggs seems to be that the duck eggs require a slightly lower temperature, a little more ventilation and in California, at least in dry weather, a little more moisture. Authorities differ so much in their instructions that it is difficult to lay down any rule. Much depends on the incubator and on the weather. James Rankin, the highest authority on duck culture in this country, advises that the temperature be kept at 102 degrees Fahrenheit the first two weeks, with the thermometer on the eggs in the center of the tray, and 103 degrees thereafter, cooling the eggs a little once a day for the first week and increasing the time later. A little moisture used after the eighteenth day. Ventilate the incubator a little more toward the end of the hatch. Robinson says "They require more ventilation than hen eggs because the egg is larger and therefore more difficult to dry down, and because it has to be dried down to an air space proportionately larger than in the hen egg. A larger air space is needed to give the larger head and bill of the duckling room to work. Operators advise cooling duck eggs longer than hen eggs. Some California breeders advise keeping the temperature at 102 to 102½ degrees up to the last few days of the hatch. A higher temperature than 103 degrees is said to be fatal. In dry weather begin about the beginning of the second week to sprinkle the eggs very lightly with warm water just before they are returned to the machine after turning. In damp weather little if any moisture is needed. You would do well, if your incubator instruction book gives no instructions for duck eggs, to write the manufacturers for specific instructions, but I think you will be safe being so near the coast, and with the wet season we are having this year, in running your machine at 102 or 102½ up to the last three or four days, and cool a little longer than you would hen's eggs, using no moisture. Hens are very successful as hatchers of duck eggs, and it looks as if any method of running the machine which is successful with hen's eggs could not be far wrong with duck eggs.—J. A. K.

Butter Slow to Come

Please tell me why we have to churn our cream six or seven hours before it will come, having the cream at 60 degrees. The cow is just three years old, has had two calves. The last one is five months old. Cream used to come very quickly. I could stir with a spoon and it would grain and come to butter in about ten minutes. After a while it took a half hour to bring it, now it takes six or seven hours. We feed her alfalfa and oat hay and plenty of water. Some times she will go and lie on the manure pile instead of on the ground when it is cold—Subscriber.

This is a usual trouble with home butter making during the early winter season. To understand it perfectly we must go back to fundamental principles of butter making and look a little into the behavior of butterfat under certain conditions. When the cow is fresh the butter fat globules are usually larger than after she has been milked several months. They are also somewhat softer. Both larger size and softness render churning easier than if the globules are either small or hard and much easier than when they are both small and hard. The process of churning consists merely in so agitating the cream that the globules of fat will pass by each other frequently. As they pass by they cling to each other providing they are soft enough to cling. When hundreds of them have stuck together we get a grain of butter. Thus it is easy to churn with a spoon when the cow is fresh and on green feed and the temperature is right.

In creamery practice the cream is in proper condition as to ripeness and temperature when the churning requires about one-half hour. The creamery has no trouble with churning because its cream comes from many cows in all stages of lactation and on all feed. But the one cow is on one kind of feed and in an advanced stage of lactation. The churning is difficult in this case probably because (1) the cow has been in milk long enough for her fat globules to become smaller and harder than when she was fresh, (2) her feed of alfalfa and oat hay tends to make the fat globules hard, and (3) the temperature is not high enough to offset 1 and 2. As the easiest remedy I would suggest warming the cream to 65 degrees about 24 hours before churning and keeping it at that temperature until and during churning. If this makes the cream too sour, warm to 60 degrees and keep it there until two hours before churning and then heat to 65 degrees and hold to churning. If neither of these plans help any warm a few degrees higher. A quick heating of the cream just before churning is not so efficient because the butter fat does not change temperature so readily as the milk serum in which it is suspended.

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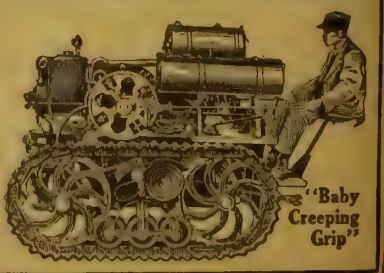

Thus the thermometer might say 65 degrees while if one could get the actual temperature of the fat it might be only 62 degrees. So let the warming be a longer time before churning in the way suggested above. If 24 hours seems too long in practice for good results drop to 12 hours before churning to begin the warming. It is better not to put in any fresh cream less than 12 hours before churning for it will not be sufficiently ripened to mingle well with the older cream.

A change in feed may help the condition. Linseed oil cake meal tends to make a soft butter fat. It is, however, expensive, being quoted in Los Angeles at $2.20 per 100 pounds. It should not be fed in quantities of more than two pounds per day because of its loosening effect upon the cow. One pound per day might help the butter and would be enough to begin with. If any green feed is now available that would undoubtedly help much.—L. A.

Date Palms Unhealthy

Our date palms have a pale green, sickly hue. What should I do for them?—Subscriber, Orange.

The inquirer does not give enough particulars regarding these palms. This trouble may be the effect of scale, or because of excess or lack of moisture. If they are in pots they may be root bound. If they are in the open ground would suggest thorough spraying, if needed, working up the soil and carefully investigating as to moisture conditions.

Grafting

Can deciduous trees be successfully grafted just after being set out?—Subscriber, Escondido.

This would be an easy matter, especially with apples. Stone fruits are somewhat harder to handle, but if one understands grafting there is no reason why they should not be grafted at that time or even while out of the ground and ready for setting out.

Fungus on Rose Leaves

Am sending leaves infected with some disease or blight. What is it and what will cure it? For more than a year the buds have been blighted almost as soon as they began to show any color. The leaves of the bush have become mouldy and blistered in spots. Ultimately they blister and drop off.—Subscriber, Chino.

These leaves were seriously infected with the ordinary mildew and, in addition, a rust closely resembling the ordinary "orange rust" of the blackberry. The leaves were referred to Professor Fawcett and he replies that we were correct in assuming that the trouble was the ordinary mildew and rust. He recommends, "A spraying with Bordeaux might help to control both the rust and mildew. Sulphur is supposed to be as good as anything for the mildew." We would suggest that if the bushes are near a building or painted surface care should be used in spraying, for some kinds of paint are badly spotted wherever the spray touches them.

Killing Morning Glory

I have noted your reference to killing morning glory and as I have had some experience I give a hint as to my method of handling. It grew so thick on my place that no weed cutter I could secure would go through it without clogging. I have killed it out on ten acres of orchard by spreading two or three inches deep with almond hulls, applied in the fall. The following summer I cut what little comes through two or three times with the weed cutter.—W. H. Adams, Acampo.

We presume but few will be able to secure hulls as did Mr. Adams, but with such a serious pest the use of stable manure, straw or other similar material may be equally as successful. Other suggestions are apple pumace and olive pumace. The Cultivator some years ago referred to the fact that control had been secured in some cases by the use of cheaper grades of building paper or other heavy material, covering the edges or where the paper lapped with a few shovels of dirt, but this is expensive and of no value to the ground except to shut away the air and light from the pest. Any of these treatments or that of growing millet recommended by a sub-

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scriber some time since are to be preferred to poisoning the soil with salt or other chemical.

Belgian Hares

Some of my Belgian hares are unable to move their hind legs. Eat and drink but get poor and die. Feed alfalfa meal and bran mash once a day. Give oat hay and crushed barley or cracked corn at other times and potato peelings, washed clean; sometimes malva weeds or vegetable tops. Have lost several fine does in past few months.—Subscriber, Moorpark.

This trouble is probably due to the feeding or may be dysentery. Would advise you to keep in clean dry quarters away from all dampness, and give twice daily a teaspoon of the following mixture. To one teaspoon of warm water add three drops of oil of peppermint and one drop of ether. Feed dry oats, dry bread or clover hay, a very little warm water and no green food whatever.—R. V. M.

Tankage for Hogs

What is tankage composed of? How is it fed to hogs in conjunction with rolled barley?—Subscriber, Delano.

Tankage is the refuse from packing houses and an average analysis shows it to contain about seven per cent of water, 15.9 per cent ash, 53.9 per cent crude protein, 5.6 per cent nitrogen free extract, 11.8 per cent fat. Henry, in Feeds and Feeding, states that pigs fed at the Nebraska station on tankage were larger and more economically fed than those fed on stock corn only. Not over nine or ten per cent of the ration should be of tankage, and five per cent is said to be sufficient where pigs are on alfalfa.

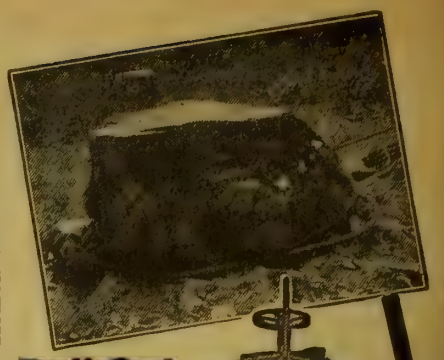
Liver Trouble

What is the matter with a hen whose comb turns a dark purple? It remains so for a few days and then gets better. It seems to be almost the entire head at times. Hen eats and seems well as any fowl.

A dark comb always suggests liver trouble of some sort, just what particular disease, it is impossible to say without a post mortem. Overfeeding and lack of exercise are the most common causes of all liver troubles, and the first step toward a cure consists in removing the cause. Make the mash light and bulky by adding more bran and alfalfa meal and reducing the corn meal and animal meals. Give all the green feed the bird will eat and make her scratch for her grain. If you can turn her out on green range for a time, so much the better. It would be a good plan to give the whole flock a few doses of epsom salts, about half a teaspoon for each bird, mixed in the moist mash, and give every other day till three doses have been given. Fresh dandelion leaves are excellent for liver trouble, and they will soon be ready to hand in many localities, if they are not already. If the leaves are not to be had you can get at almost any drug store a liquid extract of dandelion which will take their place. Mix a drop or two for each bird in the wet mash. A dose of this once a week all around for a few weeks may prevent further trouble in the flock, but remember, exercise and green feed are nature's two great remedies for a sluggish or congested liver.—J. A. K.

Oregon Grape

An Oregon subscriber has written asking regarding medicinal value of Oregon grape and as to whether there is a market for it. This question was referred to Mr. Carl Purdy and he answers: "The Oregon Grape (Berberis Aquifolium) has been used for medicine, but the demand for anything of that sort is never large and the large drug companies who are the only buyers always manage to secure it so cheaply that there is little or nothing in it for the average person. Years ago I looked up all of these matters but never found that there was anything in it for me. If your subscriber, however, is not satisfied with this he might possibly get in communication with the Parke-Davis Company, Detroit.



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The Household Department

A LUCKLESS VALENTINE

I long had loved a winsome maid,
But when my timid tongue essayed,
Without avail, to tell the tale,
I then resolved, though lips might fail,
That pen should speak—and so I wrote
My lady an impassioned note.

In every phrase to lovers sweet,
I laid my homage at her feet;
Extolled her face and form—in fine,
I humbly begged that she'd be mine.
Then wreathed it round with bloom
and vine,
And signed it thus: "Thy Valentine."

That eve we met—I'll ne'er forget—
Its pain pervades my being yet.
Her cheeks were flushed, her eyes
were bright
With young affection's tender light.
"Dear Jack," said she, "you ought to
see
The valentine that came to me.

"'Twas twined in roses all ablow,
And arrows sped from Cupid's bow;
And in the midst a rhythmic line
That breathed such burning love
divine
It made my heart with rapture thrill—
I knew at once that 'twas from Will."

"To you, dear Jack, I may confess,"
She said, unheeding my distress,
"That love is blind, or Will would see
I'm quite as much in love as he;
But he is such a bashful beau
I wish you'd kindly tell him so."

Moral—
When next I pen a lovelorn line,
I'll sign it "Jack," not "Valentine."
—Harriet Bunker Austin, in National Magazine.

FEBRUARY'S HOLIDAYS

Pray, Madam Fate,
Elucidate
Why you're so very chary
Of holidays
To other months,
And favor February?

There's Valentine
His day so fine,
And truthful George's fete day;
And honest Abe,
Whose natal time
Is for the land a great day.

"What! need I state,"
Said Madam Fate,
"Are you so very stupid?
Do you not see
It took those two
To counterbalance Cupid?

"Who full of wile
Did so beguile
Poor Valentine the sainted.
That lover's tricks
And perquisites
His honored rights have tainted.

"So honest Abe
(That wretched babe,
Dan Cupid roared with laughter);
I put before,
And truthful George,
Who couldn't lie, comes after."
—Woman's Home Companion.

THEIR VALENTINES

"Tomorrow'll be Valentine's day," began Lilly.

"And we're going to send lots of valentines," said Jenny.

"Lots of balentines," echoed wee Mabel, who had followed them to grandma's room.

"I wish I could see Miss Maberly's face when she gets hers," said Lilly, "and I guess May Evans won't feel like telling tales in a hurry."

Grandma looked puzzled. "I thought valentines were supposed to make people happier," she said.

"Not this kind," answered Jenny. "I guess," she added, "these are looking-glass valentines, 'cause they make you see yourself just as folks see you.

"You see," confidentially, "Mary Evans hears us say something about another girl, and then she runs to her and tells just what we have said, and it makes lots of trouble."

"It naturally would," replied grandma, soberly. "I know nothing could make more."

"You wouldn't like it yourself," said Jenny.

"I am sure I shouldn't," answered grandma. "I think," she added, meditatively, "I think, with such a girl round, I should say only nice things about the girls. Perhaps they wouldn't mind those."

"Of course we can't always do that," said Jenny, although her cheeks grew a trifle redder.

"Yes," interrupted Lilly, "and we're going to send Miss Maberly the picture of a cross old lady."

"Shall I tell you a story?" asked grandma.

"Oh, do, do!" they cried.

"I will tell you a story of Saint Valentine's day. There are a great many reasons given for the celebration of the day. It is said there was an old pagan custom of choosing brides on February 14th, but I like this story best. Long, long ago there was a bishop of Rome named Valentine, who went about doing good deeds, but because the people did not believe his preaching, they cast him into prison, where he finally died.

"When he was gone, the poor people whom he had all his life been trying to help were very sad. They had no one to help them now, no one to give them food and clothes, and to care for them when they were ill. And because they felt so badly about the bishop, they began to help each other, and if a man gave his poor neighbor a coat, he would say, 'I do this for Valentine's sake.' If he gave him food he would say, 'I feed you because when I was hungry Valentine gave bread to me.'

"They thought so much about him and told over so many of his good deeds that at last they began to think he was something more than a mortal man, and must be a saint; and since February 14th was his birthday, they called that Saint Valentine's day, and sent presents to their friends to keep the good bishop in remembrance."

The girls drew a long breath. "I didn't think Valentine's day meant that," said Jenny, soberly. "I don't believe May is coming," she added, "and I'm glad of it, for I shan't send those Valentines.

"Nor I," echoed Lilly.

"Suppose you spend the evening with me," said grandma, "and we'll see if we can't help along the good saint's work."

All the evening, while mother and grandma looked on approvingly, the girls worked industriously, cutting from cardboard little heartshaped boxes, which, after being folded, pasted and covered with crape paper, were left upon the table, that grandma—as she suggested—might add a few finishing touches.

If she and mother worked until far into the night, they were well repaid by the rapturous "ohs!" that greeted the pretty pink and lavender boxes, gay with clusters of pansies and forget-me-nots which had been painted upon them, while in gold upon each box were the words

A Valentine for You.
Sweets to the Sweet.

The "ohs!" were louder than ever when, upon lifting the covers, every box was found to be full of cream walnuts, dates and chocolates—a sweet valentine indeed!

The girls all declared there were tears in Miss Maberly's eyes when she found the surprise box upon her desk.

"It has been such a happy day!" said Lilly, as she and Jenny sat upon the sofa in grandma's room that evening. "The girls were all as nice as could be, and even Miss Maberly hasn't been the least little bit cross."

"Perhaps Miss Maberly's girls have done better than usual," said grandma, smiling.—Exchange.

Two level tablespoonfuls Ghirardelli's Ground Chocolate; one-third cup sago; one cupful water; one piece stick cinnamon one-half cup chopped citron; one-half cup chopped almonds; one-half cupful sugar. Soak sago over night and drain next morning; put in a double boiler with water and boil until thick; add cinnamon and citron and cook thirty minutes; remove cinnamon and add almonds, sugar and chocolate. Remove from fire as soon as sugar is dissolved and set away to cool. Serve with cream flavored.

Topsy Turvy Dainty

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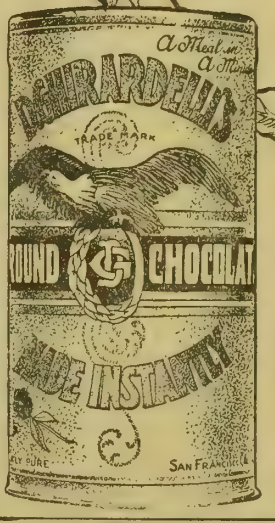

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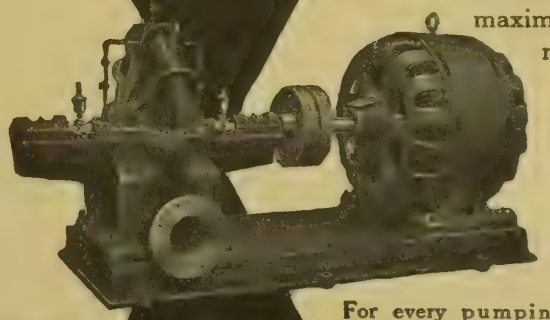

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VALENTINE DAY MENU

Written for the California Cultivator By Isabel Cottle

Breakfast

Grape Fruit with Maple Syrup
Cheese Omelet Creamed Potatoes
Dutch Apple Cake Coffee

Lunch or Supper

Creamed Veal with Noodles
Baking Powder Biscuit
Spiced Cranberries
Red and White Salad Olives
Heart Cookies Tea

Dinner

Clear Broth
Beef Loaf, Browned Riced Potatoes
Baked Brussels Sprouts
Apricot Pickles Rolls
Cherry Ice Moulded in Hearts
Valentine Cake Coffee

Dutch Apple Cake

Two cups flour, one-half teaspoon salt, two teaspoons baking powder, one-fourth cup butter, one egg, one cup milk (scant), two teaspoons sugar, four sour apples. Sift dry ingredients together and work in shortening, gradually adding egg and milk. Spread one-inch thick in pan, slice apples over top and sprinkle with sugar and cinnamon. Bake 30 minutes.

Noodles

One egg, one-half teaspoon salt, flour. Beat egg slightly, add salt and flour enough to make very stiff dough. Toss on floured board, knead and roll as thin as possible. Roll up and slice thinly. Allow to dry and toss apart. Cook in boiling water, salted, 20 minutes. Remove to colander. Pour cold water over them and drain well. Arrange alternate layers of chopped veal and noodles, seasoning each layer with salt and paprika and butter, having noodles on top. Moisten slightly with stock or milk. Do not use too much liquid at first but add more if necessary. Bake 20 to 30 minutes in moderate oven.

Red and White Salad

Cut from slices of cold boiled blood-red beets and from potatoes many small, red and white hearts; lay these on a bed of lettuce. Serve with mayonnaise.

Valentine Cake

A cup butter, two cups sugar, one cup milk, seven eggs, whites only, one cup cornstarch, two cups flour, one-half teaspoon soda, one teaspoon cream of tartar. Cream butter and sugar together, add the milk alternately with the dry ingredients sifted together. Flavor to taste. Fold in the whites of the eggs beaten to a stiff froth. Bake in moderate oven. Cut in squares, ice with white icing and decorate with red candy hearts.

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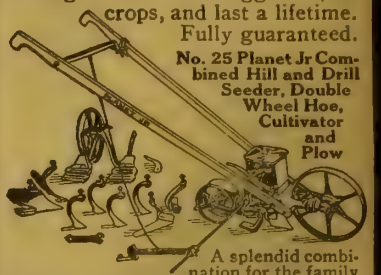

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USEFUL ARTS AND CRAFTS FOR BOYS AND GIRLS

Mothers and teachers who wish to keep the young people cheerfully busy in useful tasks about the home or farm may be interested in a project of the United States department of agriculture for organizing farm and home handicraft clubs. Some of the arts and crafts in which the department's specialist in charge of club work for the Northern and Western states hopes to interest his boys and girls are as follows:

Rope tying and splicing.
Making seed testers (box, blotter, and rag-doll testers).
Making a hen coop and brooder.
Fruit tree grafting and tree surgery.
Making a fly trap.
Making wood box for kitchen or sitting room.
Making a bird house and watering trough.
Making a hot bed or cold frame.
Making a step ladder or handy ladder for farm and home.
Making one dozen vegetable market crates.
Sharpening saw, pair of scissors.
Making a medicine cabinet.
Making and laying a cement walk or floor.
Making a bookcase or library file.
First aid to farm implements.
(a) Repair whipple trees.
(b) Pair of shares.
(c) Fork handle.
(d) Repair gate.
Drawing plan of 80-acre farmstead.
Forging—two kinds, practical, related to farm work.
Welding—two kinds, practical, related to farm work.
Horseshoe making.
First aid to household furniture:
(a) Chair.
(b) Table.
(c) Picture frame.
(d) Door lock or hinge.
Pressing and cleaning a suit of clothes.
Papering a room.
Painting, staining or treating floor.
Making a farm dooryard gate.
Making a home-made fireless cooker, one of two methods.
Making a home canner, one of two methods.
Making a kitchen shelf or kitchen work chair for mother.
Get out a set of plans and specifications for model farm home.
Show how to give first aid to school furniture and equipment; such as the repair of a seat, window, fence, broken gate, blackboard, steps and sidewalk.
Show how to repair the cover or broken back of a book.
Art metal work for household.
Modeling in clay and plaster.
Leather work; repair of leather goods or art work.
Fabric dyeing and printing.
Pottery for use in the home.
Basketry for use in gathering and marketing vegetables and fruit.
Making a milk stool.
Home-made fruit juice and cider mill.
Hall hat and coat rack.

These are mere suggestions which have been sent out to different state and district leaders in the Northern and Western states. It is hoped this list will enable them to encourage lines of work that have an economic value in the farm and home management of any community.

The new clubs it is expected will be merely the agricultural clubs already organized among the young people and the new lines of industrial work will be taken up at times and seasons when corn, pigs, chickens, and vegetables do not need the special attention of the boys and girls. Under the new plan each club member will probably select about ten of the suggested tasks and do each of them during convenient moments. The results of the work of all the members of one club will be exhibited at the end of a year's time in a place where the rest of the community may see what has been attempted and pass a judgment on its value.

Any mother or teacher who would care to interest her children in any of the arts and crafts outlined above may write for further details to Office in Charge of Club Work for the Northern and Western States, United States Department of Agriculture, Washington, D. C.

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See Announcement at Head of Editorial Page

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, Feb. 10, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade 4 cents above following quotations:
Creamery Extras 27
Firsts 25
Country 22
Ladle 21

CHEESE

Prices to trade, 1 and 2 cents higher:
California Fresh .....15@15½
Cheddar .....20@21
Domestic Swiss .....20@21
Eastern Daisy .....18½@19
Longhorn .....19@19½
Imported Swiss .....36@38

EGGS AND POULTRY

Prices to trade, 3 cents higher than following quotations:
Fresh Ranch, case counts 26½
Candled .....28⅓@30½
Northern case counts 24
Petaluma-Santa Rosa 25

Prices to producers:
Hens ,lb. .....14@16
Roosters, old .....8@9
Broilers, lb. 26
Fryers 22
Roasters, lb. 17
Turkeys .....17@21
Ducks 19
Geese 16
Squabs, doz. 2.00

LIVE STOCK

The following quotations are f. o. b. Los Angeles on all stock:
Hogs, 175 to 200 lbs., per cwt 7.40
Prime Steers .....7¼@7½
Heifers .....6¼@6½
Calves, lb. .....8½@9
Sheep—
Ewes, head 4.50
Wethers .....4.50@5.00
Lambs, head .....4.50@4.75

POTATOES

Wholesale selling price:
Idaho .....1.40@1.45
Early Rose Seed .....1.90@2.00
White Rose Seed .....1.50@1.60
Sweets, lug .....75@80
New Potatoes, lb. .....5@7
Northern Burbanks, cwt .....1.45@1.50
Salinas .....1.90@2.00
Shimas .....1.55@1.60
Lompocs .....1.90@2.00

ONIONS

Australian Brown, cwt. .....1.25@1.45
White Globe .....4.50@4.75
Yellow Danvers .....1.25@1.45
Sets—
Yellow 9
White 10
Garlic .....20@25

VEGETABLES

Wholesale selling price:
Artichokes, Northern, doz. .....75@1.00
Beets, doz. .....30@35
Beans, String .....17@19
Cabbage .....75@85
Carrots, doz. .....30@35
Cauliflower, doz .....75@85
Celery, crate, northern .....3.25@3.50
Local .....2.25@2.50
Cucumbers, hothouse .....75@2.00
Egg Plant .....14@15
Escarole, doz. 40
Horseradish, lb. .....9@11
Leeks, doz. .....35@40
Lettuce, crate .....75@80
Mint, doz. .....35@40
Mushrooms, Outdoors, lb. 25
Onions, Green, doz. bunches .....15@20
Oyster Plant .....35@40
Peas, lb. .....16@18
Parsnips, doz. .....30@35
Peppers—
Bell, lb. .....18@20
Chili, lb. .....8@10
Pumpkins, lb. .....1@1½
Rhubarb, box .....80@1.00
Spinach, doz. .....20@25
Squash—
Summer, lug .....1.25@1.40
Crookneck .....50@60
Hubbard, lb. .....1¼@1½
Turnips .....30@35
Tomatoes, lug .....1.65@1.75
Florida, crate 2.50

FRESH FRUIT

Wholesale selling price:
Apples—
Bellflowers .....75@1.00
Rome Beauties .....1.25@1.75
Pearmains .....85@1.10
Spitzenbergs .....1.35@1.75
Pippins .....90@1.00
Avocados, doz. .....4@8
Bananas .....3@3½
Berries—
Strawberries, basket .....6@10
Cranberries, bbl. .....8.75@9.00
Grapes, lug .....1.25@1.35
Guavas, basket .....4@6
Pears, Winter Nelis, lug 1.50
Persimmons, lb. .....5@8
Pineapples, lb. .....4½@5½
Pomegranates, box .....1.35@1.60
Quinces .....65@75

CITRUS FRUIT

Wholesale selling price:
Lemons .....1.00@2.00
Grapefruit, Seedless .....2.00@2.25
Navels .....1.75@2.00
Tangerines .....1.50@1.75
Limes, basket .....1.00@1.25

DRIED FRUITS

Wholesale prices to retailers are:
Evaporated Apples, Fancy, lb.
boxes .....6¼@8
Apricots .....8¾@11½
Nectarines 12½
Peaches .....5¾@6¾
Pears .....10@11
Prunes .....5¾@16
Plums 10

HONEY

Wholesale selling price:
Comb, Fancy, Water White 14
White 12
Light Amber 11
Extr. Water White 7
White 6½
Light Amber 5½
Beeswax 32

NUTS

Prices named by California Walnut Growers' Association are:
No. 1 .....16½
Budded Walnuts 20
Jumbos 19
No. 2 12
Culls 9
Prices fixed by California Almond Growers' Exchange, f. o. b. California.
Almonds—
Nonpareil 21
I X L 20
N P U 19
Drake's Thinshell 15
Pecans 17
Peanuts—
California, Raw 6
Japan 7½
Eastern 7½
Rice Corn .....5.00@5.25

RICE

Wholesale selling price:
California .....4.75@5.00
Broken .....3.75@4.00

BEANS

Wholesale selling price:
Producer's price not far from one dollar under these quotations:
Limas .....6.35@6.50
Bayous 7.00
Lady Washington .....6.00@6.10
Pinks .....5.65@5.75
Black Eyes .....6.00@6.25
Lentils .....10.00@12.00
Navy .....5.25@5.35
Small White 6.00
Garbanzos .....7.00@7.25

HAY

Buying prices f. o. b. cars Los Angeles:
Barley, Hulled 2.25
Wheat Hay .....10.00@11.00
Tame Oat .....11.00@13.00
Alfalfa .....9.00@11.00

GRAIN

Wholesale selling prices f. o. b. Los Angeles:
Corn, Yellow 2.20
Corn, White 2.30
Wheat .....2.85@2.90
California Red Oats 2.10
Cal. Seed Oats 2.10
Texas Seed Oats 2.50
Oats, White 2.20
Oats, Hulled 2.85
Millet 3.75
Popcorn .....4.75@5.00
Egyptian Corn 2.30
Barley Seed 1.95
Barley, Hulled 2.10
Milo Maize 2.10
Rye 2.40
Sunflower Seed 7.00

FEED STUFF

Wholesale selling prices f. o. b. Los Angeles:
Bran, Heavy 1.95
Alfalfa Meal 1.20
Alfalfa Molasses, per cwt. 1.25
Beef Scraps 3.00
Beet Pulp 1.25
Cracked Corn, cwt. 2.25
Cracked Wheat, cwt 3.00
Cotton Seed Meal 1.80
Bloodmeal 3.45
Bone Meal 1.95
Meat Meal 3.00
Bone, Green 1.85
Charcoal 2.00
Oil Cake Meal 2.35
Fish Meal .....3.15@3.25
Rolled Oats 2.25
Rolled Barley 1.90
Barley Hulled 2.25
Middlings 2.25
Feed Meal 2.30
Scratch Feed 2.50

San Francisco Market

SAN FRANCISCO, Feb. 9, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade, 4 cents above following quotations:
Extras 27½
Prime Firsts 25
Firsts 24
Seconds 22

CHEESE

Wholesaler to retailer.
Oregon Y. Am 16
Young America .....12½@14
California Flats .....10@13½
Cheddar 20
Oregon Twins 14

EGGS AND POULTRY

Prices to trade 3 cents higher than following quotations:
Extras 23½
Select Pullets 21

Price to producer:
Hens, lb. .....16@19
Fryers .....22@23
Roosters, old 12
Roosters, young .....18@20
Broilers .....25@26
Squabs .....3.00@3.50
Belgian Hares, lb. .....8@10
Belgian Hares, lb. .....9@10
Turkeys, Dressed .....20@22

LIVE STOCK

San Francisco prices, gross weight:
Steers .....4@7¼
Cows and Heifers .....3@6¼
Calves, lb., live weight .....6@9½
Hogs .....5@7¼
Hogs .....5@7½
Wethers .....6½@6¾
Ewes .....5¼@5¾
Yearling Lambs .....7½@7¾

POTATOES

Wholesale selling price:
Delta Burbanks .....90@1.20
Salinas Burbanks .....2.00@2.10
Oregons .....1.60@1.70
Washington .....1.25@1.40
Sweets, cwt. .....1.50@1.70

ONIONS

Wholesale selling price:
Yellow, cwt. .....90@1.00
Garlic, new .....17½@20

VEGETABLES

Wholesale selling price:
Brussels Sprouts, lb. .....2½@3
Cabbage, crate .....1.00@1.25
Carrots, sack .....30@40
Celery—Delta .....1.50@2.00
Cucumbers, lug .....75@2.00
Egg Plant, lb. .....5@7
Lettuce—
Sacramento .....1.25@1.50
Southern .....75@1.00
Peas, lb. .....15@20
Peppers—
Bell, lb. Small .....7@10
Bell, lb. Large .....15@20
Chili, lb. .....5@7
Rhubarb, box .....90@1.75
Squash, sack .....25@35
Tomatoes, crate, Los Angeles 1.00@1.25
Imperial Valley .....1.50@2.00

FRESH FRUIT

Apples—
Newton Pippins .....50@1.10
White Winter Pearmains .....50@75
Bellflowers .....50@75
Bananas, Hawaiian, bunch .....75@1.50
Pineapples, doz. .....1.00@2.25
Persimmons .....50@1.00
Quinces, box .....25@40

CITRUS FRUIT

Wholesale selling price:
Grapefruit, Seedless, new crop .....1.50@3.50
Lemons .....1.50@2.50
Lemonettes .....1.00@1.50
Navels .....1.25@2.00
Tangerines, halves .....75@1.75

DRIED FRUITS

Wholesale prices are:
PRUNES—1914 crop, bulk basis: 30-40s, 7c; 40-90s, 6½c; 90-100s, 6c. The above are for both Santa Clara prunes and stock from outside sections.

Other Fruits. 50-lb. boxes—	Standard	Choice	Extra Choice	Fncy
Ev'pt'd Apples.	....	5½c	5¾c	6 c
Peaches	4 c	4¾c	4½c	5¾c
Apricots	9 c	9½c	10 c	11 c
Pears	4 c	8 c	9 c	10 c

RAISINS

RAISINS—The following prices are f. o. b. Fresno, as given out by the Associated Raisin Company, for immediate shipment, and are guaranteed against a decline till April 1st: Fancy seeded, 16-oz., 7¼c; 12-oz., 5⅞c; bulks, 6c; choice seeded, 16-oz., 6⅞c; 12-oz., 5⅝c; bulk, 5½c; Thompson seedless, No. 1, 16-oz. pkgs., 7⅝c; 12-oz., 6¼c; 50-lb. cs., 6½c; loose, Muscatels, 1-crown, 5½c; 2-crown, 5½c; 3-crown, 5⅞c; 4-crown, 6c; Sultanas, 50-lb. cs., 5¾c; bulk, layers, 50-lb. bxs., $2.75; in 20-lb. bxs., 6-crown, $2.75; 5-crown, $2.25; 4-crown, $160; 3-crown, 5-lb. bxs., $1.50; on all bulk stock, 50c additional. Cartons—Clusters, 20 to cs., No. 1, $1.70; No. 2, $2.10; No. 5, 4 to cs., $2.25. Local representatives of the association are asking about ¼c higher, while several of the largest independent packers are quoting ½c under these figures.

NUTS

ALMONDS — Prices fixed by Almond Growers' Exchange to the trade, f. o. b. California:
Nonpareil 21
I X L 20
Ne Plus Ultra 19
Drakes 16
Wholesale selling price:
Peanuts—
Unpolished .....5@8
Polished .....6@6½
Shelled, Jap .....6¼@6¾
Italian Chestnuts .....6½@7

BEANS

Wholesale selling price:
Limas 5.90
Lady Washington .....3.60@3.75
Pink .....4.75@4.90
Black Eyes .....5.75@6.00
Cranberry .....5.00@5.25
Small White .....5.00@5.70
Garbanzos .....6.25@6.50
Large White .....5.30@5.40
Bayou .....5.50@5.70
Manchurian Speckled Bayous .....4.00@4.50
Manchurian Butters .....4.50@4.75
Manchurian Cranberry .....4.15@4.25
Red Mexican .....5.60@5.70
Red Kidney .....6.00@6.25
Horse Beans .....4.00@4.50
Bayou .....3.50@3.70

HAY

Oat .....9.00@10.50
No. 2 Wheat or Wheat and Oat .....6.00@8.50
Choice Tame Oat .....10.50@11.50
Other Tame Oat .....6.00@9.00
Barley .....5.00@8.00
Wild Oat .....6.00@8.00
Alfalfa .....6.00@9.00
Stock Hay .....4.50@5.00
Straw, per bale .....30@45

GRAIN

Wholesale prices.
Alfalfa Seed .....14@16
Wheat, Cal. Club .....2.40@2.45
Corn, Eastern Yellow, blk. .....1.78¾@1.80
Corn, Egyptian White .....1.85@1.90
Barley, Feed .....1.55@1.57½
Shipping and Brewing .....1.26¾@1.27½
Wheat, Cal. Club .....2.45@2.50
Bran, ton .....33.00@34.00
Rolled Barley, ton .....32.50@33.00
Oats, White, Feed .....1.90@1.95
Oats, Red, Feed .....1.62½@1.70
Cal Seed Oats 2.10
Millet .....3@3¼
Flax .....6@6½
Rye .....2.10@2.15
Sunflower .....5@5½

FEED STUFF

Wholesale prices.
Alfalfa Meal, car lots .....16.00@16.50
Bran, ton .....32.00@34.00
Feed Cornmeal, ton .....40.00@41.00
Cracked Corn .....40.00@41.00
Rolled Barley, ton .....33.00@34.00
Rolled Oats, ton .....37.00@37.50
Middlings .....34.00@36.00
Shorts .....34.00@35.00
Oilcake Meal .....38.00@39.50
Cocoanut Oilcake Meal .....24.00@25.00

WEATHER CONDITIONS

For Week Ending February 6, 1915

Report from the various stations of the United States Weather Bureau, by George H. Wilson, director, San Francisco.

	Rainfall Data			Temperature Data	
	Past Week	Seasonal to Date	Normal to Date	Maximum	Minimum
Eureka	5.54	29.57	26.20	62	48
Red Bluff	3.72	19.48	14.73	56	38
Sacramento	.98	8.94	11.48	58	44
San Francisco	3.01	15.15	13.38	62	46
San Jose	2.70	12.30	9.57	64	42
Fresno	.64	5.43	5.49	62	40
Independence	.08	2.33	5.37	52	22
San Luis Obispo	2.00	14.13	11.52	66	40
Los Angeles	1.02	10.60	8.79	72	40
San Diego	1.32	10.26	5.67	74	46

T—Means trace.

Citrus Fruit Market

LOS ANGELES, Feb. 10, 1915.

There is no material change in the orange market, though it is possible a little firmer condition prevails and the fruit frozen in transit has been largely cleaned up. The outlook for improvement is good.

There is no change in lemons. Large numbers of foreigns are still coming.

Shipments.

Shipments of oranges to date from Southern California since November 1, 1914, 4625 cars; lemons, 881; total, 5506. To same date last season, oranges, 5487; lemons, 414; total, 5901. From Tulare County this season, oranges, 5057; lemons, 131; total, 5188. Last season oranges, 4275; lemons, 25; total, 4300. From Northern counties oranges, 564; lemons, 1; total, 565. Last season, oranges, 388.

CALIFORNIA CURED FRUIT EXCHANGE BULLETIN

Usually in January the dried fruit business is inactive, but during the month

Hamilton Orchard Heater Company

Special Bargains in Heaters

We offer at bargain stock at warehouse, Los Angeles, to stop storage charges, for immediate sale and subject to prior sale:

	Each
26 gauge 3-gal. Reservoir	25c
26 gauge 4-gal. Hylo Oblong	50c
26 gauge 8-gal. Hylo Square	65c
26 gauge 4-gal. Hylo Oblong	35c
29 gauge No. 2 Competition	15c

Hamilton Orchard Heater Co

C. D. FILSTEAD, Sales Agent
532 Consolidated Realty Bldg.
Los Angeles, Cal.

200,000 FEET CHEAP

WATER PIPE

Just received several carloads of new and 2nd hand water pipe, Oil Well and Water Casing. In ½, ¾, 1, 1¼, 1½, 2, 3 inch and many other sizes. O. D. Casing 2, 3, 3½, 4 in. Riveted and surface irrigation pipe. Big Stock. Prompt shipments. Lowest price. Write, phone or wire.

ADAMS PIPE WORKS
2030 Bay St., Los Angeles
Phones Bdwy. 1264 — F1917
(Under entirely new mngmt.)

STEAM PRESSURE CANNING OUTFITS

Can your Fruits, Vegetables, Corn, Meats, Fish, etc., for home use and for sale at a big profit. Outfit more than pays for itself the first year. 11 different sizes. Book of Canning Recipes free with outfit. Tells how to can everything. Write for Catalogue B.

Built by

Henninger & Ayes Mfg. Co.

47 First Street PORTLAND ORE.

PLANT BERRIES

Alfred Mitting has had 47 years experience with berries from all over the world. His new berry, Macatawa, is the wonder, to all that see it in fruit. It is 3½ inches one way by 3¼ inches the other way. Send a postal card today for his 1915 catalogue with colored plate, including the cream of all berries from a commercial standpoint or for home requirements.

ALFRED MITTING
8 New Street, SANTA CRUZ, CALIFORNIA

Bulbs

For fall and winter planting; also Flower Seeds for fall sowing. New Catalogue now ready, mailed free upon application

NOW IS THE TIME TO SOW

Payne's Royal Exhibition Pansy Seed, the best strain on the Pacific Coast, Giant Perfection Stocks and Payne's Christmas Flowering Sweet Peas, all described in the above mentioned Catalogue.

THEODORE PAYNE
245 S. Main St. Los Angeles, Cal.

Martinez Nursery

Established in 1884

T. S. DUANE, Prop., Martinez, Cal.

All leading varieties of fruit and ornamental trees.

GRAPES, ORANGES and LEMONS.

One planter near Hanford, Kings County, will set this season 350 acres of prunes.

just past considerable business has been done. The general tendency is upward and nearly all kinds of fruit are being held pretty firm. Better conditions seem to prevail in the South, caused by cotton beginning to move into foreign markets. This we hope will improve the peach situation.

In the peach market, while it is being held firm and values more steady, there has not been much of an advance in prices, but we hope that in the near future we will see an advance.

Apricots are steady at advanced prices and we believe that this market will stiffen and that no lower prices on this variety will be seen this season.

On account of there being no great quantity of pears left the price has slightly advanced, but at the same time the price is dependent a good deal on the quality.

Prunes are stronger and higher and business in this line generally good and there is promise of still further advances. While the prices are being held stiff on this article there are not many sales being made.

While there are some raisins being sold right along, the demand is not very strong on account of the time of year for the heavy demand being past.

Stocks of fruit in eastern jobbers' hands are not large so there should soon be a much better demand for all kinds.

The steamship companies have announced an advance in fruit rates of five cents per hundred, which makes the rate now 45 cents per hundred on dried fruit in boxes and 50 cents on dried fruit in sacks, and on dried fruit in a mixed car containing boxes and sacks, 50 cents per hundred.

There is a better feeling in business and financial circles than has prevailed for some time. This feeling is strengthened by the accumulation of idle capital looking for good investments. Although capital is somewhat timid still about taking hold, each day shows more confidence. Farmers will share in the general prosperity and the generous rainfall to date will permit a large acreage of land to be planted to grain.

Many of the European powers are placing immense orders for war material, food supplies, etc., with the large commercial concerns in the United States. This gives employment to many people and helps put money into circulation as cash is being generally paid for all this material.

Also, large quantities of wheat are being exported and more corn has been sent out of the country than ever before. For all these agricultural products the farmers of the Middle West have had cash.

The federal banks in some sections have reduced their interest rate to four per cent for short loans and five per cent for longer loans. This shows that the national banks of this country have a good supply of money on hand and do not have to borrow from the federal banks to any great extent. We will, on this coast, soon feel the effect of this, and provided something unforeseen does not happen, the year 1915 should be a prosperous one.

The Panama-Pacific Exposition will bring to California those who have never before been here and who will come in contact with the large resources of the West and see the possibilities of this state and who will invest money here, looking for better returns than they can get elsewhere.

The present season has not been a good one in many respects, conditions have confronted us which we have never had before, but we believe that before the beginning of another season things will have shaped themselves and conditions will prevail, the result of which will be an era of prosperity for this country.

POULTRY FOR PROFIT

(Continued from Page 181)

and they declared it to be an excellent and most fair statement of the opportunities in poultry products in California and most helpful in giving practical information as to poultry practice.

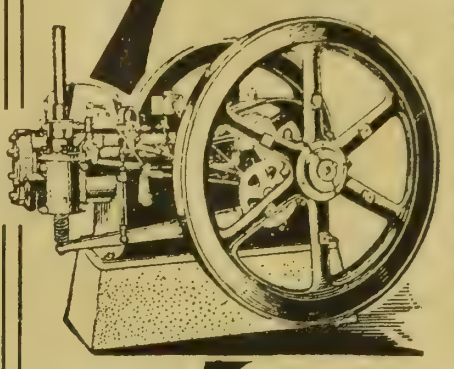
The book is now being mailed to those who have ordered it.

The wonder is that such a book can be produced for $1.00. There are 225 pages of reading matter, besides many plates and an index. The type is large and clear, the paper excellent, and it has one of the handsomest bindings of any book of its class we have seen. We trust our subscribers will pardon our enthusiasm, but it is all justified, for if there ever was a book published on the "money back" basis, this is it.

The circulation department of the Cultivator offers a suggestion on another page whereby this book may be secured for even less than one dollar. Meantime bear in mind the title of the book, which is the same as that of the poultry department in the Cultivator, Poultry for Profit, and if the instructions in the book are followed, it will prove true to name. Mrs. Koethen says in the opening sentences of the book; "This book is designed as a simple outline of the principles of poultry culture and a resume of the most up-to-date methods in use among practical poultrymen. There is no best method for any part of poultry work, but there are a few broad principles underlying all, which must be grasped by the learner who is seeking for best results."

STEADY AND QUIET ECONOMICAL OF FUEL

Western Gas Engines consuming special gas oil at 2⅝c per gallon, cost one third of a cent per H.P. per hour to operate.



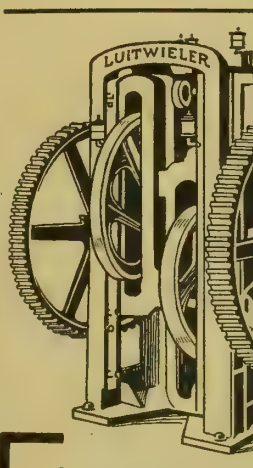
All our years of engine building experience are concentrated in the new model WESTERN GAS ENGINES. We have left out every unnecessary part. Wearing parts could not be made better. We have built long life and supreme satisfaction to engine users in every WESTERN GAS ENGINE we are turning out. Compare these engines point for point with any on the market, then decide for yourself. We build them every part alike and standardized, on the very finest automatic machinery, with the highest class of skilled labor, under the supervision of master mechanics. WESTERN GAS ENGINES are built in one of the finest equipped factories in the country by master engine builders. The many orders we are now receiving proves that the WESTERN GAS ENGINE is the ideally all-round, all-purpose engine for ranch work.

Before you buy an engine send for our catalogue—free to all who write for a copy.

WRITE FOR CATALOG

Western Gas Engine Corporation, 900 N. Main St. Los Angeles

WESTERN GAS ENGINES



Cause of Most Pump Troubles

Practically all pump troubles are caused by jar, vibration and crystallization. The absence of pumping troubles in

Luitwieler Pumps

goes to prove that they are perfectly designed. The cam (a distinctive feature), with self-adjusting, ever-changing radius, regulates the operation of the plungers, maintaining an absolutely even application. Positively no jar or vibration. No excessive friction. Less power needed. Highest efficiency. See exhibit when visiting San Diego Exposition. Send for Catalog 12.

Luitwieler Pumping Engine Co.

709 N. Main St. Los Angeles, Cal.

San Francisco Agents:
Simonds Machinery Co., 117 New Montgomery St.

PERFORATED TREE PROTECTORS

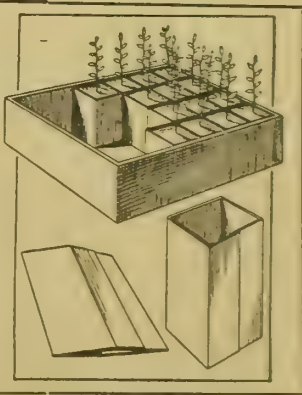
The only Perforated Protector made, practically a small lath house about each tree.

Prevents sunburn, rabbits, squirrels, barking by sand storms and cultivation.
Easy to put on and cheaper than gunny sacks.

COLLAPSIBLE PLANTING POTS

Why not raise your early
Tomato, cabbage, chili and egg plants
For home use or for market. Do you know that you can start
Cucumber, cantaloupes, melons
of all kinds in these pots in flats until they have three and four leaves then plant pot and all, have melons two to three weeks earlier for market.
Write for samples and prices of both Pots and Protectors. State which you are interested in.

THE EXPAN CO., 935 E. Central Ave., Redlands, Cal.



A. F. GEORGE CO.

265 So. Los Angeles St., Los Angeles, Cal.

— AGENTS FOR —

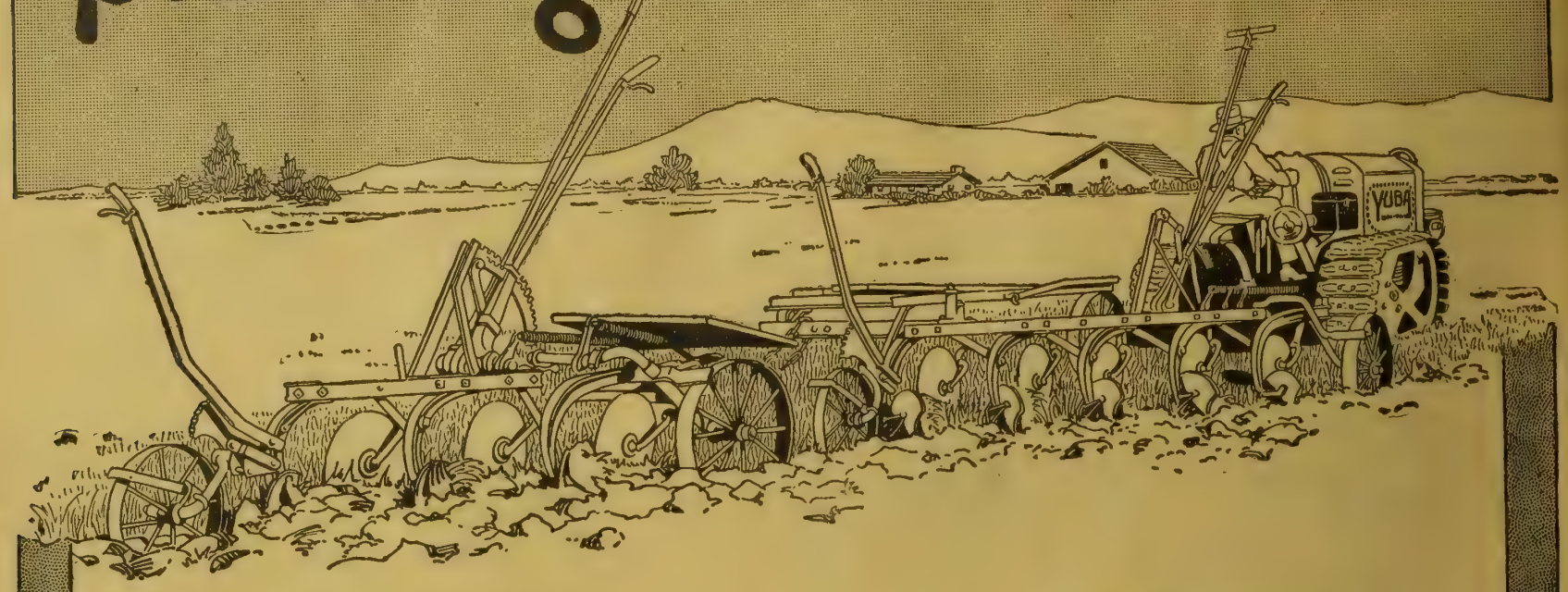
THE YUBA BALL TREAD TRACTOR

See Yuba Tractor Advertisement on Page 96

Giant Winter Rhubarb

NOW BEST TIME TO PLANT. Should return from $1,000 to $1,500 per acre first year. If interested in Rhubarb, Berries or Cactus, write J. B. Wagner, Specialist, Pasadena, Cal.

plowing with the Yuba



No matter how hard the soil may be—no matter whether it is a light, sandy loam or a heavy adobe—The Yuba Ball Tread Tractor takes the plows through, going deep, too.

Many times we are asked to guarantee that the tractor will pull a certain number of plows. This we always decline to do. Soil conditions and textures vary so greatly that it is impossible. We do guarantee the Model 12 or 18 to deliver, at the drawbar, the power of twelve or eighteen horses—real live animals with head down and shoulder straining against the collar.

THE YUBA BALL TREAD TRACTOR

The Yuba Ball Tread Tractor never has to stop to rest. In an emergency it can work twenty-four hours a day. If this is necessary it can be equipped with electric headlights front and rear.

In the end it will have been found to have accomplished the work of three or four times the number of horses it is rated to displace. It cuts the cost of plowing-power and labor.

Where a Yuba Ball Tread Tractor is used, there is a surprising addition to the year's profits.

There is a booklet describing its uses and construction fully.

THE YUBA CONSTRUCTION CO.

433 California Street, San Francisco

Dept. D13

Works, Marysville

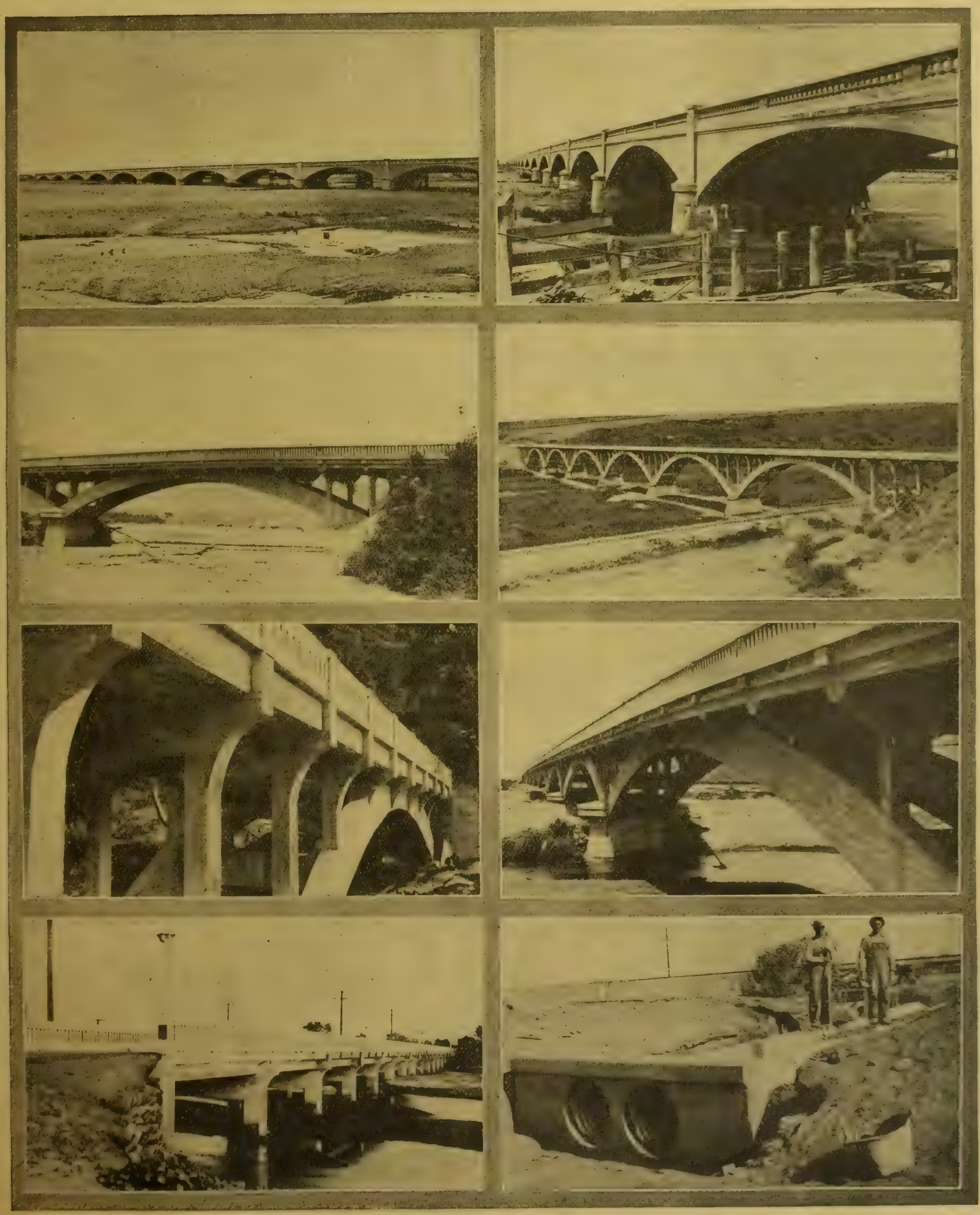
CA

CALIFORNIA CULTIVATOR

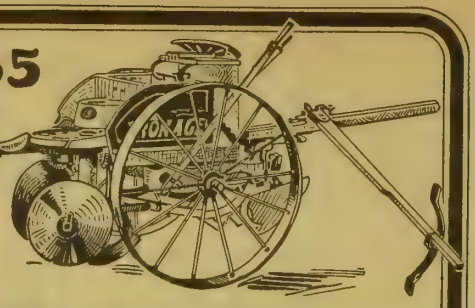
Rural Californian combined with California Cultivator

An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES February 18, 1915 SAN FRANCISCO



TYPE OF BRIDGES AND CULVERTS, CALIFORNIA STATE HIGHWAY



Save $5 to $50 Per Acre

Iron Age Potato Planters

Machine Speed and Hand Accuracy

The combination means many extra dollars in your pocket.

You know that it costs no more to work a perfect stand of potatoes than it does a poor one. Every missing hill means a loss. Every hill with two or more seed pieces means waste of seed and small potatoes.

The Iron Age plants one seed to the hill—no misses or doubles. Will save from $5 to $50 per acre and pay for itself in one season by increased yield.

We Want to Send you Proof

of the 100 per cent efficiency of these light weight, light draft, strong, compact machines. More than 25,000 users recommend them. Write for further information NOW.

Newell Mathews Co.

Established 1886

Los Angeles & Market Sts. Los Angeles

Does It Pay to Raise Apples ?

Go to the nearby store, get the prices of first-class apples—

"The Big Red Apple"

the kind grown in the Yucaipa Valley—and figure whether growing the king of fruits is a paying proposition. After doing so write the **Redlands & Yucaipa Land Co.** and get printed matter explaining fully the best apple, pear and peach land in California. Or come to Redlands and let us take you to Yucaipa and show what we have.

Yucaipa is 2400 to 3000 feet above the sea, eight miles from Redlands. Land is selling at $285 per acre, on easy terms, one share of water stock in a Mutual Water Company goes with each acre. This is the time of year to plant deciduous fruits.

Redlands & Yucaipa Land Co.

DIKE & LOGIE, General Sales Agents

209 Orange Street REDLANDS, CAL.

Let us Figure on Your
TREE and NURSERY STOCK WANTS
Specialties:

DECIDUOUS FRUIT TREES, GRAPE VINES, FIG TREES, SHADE TREES, PALMS. Large Catalogue Mailed free. Fine stock of GRAFTED WALNUTS also MISSION and MANZANILLO OLIVE TREES. Submit your list for quotations.

HONEST NURSERY STOCK FROM THE ROOTS UP

The FRESNO NURSERY CO. INC.

FRESNO, CALIF.

"Campbell" Gates Diamond Gates

ANDERSON FLUME GATE COMPANY

Redlands, Cal. **Phone Black 96**

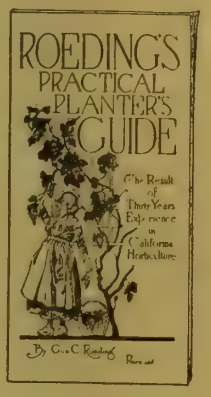
"Campbell" and Diamond Gates will reduce your cost of water and labor to a minimum. Our specially adjusted Gate for pressure system when used in capped stands requires no valves. Send for price list today. Sample Gate postpaid 10c.

WE have for this season's planting a splendid assortment of all the leading varieties of Oranges, Lemons, Pomelos, Limes, as well as olives and deciduous fruits generally. Our stock is all grown in the choicest spots of California under ideal soil and climatic conditions from buds of select strain—the kind that produces premium fruit. Write us for prices and suggestions.

Free Advisory Service

To every purchaser of our nursery stock we offer a special service to aid you in securing the best results from your orchard. In addition to the personal advice and mail service, we also offer every purchaser a free copy of our book, "Roeding's Practical Planter's Guide."

FREE A COPY OF THE MOST REMARKABLE BOOK EVER OFFERED TO THE PLANTER



This book is the result of 30 years' experience in California Horticulture and contains complete instructions for planting and pruning all kinds of stock. If you purchase trees from us the book is free—otherwise the price is 25c.

Let US Figure on Your Wants and We'll Give You a Copy Free

We have a limited supply of these books which we are going to offer to all those who send us a complete list of what they intend to plant this year, so that we can figure on your orders. Use the coupon at the bottom of this ad. Do it now.

Roeding & Wood Nursery Co. INC.

J. D. MERIWETHER, Manager

1607 E. Washington St. Los Angeles, Cal.

——USE THIS COUPON—— ——USE THIS COUPON——

Roeding & Wood Nursery Co.,
1607 E. Washington St., Los Angeles.

I am thinking of planting.....

.....

.....

Please quote your best prices and send me a free copy of "Roeding's Practical Planter's Guide."

Name.....

R.F.D. or Street.....

Town....., State.....

The Biggest Offer We Ever Made

6 New Macatawa Everbearing Blackberry Plants..$1.00
Cultivator Poultry Book, "Poultry for Profit"..... 1.00
California Cultivator, weekly, one year..... 1.00

$3.00

This is the biggest chance you ever had for getting the above three at the price of two.

Send in your order and $2.00 and above will be forwarded without any additional cost.

Address Cultivator Publishing Co.

115-117 No. Broadway, Los Angeles

California Cultivator

Rural Californian combined with California Cultivator

Vol. XLIV No. 7 LOS ANGELES: THURSDAY, FEBRUARY 18, 1915 One Dollar Yearly

Panama-Pacific International Exposition

Saturday is Opening Day for America's and the World's Greatest Exposition of its Products. Seven Hundred Acres, Almost in the Heart of San Francisco, Covered with Buildings and Exhibits. The Grounds Offer Scenes of Wonderful Beauty and in Themselves Will be an Education. Exhibits Cover Hundreds of Acres of Floor Space

WHILE on the grounds of the Panama-Pacific Exposition a few weeks ago I pointed to a fort-like structure in the bay only a short distance from the entrance to the small yacht harbor at the bay entrance of the grounds of the Panama-Pacific International Exposition and asked my guide, Mr. Donald Murray, as to its use. He replied that it was "Fort Moro" on which was located a battery of 48 mammoth searchlights to be used as one of the means of producing the wonderful light effect which this great exposition will show.

There will be many wonderful exhibits. There will be much of educational interest, there will be opportunities for great commercial development, and there surely will be a great demand on the world's supply of adjectives to give proper description of the electric lighting which will make the entire grounds a blaze of glory. From Fort Moro these lights will play upon the Tower of Jewels, upon the beautiful colored domes of the buildings, upon the government prison upon Alcatraz Island, upon Angel Island, Belvedere and other striking points of San Francisco Bay and even upon the striking and peculiar images and features along The Zone. In addition, the individual building, court and street lighting will be most striking.

But the mission of this article is not to refer so much to the wonderment which will be caused by this great exposition as to ask a question and give one or two limited answers at least as to what the exposition has for the agriculturist. All the world has sent of its products. We have been so absorbed with talk of war that we have wondered whether Europe would be able to teach us anything at this time, but when we study the grounds where little Holland has planted acres of its horticultural products we feel there is proof that in one little spot in Europe agriculture still holds sway. Even war-torn Belgium will teach us many lessons agriculturally. Japan is showing one tree said to be between 800 and 900 years old, on which its owner has placed a valuation of between $3000 and $4000. But we will not stop to mention these interesting things which even weeks ago were there to instruct and astonish, but will give a few words which have been written for the California Cultivator by Mr. Leonard Carpenter, connected with the division of exploitation of the Panama-Pacific Exposition.

Leonard Carpenter

The most complete exposition ever held is true as to every branch of man's activities in the Panama-Pacific International Exposition, but especially to the farmers and growers. The reason that to them particularly this exposition is of great importance is because with the recent introduction of cheap power on the farms all of the age old methods are being discarded and the newer ways introduced which will make for more production at a less cost.

BYZANTINE DOORWAY, PALACE OF EDUCATION

In the palace of agriculture are shown all of the tools and methods which are used in the production of crops the world over. Here also are to be seen the displays of the gathered crops from the North and the South, the Far East and the West.

The farm machinery manufacturers have sent their tools and their experts and have so assembled their exhibits that most of them are working displays. In cases where this has been impossible small model machines have been built and are seen working under actual conditions but on a small scale.

The United States government exhibit in this palace is under the different bureaus which make up the department of agriculture. An exhibit of special interest is in connection with the placing of farm buildings in order to bring about better farming methods. This exhibit not only takes up the problem of proper placing of different buildings in relation to fields, slopes of land and to each other, but shows these as related to better management.

PALACE OF HORTICULTURE

The use of machinery for all branches of farm work is fully shown. The small individual machines which can be used on small unit farms to take the place of one or two horses, to the big tractor which pulls 20 bottoms at a time, are shown under working conditions in the demonstration grounds. Conveyors, lifts, engines and special machines, both for indoor and outdoor work, are exhibited.

Special branches of the agricultural industry are fully shown. Factories for butter and cheese making; margarin factories, grain elevators and creameries are only a few of the many working exhibits.

The experiment stations in the different states have made exhibits in special subjects. In order to see the lines which are being followed in this case the following list will be interesting: Agricultural chemistry, Indiana; horticulture, Massachusetts; forestry, Minnesota; animal husbandry, Iowa and Illinois; dairy, Iowa, Minnesota and New York; veterinary medicine, Ohio; economic zoology and entomology, Minnesota and New York; rural engineering, Iowa; economics and sociology, Wisconsin and Massachusetts; dry farming, Utah; irrigated farming, Colorado; cane sugar, Louisiana; maple sugar, Vermont; poultry husbandry, Oregon; and cotton growing, Georgia and other Southern states.

The food products palace is given over entirely to the foods of commerce and their methods of preparation. Many of the exhibits will show all of the steps from the raw product to the finished food of commerce.

In the matter of milk for instance. The milk can be followed from the time that it is obtained from the cow by means of mechanical milkers, through the cooling room and the creamery to the butter and cheese factory; or to the manufacturer of dried or condensed milk, and all the steps by which it is manufactured to its permanent form, whether cheese or powdered milk will be shown. In the creamery is exhibited all of the up-to-date apparatus for the successful carrying on of this business and the records which it is necessary to keep, how best to guarantee to the producer his rightful share of the profits, and how to help him in bringing up the

(Continued on Page 215)

ESTABLISHED REX 1896

For Citrus Spraying

REX LIME and SULPHUR SOLUTION

Minimizes Scale Troubles, Controls Red Spider, Destroys Fungous Growth, Tones and Vitalizes the Trees.

For Deciduous Spraying

REX LIME and SULPHUR SOLUTION

Kills the Insects, Destroys the Eggs, Deadens the Fungus Spores, Is a Tonic, Fertilizer and Vitalizer for the Trees. Is the best general clean-up Spray there is. Most efficient and used in larger volume for Peach Leaf Curl and Twig Borers year after year.

For Vineyards

REX LIME and SULPHUR SOLUTION

Sprayed on vineyards during dormant season, destroys the fungus spores and equals any spray in controlling mildew.

The Rex Companies Specialize Spray Materials and our chemists devote their entire time to this work. Eighteen years of continuous Spray business means that Rex Sprays have the virtue. They are the standard.

REX LIME and SULPHUR SOLUTION
REX CRUDE OILS and DISTILLATES
ARSENATE of LEAD BORDEAUX PASTE
PHENOLS, ARSULPH, ETC.

WRITE FOR BULLETINS

California Rex Spray Co. Benicia, Cal.

LILLY'S Soluble Sulphur Compound

The Sulphur Spray in Dry Form

Manufactured on the Pacific Coast Under Niagara Patents

This is the Soluble Sulphur Compound tried and proved by three years use throughout the United States and Canada, and particularly in Oregon and Washington.

Attempts are being made to use the reputation of our compound to market a crude substitute—a caustic soda compound of low sulphur content—under a similar name. Beware of such inferior products.

LILLY'S, the only authorized and genuine article, will be placed on the California market through San Francisco and Los Angeles.

The Chas. H. Lilly Co.

Portland Seattle

For Sale:

Finest Citrus Seedbed Stock

EVER GROWN

Will deliver nothing under 18 inches high in the seedbed.

Samples on Application

Apply to Mills Orchard Co.

Willows, (Glenn Co.,) California

First Class Citrus Seed Bed Stock

Nothing better in the market Clean and Thrifty
Genuine Florida Sour Stock. Sweet Stock grown from carefully selected California seed. Before buying see us. Prices right.
Locke Nurseries, Chas. H. Harle, Mgr.
Correspondence Solicited 27 N. Olive St., Alhambra, Cal.

Advertisements in California Cultivator are Guaranteed
See Announcement at Head of Editorial Page

Citrus and Tropical Fruits

CAN INSECTS BE ERADICATED BY FUNGUS DISEASE?

THE matter of using fungus disease as a means of pest control is treated very fully in the article below, written by Mr. Smith of our state insectary. There is at the present time a little contention and considerable interest as to the efficiency of this treatment. We quoted a few weeks ago from a statement made by the Los Angeles County horticultural commission, which discredits this method of control and gives notice to orchardists that this treatment will not prevent the serving of notice for cleaning up trees, either by means of spraying or fumigation.

Dr. S. M. Woodbridge, who is advocating the use of fungus as a means of control and who has treated a number of orchards, insists upon the worth of his method. Replying to the criticisms which have been made Dr. Woodbridge says:

"It is many years since I have observed a disease which was working on the black scale. This disease I have continuously tried to reproduce in sufficient quantities to inoculate large acreages infected with the black scale. I have been disseminating this disease at my own expense for years in orchards of my acquaintances. The commission blames me for charging $3.00 per acre for inoculating when it costs an average of $25 per acre to fumigate. I have never collected $3.00 per acre, not until I had succeeded in various localities did I feel justified in asking even a small charge to defray expenses and to maintain my laboratory. I contend and can prove that this disease has killed the black scale at all ages and seasons under favorable conditions, and not only are the trees in the orchard freed from the black scale pest, but the pepper trees, oleanders, nightshade and all other scale-infested plants near by are also likely to be cleaned. Under less favorable conditions there have been a few cases where the treatment has been unsatisfactory—slower to "take" for some reason. My culture in not in a class with Friedman's tuberculosis "cure," but I insist and can prove that my culture is a cure for the black scale pest as anti-toxin is a cure for diphtheria."

* * *

THE USE OF FUNGUS AGAINST THE BLACK SCALE

By Harry S. Smith

CONSIDERABLE activity is in evidence at the present time on the part of persons interested in a commercial way in the use of a fungus disease as a practical means of control of the black scale. Any attempt to lessen the cost of fighting this and other insect pests is highly commendable, but methods of this kind should not be commercialized until they have been proven to be of value by persons fully competent to carry on research and who are financially disinterested. Until their usefulness is thus demonstrated it is not only the privilege but the duty of the agricultural and horticultural officials of the state to warn the growers to go slowly in paying out money for such questionable remedies. It should be made plain that the writer is not challenging the honesty of anyone putting these remedies on the market, but it is a fact that the determination of the practical value of entomogenous fungi, as in the case of other natural enemies, is a problem of such complexity that only men of special training or great experience are capable of solving it. There is an excellent field for experimentation but the method is not yet ready for commercialization. It is not only a question of a dollar or five dollars per acre thrown away for the introduction of the fungus, but where the treatment is ineffectual we must add to this cost the serious injury by the scale, which cost could have been avoided by fumigation or spraying. One has only to think of the million dollars which reliance upon the chinch bug fungus cost the farmers of Kansas and Nebraska, to understand the importance of thorough investigation before a remedy of this kind is placed upon a commercial basis.

Professors Rolfs and Fawcett, in a bulletin on the use of fungous diseases in combating the white fly in Florida (Bulletin No. 119, Florida Experiment Station) state that they secured satisfactory results by the artificial introduction of the spores of fungi attacking the white fly. The use of entomogenous fungi in Florida is a very different matter, however, from the attempted use of this method in a country with a dry climate like that of our own state. It is axiomatic that fungous diseases require humidity, hence their practical use in California is confronted with an almost insurmountable handicap at the outset. This handicap should not stand in the way of experimentation, but it should make us doubly cautious in accepting the "fungus cure" for our insect ills in this state and in spending money for their introduction into our orchards.

Unfair advantage is sometimes taken of the growers' lack of reliable information on such subjects. The commercial concern which advertises to dissipate your insect pests via the fungus route works about as follows: A small amount per acre, usually from a dollar to three dollars, is charged in advance to cover the cost of introducing the fungus. If the insect against which the measures are directed does not become seriously abundant a further amount is collected from the grower. Should the insect increase in the usual way, no further charge is made. The concern handling the fungus has everything to gain and nothing to lose, for it is well known that the black scale frequently fails to reach its maximum of abundance through the action of the hot summer, but nevertheless, regardless of the cause of the failure of the scale, the grower pays the additional charge to the fungus men, for they are always careful not to leave a check for determining whether or not it was the fungus or something else which was effective.

In contemplating the practical use of the fungous diseases of insects it is important to consider whether or not the disease is indigenous, i. e. whether it is native to the locality, or is it absent but obtainable from some other place.

Where a fungous disease is absent and the reason for its absence is that it has never been introduced and not

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that conditions are unfavorable, it is always worth while to at least attempt to introduce it into the locality under consideration. In cases where the disease is native, or, if not native, so thoroughly established that it has become a component in the local flora and is therefore on the same basis as a native, the first question that arises is, what is the efficiency of the disease in this locality from a practical standpoint? The second, can its efficiency be increased in any practical way open to man? This second question is the one of greatest interest to us in the present connection. It cannot be answered by "yes" or "no." Even in Florida, where conditions are ideal for the growth of fungi, our best authorities differ as to whether anything is gained by the artificial distribution of the spores in the orchard. The writer is not a mycologist, but it seems to him that if the value of such practice admits of doubt under ideal conditions, such as obtain in Florida, there is occasion for much doubt under such conditions as obtain in California.

A recent article on the value of fungous diseases of insects, by an expert in the federal bureau of entomology (the Economic Status of the Fungous Diseases of Insects, R. W. Glaser, Journal of Economic Entomology, page 473, December, 1914) is so applicable to the situation in Southern California that I take the liberty of quoting a portion of it here:

"There can be no doubt that at certain times of the year, under certain conditions, epidemics of fungous diseases naturally contribute much toward controlling noxious insects. This, however, is a balance established by nature of her own accord. Can we help her?

Let us suppose that a given locality is heavily infested by a noxious insect; also that a number of individuals in this locality have died from fungus parasitism and, lastly, that we have found an infested locality free from such a fungus. We will naturally ask ourselves the following questions:

Can we cultivate this fungus?

Can we introduce it into the infested locality where it is not known to occur?

Will the fungus establish itself and will it spread and become effective?

On the whole, a favorable answer can be given to the first two questions. Many of the parasitic fungi have been cultivated on artificial media or on living insects kept in confinement. Such fungi have been introduced among healthy insects when the occasion warranted such procedure. The third question, however, has offered difficulties which in most cases have been insurmountable. Fungi are very dependent upon external conditions and in many cases the apparent absence of a particular fungus in a locality is usually an index of conditions unfavorable for its development, and an artificial introduction will be useless. If a fungus does establish itself in a locality it may not spread far from the centers of artificial infection, showing that conditions are favorable in and near the centers of infection, but not beyond them.

"In 1892, Franz Tangl, at one time interested in this subject, and now a well known physiologist at the University of Budapest, performed some infection experiments on nun moth caterpillars by using spore emulsions of Botrytis bassiana. In the laboratory the experiments succeeded, since all of the infected caterpillars died of 'muscardine.' Infection experi-

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ments in nature, however, where infested trees were thoroughly sprayed with spore emulsions, gave negative results. The nun moth caterpillars flourished as before. V. Tubeuf, who has done a great deal of work on caterpillar diseases, tried a series of similar experiments, and likewise obtained negative results when he tried to infect caterpillars in nature with Cordyceps militaris.

"Recently Billings and Glenn (1911) in attempting the artificial use of Sporotrichum globuliferum, the etiological factor of the white fungus disease of chinch bugs in Kansas, have reached very similar conclusions. In a summary of their experiments, they say:

(1) "In fields where the natural presence of the fungus is plainly evident its effect on the bugs cannot be accelerated to any appreciable degree by the artificial introduction of spores.

(2) "In fields where the fungus is not in evidence spores introduced artificially have no measurable effect.

(3) "Apparent absence of the fungus among chinch bugs in a field is evidence of unfavorable conditions rather than lack of fungus spores.

(4) "Laboratory experiments can be made to prove that artificial infection accomplishes results upon bugs confined in cramped quarters and without food, but in the field, where fresh and usually drier air prevails and food is abundant, an entirely different situation is presented."

Messrs. Morrill and Back, who have thoroughly investigated the problem of control of the citrus white fly in Florida by means of its fungus diseases, conclude that "The infections secured by artificial means of introducing fungi, have this far proved of little or no avail in increasing their efficacy after they have once become generally established in a grove."

We have in the citrus experiment station at Riverside some of the best mycologists in the country. At least two of these scientists have had much actual experience in the use of entomogenous fungi. That these diseases have practical value in California is very doubtful. If the experiment station believes, however, that there is any possibility of even partial success, they will unquestionably make a thorough study of the problem at an early date. Until that time the growers who have infestations of black scale would better invest their money in fumigation rather than in a grave uncertainty.

It is very gratifying that the county horticultural commissioners in the South have issued warnings to the growers to go slowly in trying this inexpensive cure. It may be very expensive in the final analysis. Their action is to be commended.

Deciduous Fruits

THE BEST PLUM

Written for the California Cultivator
By M. Sharpe

IN answer to your request for an article on the best plum for the state, I will say that my experience has been confined principally to Vaca Valley. Here in Vaca Valley we are working into the early varieties of shipping plums. This section being from a week to a month earler than other fruit growing districts in California, practically gives us a monopoly on the early market so it would hardly be profitable for us to plant to a variety that would come into heavy competition with some other variety in another district. The best method therefore is for us to grow the early plum, and other later distrists should grow later varieties. Thus we would avoid to some extent coming into competition with one another. For example, some localities are just beginning to ship cherries as we are finishing. The plum varieties I would recommend for Vaca Valley, in order of ripening, are the Beauty, Formosa, Climax, California Blue, Santa Rosa, Tragedy, Burbank, Wickson, Diamond and Gaviota. There are many other varieties grown here and of excellent quality, but later. Also the above named are good sellers and carriers, and we can put them on the Eastern market ahead of other districts. Climax and California Blue ripen together. We can ship the Beauty from here with the last of the Royal Anne cherries and before the Clyman, which to my notion makes it one of the most valuable plums that Mr. Burbank has ever produced. It is a very thrifty grower, its only drawback being the red in the flesh like the Santa Rosa, but its size, earliness and flavor overcome that.

Some of the later varieties that are valuable are Grand Duke, Standard, President, Imperial, Sugar, Splendor Monarch, Archduke, Primate, etc.

The Giant, Kelsey and Gros Prune, Yellow Egg, Silver Prune, Chalco and Washington seem to be going out of favor here. It gets a little too hot here for Kelsey, which needs a cooler climate. Gros Prune is not a regular bearer with us.

The President is one of the best, ripening after Grand Duke, a 4x4 plum, oval, blue, sweet and large, an excellent variety.

The Primate ripens after President, large, round, blue and good quality. Might be valuable for shipping in straight cars of grapes.

There is another plum here grown as a novelty. It ripens for Thanksgiving and sometimes later. It is delicious and a decided novelty for a home garden. It is called the "Uncle Ben." It is a yellow plum. I do not know whether it has any commercial value.

The sugar prune is a number one drying plum, being easier to dry than Imperial. The Splendor always sells high in the Eastern market. It is a small, long prune shape.

There are some varieties here that have been originated by men in Vaca Valley that if propagated commercially would undoubtedly prove very valuable, also there are dozens of varieties grown here on a smaller scale that I have not mentioned.

I know of no plum pests other than the ordinary ones common to our deciduous fruits.

The government has introduced lately a wild peach from China called the Amygdalus Davidiana, which is sent to reliable parties on request. It is being tried here by a few growers. It has the appearance of proving to be a very valuable stock for plums, etc. It is very thrifty with an ideal bark for budding, also it seems to withstand hardship a little better. As to its susceptibility to black knot I cannot say as it has not been tried long enough here to know.

Here is something else that may prove of value to many growers. A Marianna plum tree will grow in the vacant places in an old orchard where trees have died, and where other young trees will die if planted. It makes excellent stock to work on and will grow from cuttings. I have found no objections to it in any way.

SPRAY PEACHES

County Horticultural Commissioner H. P. Stabler of Sutter County is sending to peach growers the following information regarding spring spraying of peaches:

"All peach, almond and apricot trees should be sprayed with lime-sulphur just before the blossom buds begin to open in the spring. After the blossoms have opened this spray should not be used, but it is safe to apply until the buds have actually blossomed. This is for the control of pernicious scale, twig borer or peach worm, curl leaf and peach blight in peach trees, also twig borer and peach blight in almond trees. However, in case of peach blight infections the spring spray is only effective when the lime-sulphur spray or Bordeaux mixture has been applied before December 15. In other words, two sprayings are necessary to control peach blight.

"Shot hole fungus in the apricot trees is so similar to peach blight that the fall and spring applications are recommended for the control of this disease. Growers now generally use the commercial lime-sulphur sprays.

"In order to accomplish the best results in controlling the twig borer, a coarse nozzle should be used and the spray actually driven into the rough places on the trees under a pressure of 150 to 180 pounds on the spray pump. Hold the nozzle close to the limbs and cover the tree thoroughly with the liquid. The fine growth and twigs must be well coated.

"Curl leaf and peach blight will not be controlled unless every part of the small growth is thoroughly covered with the spray. Always keep the liquid well agitated in the spray tank.

"If rain prevents the use of lime-sulphur before the buds open, the Bordeaux mixture may be used even while the tree is in bloom without injury."

THE WALNUT INDUSTRY OF CALIFORNIA

Written for the California Cultivator
By J. G. Berneike

The December Bulletin of the state commission of horticulture gives statistics showing the acreage of bearing and non-bearing fruit trees by counties. Orange County leads with 11,965 acres of bearing walnut trees and 1789 acres of non-bearing. It is followed very close by Los Angeles County with 10,074 acres of bearing and 2063 acres of non-bearing trees. Ventura County follows with 7785 acres of bearing and 2623 of non-bearing trees, and Santa Barbara County with 4800 acres of bearing and 800 acres of non-bearing.

These four counties are the only ones of importance in walnut production. All the other counties of the state are credited with 2514 acres of bearing trees and 5907 acres non-bearing.

Contra Costa County leads all other counties in the ratio of new plantings to bearing trees, namely, 20 acres bearing to 1200 acres non-bearing trees. San Joaquin County follows with 200 acres bearing and 1800 non-bearing. Then come Riverside and San Bernardino Counties. These latter four counties are plunging heavily into planting of walnut trees and the outcome will be watched with interest.

Comparing the figures as here given it is evident that our walnut growers need not feel greatly alarmed concerning a possible overproduction in the near future.

The large new plantings in Contra Costa and San Joaquin Counties must be considered as experiments on a large scale which may or may not turn out successfully. Riverside and San Bernardino Counties have only limited acres adapted to walnut growing. We may, of course, expect that in course of time acres adapted to walnut growing will be discovered here and there in the state, but it will take years of ttime and more or less of expensive experimenting before the acreage will be greatly enlarged.

The total acreage of bearing walnut trees for the state is 37,338, of non-bearing 13,182. It is evident that there will be quite an increase in the walnut crop when these trees come into bearing, but we will not be wrong in assuming that they will not all come into bearing. Many of these trees will fall for lack of proper soil, climate or care. And without a doubt, many of

(Continued on Page 215)

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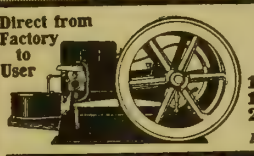

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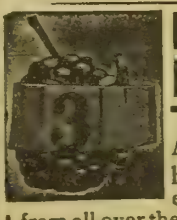

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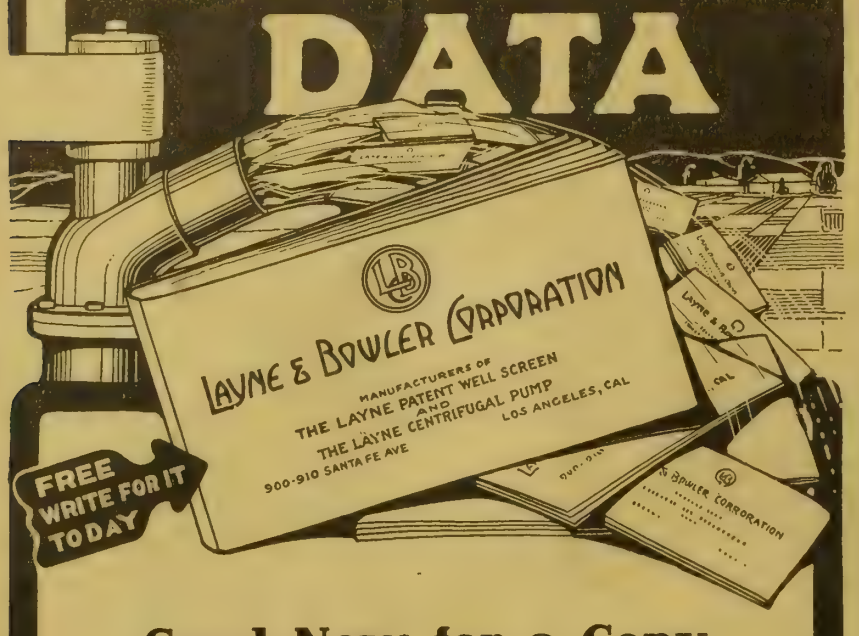

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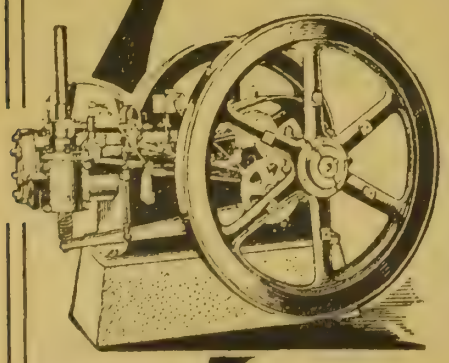

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General Agriculture

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IN many letters received on the subject of weed eradication request is made for a "remedy," by which term the writers often have in mind a herbicide or chemical plant poison that will accomplish the destruction of weeds with little effort on their part. In many of these cases the use of plant poisons is out of the question as the weeds can be controlled more easily by some other method. It is well to define limitations as well as to point the advantages of employing these materials. The use of chemical plant poisons may be grouped under the following headings:

1. With crops on the land: General applications that kill certain weeds but do not injure the crop, such as iron sulphate solution for killing wild mustard in grain fields or dandelion in lawns; scattered applications for the purpose of killing individual weeds or groups of weeds, as salting live stock on patches of Canada thistles or applying arsenite of soda solution to plantains in a lawn.

2. Without crops on the land: Applications to kill the weedy growth, after which crops are to be grown; Applications to kill all vegetation and prevent as far as possible future growth of any vegetation, in other words, to sterilize the soil.

It is the second of these methods, using herbicides without crops on the land, that will be considered here. Killing the weeds by plant poisons and afterwards growing crops on the same land is a subject that seems to be of much popular interest. There are but few situations, however, where this method is feasible. In Australia fields containing prickly pear have been sprayed with an arsenite of soda solution, and after the pear has been killed the land plowed and planted to crops. This office has found it satisfactory to handle honeysuckle under certain conditions by spraying the tops with fuel oil or crude petroleum and after the leaves are dead and dry setting fire to them. This removes all the tops and obviates the great inconvenience encountered in cutting them off or plowing them under.

The office has given considerable attention to applications for killing the vegetation and sterilizing the soil. This method is applicable to driveways, pathways, tennis courts, railroad rights-of-way, and similar situations. For the past five years experiments have been made at Arlington Farm (United States experiment station) to find the best material, the best strength of application, the best time of application and other points. The list of materials used embraced practically all those that have been suggested as being suitable for this purpose, including the following: Arsenite of soda, arsenate of soda, common salt, fuel oil, kerosene, gasoline, crude petroleum, sulphuric acid, coal tar, creosote oil (containing crude carbolic acid), iron sulphate, caustic soda, calcium chloride, sal soda. The prices at which these materials could be obtained were assigned in order that they might be compared in cost as well as in effect. These tests have shown that of all these materials there are three which at the prices assigned are better than any of the others, namely, arsenite of soda, common salt, and fuel oil.

There are several points to be considered in selecting the best material among these three. The prices used as a basis were as follows: Commercial arsenite of soda 25 cents per pound; common salt $12 per ton; fuel oil 12 cents per gallon. These are approximately the maximum prices which the small purchaser would be asked to pay. Under certain conditions the consumer may find the price of one of these substances relatively lower than the others. For instance, refuse salt can sometimes be obtained at a very low price. The character of the vegetation also governs the choice; broad-leaved plants seem to be relatively more affected by arsenite of soda than by salt or oil, as compared with narrow-leaved vegetation such as grass. Salt is often objectionable when used on brick walks or other conspicuous places on account of the white residue which remains for some time.

As to the number of applications required, it has been found that several light applications are better than one heavy one. This is partly due to the fact that weed seeds in the soil, which are but little affected by these treatments, germinate and produce a new crop of weeds after the first crop is killed. After the first year, however, the number of applications may be reduced until weeds cease to come up.

The quantity of these herbicides to use depends on the character of the vegetation and the soil. On some of the arsenite of soda plats where the vegetation was largely broad-leaved plants the tops had been practically killed by a remarkably light application at a cost of $1.50 per acre. The effects, however, were merely temporary and new tops immediately sprang up. As an illustration of the quantity of material required, a weedy driveway having such plants as blue grass, crab grass, plantain, clover, and dandelion could be almost cleared by treating it with any one of the following substances, the amounts being given on a basis of one square rod: One-fourth pound of commercial arsenite of soda dissolved in six gallons of water; 22 pounds of common coarse salt dissolved in nine gallons of water; or one gallon of fuel oil. All these applications would cost approximately 12 cents per square rod, or $20 per acre for the materials.

In the experiments the results with common salt have been somewhat erratic, so that preference should be given the other two substances. If a small area is to be treated and the cost is therefore not a primary consideration, salt should be used in larger quantities than advised above, dissolving it at the rate of one pound in one and one-half quarts of water. All applications should be made when there is no prospect of rain for 24 hours.—H. R. Cox, United States department of agriculture.

KAFIR, MILO OR FETERITA

A recent inquirer has written to the University of Arizona agricultural experiment station for information concerning the comparative merits of kafir corn, milo maize and feterita under irrigation. Answering this inquiry, Prof. Stanley F. Morse, superintendent of agricultural extension service, replies as follows: "The principal advantage of feterita over the other two crops is that it will mature in less time (about 90 days) and hence may be fitted into the rotation where milo or kafir would not do because of insufficient time for maturity before frost. Milo matures in about 100 days and kafir in 120 days. Feterita requires the least water, milo more and kafir the most. In feeding value the grain of feterita is about equal to that of milo or kafir, but it is softer and easier for animals to masticate. Feterita yields the least grain per acre (30 to 50 bushels or 1700 to 2800 lbs.), milo more heavily (40 to 60 bushels or 2200 to 3300 lbs.) and kafir (50 to 75 bushels or 2800 to 4000 lbs.), the most of all. Feterita resembles kafir corn more than it does milo. For silage kafir will yield more tons per acre than either milo or feterita. Kafir yields the best forage, feterita next and milo the poorest; feterita is frequently planted very early in the season to give an early crop of green feed. You will see from the foregoing discussion that feterita has a different place in the cropping system from either milo or kafir."

FIGHTING THE ALFALFA WEEVIL

Several methods of fighting the alfalfa weevil have been worked out by the bureau of entomology of the United States department of agriculture, according to the report of the bureau's activities for the year ending June 30, 1914. Valuable results, it is said, have been obtained from pasturing by hogs during the weevil's egg-laying season, and practical methods have also been found of poisoning the larvae in the field. A single economical spraying in the early spring will also protect the first and second crops. After the first crop has been removed, however, the most efficient tool that can be used has been found to be an ordinary spike-toothed harrow with the teeth laid flat and several layers of open-wire fencing stretched beneath. Parasites have also been introduced from Europe, the original home of the weevil, and they are expected to produce good results. Thus far this weevil has not spread greatly.

A native weevil known as Compsos auricephalus has been found in Oklahoma. This pest does some damage to alfalfa and also to growing wheat. Its life history is now being carefully studied.

MEASURING WATER

The very best statement we have yet seen regarding various systems of measuring water is contained in Bulletin No. 247, Some Measuring Devices Used in the Delivery of Irrigation Water, which has just been issued by the agricultural experiment station of the California college of agriculture. The tables and data in the book are based on work done under cooperative agreement between the office of experiment stations and the state engineering department of California and between the office of experiment stations and the University of California agricultural experiment station. Seventy or more pages are filled with information regarding water measurment, tables of different systems of measuring and illustrations of many forms of gates. Every irrigator in California will find in it material of great value.

PAYING FOR THE OPPORTUNITY TO SOW WEED SEED

Many farmers are paying as much as a dollar per pound for the opportunity to plant several pounds of weed seed each year. Others do not pay as much for the opportunity to sow the seed, but the cost of eradicating these weeds costs them many hours of labor and no small amount of money. The manner in which they avail themselves of the opportunity varies, but to give a specific and true example—an actual occurrence:

Two samples of alfalfa seed are offered for sale, one for $20 per hundred and the other for $16 per hundred. Sample No. 1 tests as follows: Weed seeds, none; chaff and dirt, none; germination, 94 per cent perfect. Sample No. 2 tests: Weed seeds, seven per cent, much of which is sweet clover which is not very noticeable to the average farmer; chaff and dirt, two per cent; germination, 80 per cent perfect.

If you buy 100 pounds of No. 1 you get 94 pounds of seed that will grow at a cost of $20, or a cost of $21.28 for 100 pounds of perfect seed.

For No. 2 you pay $16 for 71 pounds of perfect seed, or $22.54 for 100 pounds of perfect seed.

In the above case you pay $1.26 for the privilege of planting seven pounds of weed seed on your farm. Even greater variations than the above can be given. Every man should know how good the seed is that he is planting.—S. B. Nuckols, Colorado Agricultural College.

We may also speak of "domestic" mosquitoes, for several species prefer to breed in our rain barrels, clogged up roof-drains, broken bottles, dishes, and old tin cans on the rubbish heap which have collected rain water.

Mosquitoes can breed only in water, notwithstanding the many popular statements to the contrary. The whole structure of the young mosquito fits it for a life only in water. So in combating mosquitoes, the obvious remedy is to remove the breeding places. No pool or collection of water is too small or too filthy to serve such a purpose. The only requisite is that it be stagnant and that it remain permanent long enough for the mosquito "wrigglers" to reach full growth. Care must be used therefore in searching for breeding places so as not to overlook some of the smaller ones.

Ecuador has long been known for its numberless classes of delicious fruits which are exported by the shipload to Peru and Chile. No official records are kept of the quantities exported, as no shipping documents are required; but it is enormous. Estimates made from local shipping records show that during the first five months of 1913 the following exportations of fruits were made to Peru and Chile: 2089 tons of plantains, 5437 tons of oranges, 54 tons of pineapples, 46 tons of mangoes and 90 tons of tamarinds.

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THE GARDEN

Written for California Cultivator
By Ernest Braunton

CALIFORNIA has, according to Dr. Jepson, but 94 species of trees, and more than half of these, or 59 species, are found in the north coast ranges. They are not exclusive however, for nearly the same number, or 57, are found in Southern California. Fifty-two species inhabit the Sierra Nevada, 49 the south coast ranges, and but 14 are found in the Sacramento and San Joaquin Valleys. Of course a few species inhabit all the five zones named, and these are: Alder, ash, elderberry, live oak, maple, and willow. No cone-bearing tree is found in either of the great interior valleys. Of the cone-bearers we have, grossly, 42 species, but if we except two junipers which have berries (the nutmeg and the yew, which bear plum-like drupes), we have but 38 species which are strictly conifers. Dr. Jepson gives us but 11 species of arborescent oaks, but on some of the channel islands the dwarf oak, known as quercus dumosa, and common over all of Southern California, grows to be 30 feet high, and in the same ranges is at least one other species, so we will claim a baker's dozen, at least, of oaks. We have a half-dozen willows, four ashes, three each of poplar, cherry and mesquite, two yuccas, two alders, one maple, one boxelder (a true maple also). Of the rest we have but one each; birch, buckeye, cactus, crab-apple, desert ironwood, desert willow (belongs to bignonia family), desert mahogany, dogwood, elderberry, ironwood, laurel, madrone, palm, smoke tree, sycamore, and walnut. This makes about 100 trees in the state. While other species may occasionally, owing to favorable conditions, attain the height and dignity of a tree, such character is not sufficiently constant to warrant inclusion in a list of California trees. Many shrubs under cultivation, with special pruning also become tree-like, but our song is of nature.

Inoculating Plants

From time to time we hear of some scheme for inoculating trees for the purpose of stimulation or prevention of diseases, or to drive away insects. Holes are bored into the wood and filled with some substance which it is claimed will be taken up in the circulation of the sap, in quite a similar manner to the method of inoculation in all animal life.

But it must be understood that sap circulation in plants starts at the roots and nowhere else may anything be introduced into that circulation. Prof. Farmer, in his "Plant Life" (page 60) says: "The circulation of materials in a plant is not really like the circulation of the blood in animals, although an analogy—largely a false one—is often drawn between them, for there is no continuous circulating system in the tree at all comparable with the arteries and veins of the animal body. Nevertheless there is a process of exchange, though arranged on different lines and serving quite different ends."

Do not be deceived by fakers who claim wonders (or anything) for material introduced through the bark of the tree.

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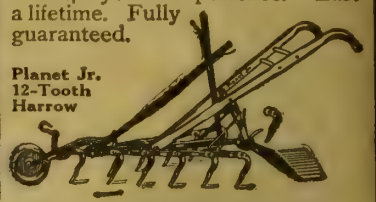

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THE MACATAWA originated by Alfred Mitting, in 1909, at Holland, Michigan, a cross between the true Giant Himalaya and the Eldorado, and offered to the trade in the fall of 1912. I have named it the Macatawa as that term carries to me the idea of our cold Michigan winters and our occasional dry summers, which this berry stands without the slightest damage. It went through the extreme cold winter of 1911-12 in an exposed condition without freezing. The Macatawa has characteristics of both its parents. The fruit is very large and sweet, in fact it is the sweetest blackberry grown. It is coreless and almost seedless; very solid, jet black when ripe, and can be shipped 1000 miles without bruising. The shape is oblong, very uniform, averaging three and one-half inches around one way, by three and one-fourth inches the other way.

It begins blooming in the southern and coast states about February 15. In the eastern states about April 1st. One month later you can begin to pick. It is a continual cropper from Spring until the frosts, in fact it is the only berry in my 46 years' experience that is an everbearing variety.

Its habit is similar to that of the Eldorado, but self branching, and the bloom is almost semi double, about the size of a silver dollar. So far, all who have tried the berry, say that it is the sweetest and best flavored berry they ever tried. When it was in fruit at Berrydale, it was admired by everyone that saw it, and three thousand plants were sold to said visitors, in the fall of 1912. The young plants come from suckers and not from tips, but it is a shy sucker maker, so we propagate by digging up the roots between the rows and cutting same into one, and one and one-half inch pieces. These piece roots are sown in rows four inches deep, and the rows two feet apart. They should be sown in the southern and coast states from December 1st to March 1st, in the center states from March 1st to May 1st. By the next fall you will have nice plants full of fiber roots, and the plants will be 18 inches high and ready to plant in the field for fruit. Our price for these piece roots is $10 per thousand, one year old plants, $1.50 per dozen, $10 per hundred, $100 per 1000. 50 plants go at 100 rates, 500 at thousand rates.

The Macatawa Berry is 3½ inches one way by 3¾ inches the other

Macatawa Is a Great Berry for Canning

THE AVOCADO IN CALIFORNIA

Written for the California Cultivator
By Wm. A. Spinks

THE avocado is no longer considered a strictly tropical fruit, but is now known to have wide climatic range. Indigenous to Mexico and Central America, it thrives in its native habitat all the way from the tropical seacoast regions to the elevated plateaus thousands of feet above the sea, where it is subjected to quite as much cold as that experienced in the fruit belts of California. While these hardy, upland varieties will thrive here, and promise great profit to growers, too much care cannot be exercised in avoiding the more tropical types.

Let me name in their order of importance the points we must look for in an avocado tree for California planting. Just as the foundation is the most important part of a building, so with the avocado tree; the growth, strength and vigor of the tree itself outweigh all other considerations. It must stand straight and strong, defying alike wind, cold and heat. Without all of these qualities to start with no variety has any commercial value whatever. With them it has great value though it never produces a single fruit. Why? Because the foundation is being built on which to grow the variety of the future or to produce its own fruit as the case may be. Strong, well-formed trees may easily be worked over to any desired variety; while those same varieties, when budded into small nursery trees, may refuse to grow. Some varieties, the parent seedling trees of which grow healthy and strong and produce the choicest of fruit, will when budded into nursery trees grow nicely for a year or two, just long enough to enable the nurserymen to sell them, and when set out in the orchard promptly die. Others linger along for years, making little or no growth, while still others grow limp and limber and can never be petted and pampered enough to induce them to stand up and make trees. You must have a tree before you can have fruit.

Besides the points above mentioned as prime requisites in a tree, namely, growth, strength, vigor and resistance to heat, cold and wind, the next in order of importance is the fruit, its quality, size, color, shape, shipping qualities, season of ripening, prolificacy and regularity of crop.

There are two types of the avocado, so entirely different in character that they might almost be said to belong to different families,—the large, thick-skin kind, in parts of Mexico called Pagua (Pa-wa), weighing from eight ounces to two pounds, have been mostly sought for as commercial varieties, because of size and an impression that they make the best shippers. Considering the very few trees we have so far to select from and the hundreds, or perhaps thousands, yet to hear from, it is only reasonable to suppose that the perfect commercial variety is still of the future. Clearly then, the sensible and businesslike thing to do at this early stage of the industry is to plant a variety that will surely stand cold, wind and heat and make a straight, strong orchard tree. Then in five years, or ten years, or at any time in the future, if a variety of undoubted superiority appears, an orchard of it may be had in two years by top-working. Meantime, take the fruit and sell it. Your trees will probably pay for themselves many times before they need be worked over, if ever.

Four years ago I planted an orchard of a certain well-known variety. The trees are now five years old from the bud. They are as large as full-grown orange trees and beautiful to look at. I expect a considerable crop of fruit this year. I planted at the same time on adjoining ground an orchard of another variety. I was sorry at the time that I did not have more of this last named kind and less of the others. The parent tree seemed strong and healthy, but the young budded trees when placed in the orchard made poor growth, suffered from cold and were in due time taken out and replaced with another kind. These, also a failure, were in turn removed, and still another variety substituted. Now I am taking out this third lot and planting the variety in my five-year-old orchard. This time I am going to have trees, though they do not bear fruits weighing two pounds each.

No avocado should be left to ripen on the tree. Even for home use they should be picked while still firm and allowed to soften in the house. They should also be watched carefully and picked at the right time, like oranges, apples or any other fruit. Many varieties, in fact, nearly all of the thin-skins, and some hard-shells also, will, if left on the tree too long, ripen or soften at the lower end first, giving the fruit the appearance of decay and making it difficult to market. This can be avoided by proper picking, or, when the lower end of the fruit shows the least sign of softening or shriveling. There are other signs also with which the orchardist would soon become familiar and which tell him unfailingly when the fruit is mature and should be picked. For instance, one certain well known variety should be picked when it begins turning from green to purple; it is then in proper condition for market and will color and soften beautifully if kept in the house or may be preserved for weeks in cold storage.

All avocados when mature are rich in oil, recent analysis of certain varieties made by the University of California experiment station showing over 29 per cent. My own opinion as to the cause of the fruit softening at the lower end first, when left too long on the tree, is that this oil, liberated by the ripening process, gravitates to the lower or large end of the fruit where, aided by the sun's heat, it causes at first a slight shriveling of the skin, which gradually widens in area until it takes in the entire fruit. I have been told that in Mexico connoisseurs look for and demand fruits slightly shriveled at the end, considering it a sign, not only that the fruit is duly matured, but also of rich quality.

The avocado looms large as a future California industry and will eventually be cultivated over wide areas.

CHOICE BULBS

We are glad to make announcement of a clubbing proposition which the Cultivator has secured for its subscribers who may wish to beautify home grounds or roadsides in preparation for the many eastern visitors who we are hoping will come to California's great expositions this year. Let us rake up our front yards, our back yards, our roadsides, and, in fact, every place which may be made sightly instead of unsightly as are many at the present time. One of the handsomest flowers grown, and one which does remarkably well in California, is the old-time gladiolus or, rather, the new-time gladiolus for there have been so many improved varieties created by plant breeders and introduced from Europe that those who admired the gladiolus ten years ago and who have not kept in touch with it recently have a surprise coming in some of the beautiful hybrids which are now offered in all seed catalogs.

The interest in gladiolus growing has been so great that a magazine which has been published for more than a year has now secured a place amongst the magazines of the country and has materially advanced gladiolus growing. It it The Modern Gladiolus Grower published at Calcium, New York, by Madison Cooper. This is the magazine referred to above and it, with a bunch of choice gladiolus bulbs, may be had for a nominal sum by Cultivator subscribers. The practical suggestions in gladiolus growing will be of great value in our beautifying campaign and we hope many Cultivator subscribers will take advantage of the clubbing rate which is offered. The California Cultivator and The Modern Gladiolus Grower, which is a 50-cent magazine and a big value at that, will be mailed one year for $1.40 and, in addition, the publisher of The Modern Gladiolus Grower offers to send about 20 gladiolus bulbs of sufficient size to bloom. We say "about" 20 for there are at times more than that number, for if at all under-sized the weight is still maintained at a full pound. The editor of the Cultivator has seen this collection and the flowers which came from it and knows there are some single bulbs worth the 40 cents asked in addition to the Cultivator subscription. The offer is good to old subscribers and new as well.

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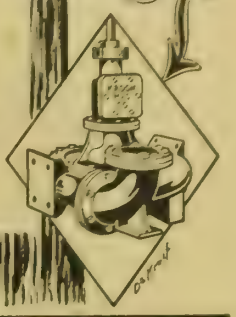

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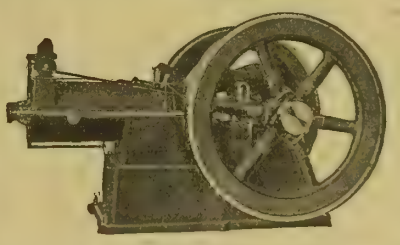

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Economics on the Farm

A NATIONAL COMMISSION TO AID IN MARKETING

Written for California Cultivator
By F. D. Flint

THE volume of products from the farms of this nation is not increasing as rapidly as our population; in the matter of food supply we are lagging behind at a greater rate than we may realize.

With a vastly greater acreage of wheat, we have only increased our average total yield about four per cent in the past ten years. In meat production it is shown that in the year from March, 1911, to March, 1912, there was a decrease of meat animals totaling 646,600, or over 200,000,000 pounds. In the past decade we have added to our population 3,000,000 able bodied men capable of earning enough to allow them to buy and pay for meat as a food. Other facts could be added to prove the point.

What does this mean? It can mean but one thing, and that is we must have more producers on the farms or else very shortly we will become a food buying nation. It also can be inferred, quite correctly, that it will be a long time before there is any real overproduction of any food product. There is now a very marked underconsumption. In fact the cry "overproduction" is more theoretical than real.

There are periods during each season when we hear of gluts in the city markets. But these supposed "gluts" are the mere symptoms of bad management rather than of overproduction. When these "gluts" are reported, or said to exist, how many people in that city really "know" that there is a glut? Practically none. Why? Because of lack of information. That is the only reason. Otherwise there would be a rush to get products at a reduced price by the people who need cheaper prices. Our present methods of marketing do not provide any means for the consumer getting the information; in fact the produce dealers conceal the truth in order to keep up the prices. The retailers who buy from the produce dealers do not publish the facts for fear they may lose money if it becomes too well known.

In addition to all this the producer himself has no information on the markets and no way of getting it. He in turn is kept in ignorance for the most part by the jobbers and wholesalers of produce. In other words the jobbers (buyers) form a wall or ring about the producer and dictate prices because of their ability to keep him in ignorance of the market, what it is and where it is.

To sum it all up, the consumer in the city has no information on the real market conditions, nor has the producer in the country. It is an easy conclusion to reach, that a way must be provided by which both consumer and producer can have information. It is just as easy to conclude that this information cannot and must not be allowed to come from or through the wholesaler, jobber or buyer. It must come from or through some independent entity. When this entity for giving and distributing information is established the way will be open for the producer to have some say in the matter of what proportion of the consumer's prices he shall share. And the consumer will have a closer approach through that medium to the producer.

Any one at all familiar with the marketing of farm produce of any kind will realize at once that this medium or entity, permitting the close approach of the consumer and producer, is the missing link which has been long looked for.

But there is a way. There has been found a plan to provide this missing link. And with the adoption of this plan will be solved the question of the high cost of living for the city dwellers; the question of inadequate returns for the producer; the question of how to prevent the loss of a large proportion of the season's crop on the farms, because of inability to find markets; the question of railroad rates, by increasing traffic, rather than rates; the question of increasing tenancy rather than the increase of ownership, caused by the inability to make the farm pay for the ownership; the question of rural credits, because of having made stable the markets, and finally the question of whether or not we are to continue to be a self-feeding nation or become a food buying nation.

The plan thus mentioned is found in Mr. David Lubin's suggestion for a national marketing commission as provided for in a resolution now before our federal congress, known as House Joint Resolution 344, and which reads as follows:

"Resolved by the senate and house of representatives of the United States of America in congress assembled, that the president be authorized and requested to appoint a national marketing commission to be composed of 29 members, 15 of whom shall be farmers and 14 of whom shall be selected with reference to their eminence in commerce, law, finance, and transportation.

"That such national marketing commission shall meet in the city of Washington at a time designated by the president and organize by the election of officers, and adopt a plan of action for the effective organization of the states, counties and localities of the United States for the economic distribution of the products of the farm, with power to act in so far only as affecting individuals and organizations that shall elect to become a part of this national marketing system.

"First. Let the president of the United States appoint a national marketing commission consisting of (a) the president of an influential chamber of commerce; (b) the mayors of three of the largest cities in the Union; (c) three members of the leading mail order and department stores; (d) a leading railroad man; (e) a parcel post man; (f) a leading banker; (g) a leading workingman; (h) two congressmen; (i) a senator; making 14 in all; and in addition to these let the president add 15 farmers from the various sections of the United States.

"This committee of 29 would be the national marketing commission, who would meet and organize for the purpose of having the food products in

the various states of the Union distributed under the plan that shall be explained further on.

"Second. Said national commission shall have prescribed power of direction of similar committees to be appointed by each of the governors in every state in the Union.

"Third. Said state commissions shall have power to appoint committees of the same kind for every county in that state, and the county commissions shall have the right to appoint the township committees.

"The national commission, after organization, shall devise a plan for the delivery and sale of the products, by the farmers or their hired agents. They shall devise plans and specifications and details of sample rooms, auction rooms, exchanges, pits and street markets, and designate for the benefit of the producers or their agents, how the products in townships, counties, and states shall be synchronized for shipment, for display, by private sale or by auction, the rules for selling and delivery, the terms of sale and the mode of procedure."

Thus it is seen a way is opened up for the establishment of city terminals, whither the farmer may send his produce to be sold either at retail, wholesale, or by auction as he desires or the character of his shipment demands. At the same time these terminals can and will be required to furnish information to the consumers. There will be no guesswork about it nor hiding of facts. In reality the whole thing becomes a "clearing house of information" and a medium of instructive education for the consumer and producer alike.

In this connection it is well to bear in mind that these commissions are not permanently sitting commissions. They will provide the manner and method of doing the numerous things required, and have a secretary or executive officer in charge of a body of clerks hired for the work in hand. Neither are they selling commissions. The actual selling is done either by the farmer himself or by his hired agent, be it as individual or as association. The commissions only supervise and provide ways and means through which the farmer does the work. The salesmen at the terminals are bonded and operate as agents for transacting the business between seller and buyer, who may be producer and consumer.

The establishment of these terminals will come under the clause of the resolution reading "and adopt a plan of action, etc.," as will also the many questions involved in every act of packing, shipping, and mode of selling in the terminals. The educative instruction to the farmers will also come under this enabling clause, but there will thereby be no compulsion either for producer or consumer or organizations of producers or consumers to use this bureau. It will be there to use, and the selfish interest of the producers and consumers will show them the benefits to be derived from the use thereof. The very gambling instinct which drives the farmer to ship to some market with the hope that he will "hit it high" will also drive him to utilize this means of knowing where his market is, how he must pack and when he can ship to get the going price.

He will have ultimate information. There can be no conflict of shipment and consequent glut of market when there is some means whereby markets and supply are known to all concerned. It is this lack of information which is the difficulty now. Here is the way out. The question is do we want it? Are we willing to work for it and use it when it comes? Every man, be he producer or consumer, must answer that question for himself. If it is demanded with a sufficiently loud voice, congress will awake to the fact that there is something to be done for the products of agriculture as well as for the products of industry.

* * *

Mr. Flint has charge of the campaign in California and will soon make a tour of various farming sections.

VALUABLE NUMBER

There is one particular in which Australians excel in calling attention to the resources of that great continent. This is in the annual number of many of their publications. Some of them are works of art. One before us is that of the The Leader, published at Melbourne. The last annual of this paper contains 58 pages and the cover and has not only magnificent half tones 10x14 in size but many colored plates as well. "In the Heart of the Bush" shows a magnificent collection of tree ferns, while "On the Edwards River, New South Wales" is a picture in colors showing a wealth of shade and rich pastures. There are dozens of others equally as attractive. The text is generally given over to a description of the resources of Victoria.

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Nos. 821, 822, 823, 824 and 825

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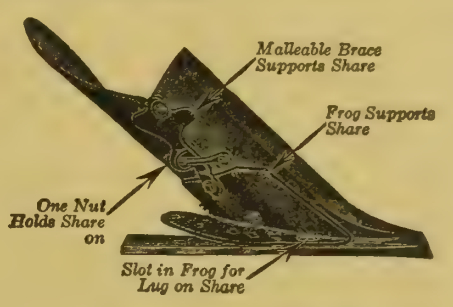

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A Journal of Horticulture and Agriculture

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Thursday, Feb. 18, 1915

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

ORANGE DAY

March 20 is Orange Day. The world never had opportunity to eat finer oranges than this year, for California produces the finest on earth and the orange men have come through with all that has been expected of California for the great year of 1915. It is a magic year, and the quality of this year's oranges is almost magical. Growers are somewhat concerned because some fruit is puffing, but so far as the eating quality is concerned, it could not be better, and we hope immense quantities will be disposed of every day during the next year as well as on March 20, when we should each eat a dozen extra.

THE JEWELLED CITY

Saturday is the day toward which California has been working for the past five years, when its great exposition will be thrown open to the world. We are glad that one of the first events after the opening is a gathering of farmers of California to consider organizing the agricultural industry. Presumably every farmer in California will see this great exposition before December 4, which is the closing date. There is during these months no week but some event of particular importance will occur which will interest every branch of agriculture. We are glad to give in this week's issue the merest reference to some of the things which will be of interest to our readers. Let us as soil culturists go with pencil and notebook in hand and prepare to get inspiration as to the methods by which California may take a more advanced position along all productive lines. We now lead the world in many of them; let us pass our present advance.

NATIONAL ORANGE SHOW

The gates are open and the crowds are entering the greatest of all orange shows. From the very first there seems to have been a desire on the part of the weather man to show particular favors during Orange Show week. The first show held at San Bernardino was during a week of deluge when roads and even some orange groves were washed out to the ocean. We think only once or twice since has the weather man given sunny weather. As the show for 1915 opens the clouds are promising rain. The gatekeeper rather objects to this type of weather, but the orange grower knows that it means greater crops and greater prosperity, hence he spends no time in mourning over the downpour.

While the exhibits are very largely along the line of former ones, they are greater in extent and all exhibits of orchard and packing house appliances are more extended and more educational.

BEAUTIFUL BRIDGES

California never has had the experience of wallowing hub deep in blue clay roads, at least in but few sections has she ever "enjoyed" such a privilege. In "breaking up time" Back East humans were wont to imitate the woodchuck, and while not exactly hibernating were at least living on supplies laid in before the roads broke up. California roads have naturally been good, hence the good roads movement was a bit slow in getting started, but once started it has gone ahead with characteristic Western spirit. Per capita, we do not think any state in the Union can show the same extent of good roads. Many have been built by counties, a very few under the old-time road district plan, and several hundred miles by our state, and every Californian—we do not include kickers in that term—is proud of them. We are glad to give on cover page of this issue photos of some of the bridges which have been built within the last year or two years on the line of the state good roads constructed by our state highway commission. This commission has done some excellent road building and it will be the means of giving still greater popularity to the movement.

EAT POTATOES

With the price of flour marked up until it is making the staff of life very expensive living, homemakers should be interested in the household department of this week's Cultivator. European nations are urging their people to consume greater quantities of potatoes and less grain. California has plenty of wheat for its own consumption, but perhaps the European's economical methods may be of some value to us at this time. In any case there are on the household pages some most attractive looking recipes sent in by subscribers. The state produces vastly more potatoes than it can consume, and is exporting hundreds of carloads. It is not exporting as much as it should were it not for the potato tuber moth pest. However, we believe this pest will be brought under control by rigid quarantine regulations and the vigilance of the growers. In any case, let us eat more of our own products.

The next contest in the household department will be for recipes for serving rice. Rice is becoming one of California's staple products. We believe we will produce much more than at present, though we are already shipping rice to New Orleans. We hope the homemakers will send in a large supply of suggestions for serving rice. These will be given in the issue of the Cultivator of March 18.

SELLING DRAFT HORSES

At the last state fair the California Draft Horse Breeders' Association met and discussed plans for increasing the effectiveness of California farming and the profitableness of draft horse breeding through a campaign of education as to the value of better stock. Many plans were suggested and we believe some of them have been worked out. One, to a certain extent educational, was that of holding an annual sale of registered Percherons, Shires and Belgians.

The first sale has now been arranged and will be held next Wednesday, February 24, at the university farm at Davis. The association is standing behind this sale in every particular. It is not a money making proposition for the association, but is arranged so that every breeder of draft horses may take advantage of it. The association, however, has laid down certain rules, one of which is that unsound animals are barred from the sale and every breeding animal must be accompanied by a signed statement from the consignor showing its breeding ability. Veterinarians from the University of California will be present to certify to the soundness of any animal.

This makes a sale condition which is exceptional and gives a most emphatic guarantee to every patron. We hope there may be a large attendance. Further particulars may be secured by writing to Prof. J. I. Thompson at the University Farm.

ORGANIZE

We hope there will be a representative meeting of farmers at the Inside Inn at the Panama-Pacific International Exposition grounds at San Francisco next Monday at 1:30 o'clock. It is Washington's birthday and there will be great events on the grounds of the exposition. It is only the second day after the opening and it will be an excellent time for every farmer who can possibly get away to take a first look-in at the great exposition and then spare two or three hours in discussing the organization which should lead to better agriculture in California, not only from its productive, but from its marketing standpoint. There is to be outlined at that meeting an organization which we believe will give greater power to all the agricultural interests. The first thought was to make this organization one of fruit growers only, to take the place of the so-called Fruit Growers' Association which has met once or twice annually upon the call of the state horticultural commissioner. This "association" has been such only in name and has existed only as an aggregation of fruit growers who saw fit to come and participate in the deliberations of the meetings. As soon as the chairman's gavel fell at adjournment the life of the "association" ended. The good work done at these conventions should be continued, and with this in mind a committee was appointed at the last convention. In appointing them, the convention adopted a resolution favoring a larger and more inclusive association. This larger association will be discussed at the San Francisco meeting.

MARKETING COMMISSION

California is proud of David Lubin and the work of spreading agricultural intelligence which he fathered and mothered until it became a great international institution. His own country was at one time very backward in following Mr. Lubin's suggestion. Even after the king of Italy accepted his proposition and financed the International Institute of Agriculture, the United States department of agriculture was very backward about lending its sanction, and only after much pressure was brought to bear was Mr. Lubin made official representative of this nation in the institute at Rome.

The institute is proving of great value to agriculture the world over. Mr. Lubin has now suggested the adoption of a similar plan for the agricultural interests of this country. To that end there has been introduced into the national congress a resolution calling for a commission which shall have charge of gathering and disseminating this information as to conditions agricultural. The idea is that better informed farmers means more satisfactory returns. The farmer often sells his product for a price less than is justified by the law of supply and demand. If this commission will inform him regarding supply and demand, he will be qualified to deal more intelligently with those who always do have the ability to gather the information which he lacks. We believe this movement is in the right direction and hope the present bill in congress will secure sufficient support to carry it through. The subject is treated more fully in an article by Mr. Flint in this issue.

FRUIT JOBBERS

As we go to press the Western Fruit Jobbers are in session in Los Angeles. They represent men who distribute a great quantity of California fruit to retailers of the Middle West. With them, of course, are many California fruit jobbers. In one session we noted a most decided cleavage in that the Eastern jobbers were very anxious to give a severe rap to the express companies who, they feel, have entered into competition with them in the selling of fruit. It has been the custom of express companies to take orders for and deliver fruit and farm produce direct to the consumer. This has been a great advantage to many consumers and has given many producers opportunity to dispose of their fruit and at somewhat better prices than the open market would secure for them. We believe, and many on the convention floor expressed the belief, that this method is beneficial to producers and injures very slightly, if at all, the jobber. In fact some shippers of California fruits expressed most emphatically the belief that these small express orders were excellent advertisements. A representative of the Wells Fargo Express Company was present and spoke in opposition to the resolution condemning the express companies, referring particularly to Orange Day, at which time the express companies will ship hundreds and perhaps thousands of "boxes" of oranges to Eastern sections. These "boxes" will contain either one or two dozen oranges, in no sense satisfying a market, but, as the speaker expressed it, proving a tickler for large full box orders. We believe the company is right, for such express shipments mean increased business for the jobbers.

We endorse fully the statement made by Mr. James Madison of the Associated Raisin Company that the jobbers and larger fruit handling interests are too selfish, especially in that they do not consider in any way the interests of the producer. If the producer is to be discouraged, the jobber ultimately will suffer. He referred to the fact that in the marketing of raisins only ten per cent of the consumer's money goes to the producer; 90 per cent is required for packing, express transportation, commissions, and other profits. The orange men have a similar complaint though not to any such degree as the raisin men. To this argument the fruit jobbers had no reply, in fact, Mr. Madison was called to order by their chairman because technically he was not talking to the question. We believe the tactics of the larger fruit handlers can only result in lending greater encouragement to cooperative marketing. The producer must get closer to the consumer and save for both himself and the consumer some of that 90 per cent unless the fruit handlers give him a living chance.

This is one of the first conventions to be held on the coast this year and one of the many thousands which will be held before the close of the exposition. On arrival in California the 700 delegates were met at San Bernardino, shown the sights of the citrus sections of the southern part of the state, visited San Diego where two days were spent inspecting the wonders of the Panama-California Exposition, and at this writing are being shown the gardens and orchards about the city of Los Angeles, where the convention is being held. The itinerary calls for visits to Central California fruit producing sections and arrival at San Francisco in time for the exposition opening on Saturday.

Agricultural News Notes of the Pacific Coast

Northern California

A reclamation district covering over 15,000 acres is contemplated near Lone Bridge, Sutter County.

A solid train of rice made up of over 40 carloads was shipped out of Sacramento Valley recently.

Mt. Lassen is enjoying its 74th eruption. It will soon need a speedometer to record them all.

One olive grower from a little over an acre of ground in Gridley, Butte County, claims receipt of over $1,000.

The Panama-Pacific Exposition has received in excess of a thousand tons for the Chinese and Japanese exhibits.

The general rain covering all portions of the valley during last week gives assurance of hay and grain crops.

Bean growers near Yuba City are organizing a cooperative marketing association and will build a large bean warehouse.

San Quentin prison has manufactured ready for use on farms the coming season over two and a half million jute grain bags.

A flock of breeding ewes is maintained at the Davis ranch of the University of California. They are mostly of the mutton type.

Bayliss, Glenn County, was the first to organize a farm center to be ready for the farm adviser whom it is hoped may be secured soon.

Sutter County has organized a raisin growers' cooperative marketing association which will affiliate with the state association at Fresno.

Sebastopol berry growers who are cooperating in marketing their fruit are planning the construction of a large packing house and warehouse.

The California Fruit Exchange which handles deciduous fruit recently held its annual meeting in Sacramento. J. L. Nagle was reelected general manager.

The Pope Valley farm center in Napa County held a social meeting last Friday. County Farm Adviser H. J. Baade gave an interesting talk on poultry.

Newcastle, Placer County, is organizing a chamber of commerce. One of its principal objects will be to make known to the world the advantages of that section.

Glenn and Solano Counties have farm advisers now. J. W. Mills has been appointed farm adviser of Solano County and W. H. Heilemann of Glenn County.

The recent storm gave to various portions of the Sacramento Valley from two to three inches. A dozen or more inches is the precipitation generally over the valley.

The big mass meeting planned for Willits, Mendocino County, last Tuesday to agitate the farm adviser question was called off on account of the storm. The next date set for the meeting is sometime in April.

The Sebastopol chamber of commerce and the directors of the Gravenstein Apple Show Association are laying plans for the Gravenstein Apple Show this spring. M. C. Kauffmann has been elected director of the show association.

Central California

The Western Fruit Jobbers' Association visits Porterville on Friday the 19th.

Agricultural students of the Tulare high school are planning a hog raising contest.

Lindsay and Lemon Cove are planning for an exhibit at the San Bernardino National Orange Show.

Fresno County has chosen March 16 as Fresno County day at the Panama-Pacific International Exposition.

Ten thousand acres of raw land in the Corcoran district in Kings County will be planted to alfalfa this spring.

California's raisin crop last year totalled 1,800,000 pounds, or 90,000 tons. The average selling price was about four cents a pound.

A meeting of swine breeders of Kings County was recently held at Hanford and the matter of organizing a county association was discussed.

The Terra Bella Fruit Growers' Association recently held its annual meeting and decided to increase its capital stock from $10,000 to $25,006.

Salinas, Monterey County, is finding greatly increased crops because of irrigation, the practice of which has been increased greatly during the past year.

Forty carloads of condensed milk were shipped from Gonzales, Monterey County, to be sent through the Panama Canal to France. Another shipment of 20 carloads is being made ready.

County Sealer of Weights and Measures John T. Shore, of Kings County, has received his official standards and is ready for a campaign of testing weights and measures used throughout the county.

President Madison and Manager Giffen of the Associated are making addresses to raisin growers in various parts of the valley. It is proposed to make the next year the strongest ever from the grower's standpoint.

A carload of honey was shipped from Hanford, Kings County, recently. This was sent out by the Kings County Beekeepers' Association, which reports that there are about nine carloads remaining to be shipped. The price received was four cents a pound.

Merced County hog raisers have formed an association. During the past six weeks Dr. Roadhouse of the University of California has been organizing district hog associations throughout the county and it was upon his suggestion that the county association was formed.

Following a meeting of delegates interested in district fairs in the state at Sacramento the following dates for fairs have been announced: State fair, September 4-11; Pleasanton, September 13-18; Fresno, September 20-25, and Kings County, September 28 to October 2.

Over 100 farmers of the Turlock district met with the Turlock Merchants' Association recently to discuss methods of securing a better market for agricultural products of their district. It was decided to form a permanent marketing organization and to urge favorable legislation.

Southern California

One firm has contracted for 300 tons of cucumbers at Garden Grove.

Villa Park, Orange County, is shipping rhubarb in large lots to Chicago.

Stockholders of the Riverside County fair held their annual meeting last Monday.

The La Habra Citrus Association is building a $3500 addition to its packing house.

The National Orange Show is being held at San Bernardino. It will close on the 24th.

Fifteen thousand sheep are en route from Mexico to be fattened in the Imperial Valley.

Several tax payers of Orange County are petitioning for the retention of the county game warden.

Dr. Leon D. Bacheler, formerly of the University of Utah, will make special studies of diseases of walnuts.

Representative Avey of Riverside has introduced a bill providing for establishment of standards for shipment of oranges.

Farmers of Imperial Valley are being advised that until cactus plants are vastly cheaper than at present no planting be done.

Santa Barbara national forest will accommodate 8,000 cattle and horses, 300 swine and 3,000 sheep and goats, during the next season.

An effort has been made by some Southern Californians to secure an annual state fair to be held in midwinter at Exposition Park, Los Angeles.

The Federation of Women's Clubs of Riverside County is asking the board of supervisors to appoint a county forestry commission to beautify the highways.

Orange County has five sugar factories with an average of 10,000 acres for each factory. The average production is about nine tons per acre. If these figures are correct there is need of improved cultural methods.

Complaint has been made because of drivers of autos being careless in travelling over main roads of Southern California and breaking down many trellises for roses which have been put up as a bit of a welcome to our Eastern visitors.

Many settlers who have located on lands reserved many years ago at the time of the building of the Yuma dam and who have endeavored to secure filing rights through this occupancy have been ruled against by the department of the interior and will ultimately be dispossessed.

Los Angeles County has issued double its usual forestry appropriation to be used in cooperation with the United States forestry service, on condition that part of the force needed by Supervisor Charlton for cutting trails and fire breaks be taken from the unemployed applying to the county for work.

It is proposed to erect a large packing house at Cuyamaca, San Diego County, where both oranges and lemons may be packed. The present packing house in the valley handles only oranges, and the lemon growers are forced to send their fruit to the Lemon Grove house.

The Coast

Seattle importers of Chinese eggs are facing heavy losses because of the poor reception given to the inferior stock.

The Wenatchee fruit growers recently met and endorsed the North Central Washington Fruit Growers' League.

The heavy storm which recently visited the Salt River Valley of Arizona added 200,000 acre feet to the waters of Roosevelt reservoir in four days' time.

The first apples from the Northwest to go through the Panama Canal were on the Ohioan and left Portland early in December.

The Southwestern cotton committee of the United States department of agriculture has pronounced volunteer or ratoon cotton unsatisfactory.

The horticultural experts of the Oregon agricultural college are making especially strenuous efforts along the line of plant disease control.

French army officers buying horses near Burns, Oregon, have been offering only $75 to $90 for artillery horses. Horse men generally refuse to sell at such prices.

Apple growers from four apple producing states met recently in Seattle and discussed the matter of making a million-dollar loan with the growing crops as collateral.

Fruit growers recently met at Denver, Colorado, and discussed the matter of a larger cooperative marketing organization which will affiliate with fruit growers' organizations of the Northwest.

Maricopa County, Arizona, has secured for its new farm adviser James A. Armstrong, who has been farm adviser of San Diego County in California. Mr. Armstrong takes up his new work on March 1.

Eastern Oregon wool growers are expecting much longer prices next year, and some contracts are already being signed up. Growers who are holding off are prophesying wool on a 25 or 30-cent basis.

Prof. Stanley F. Morse, superintendent of the agricultural extension service of the University of Arizona, announces that a new plan will be folteslowed in conducting farmers' institutes in that state. It is planned to have lecturers spend the forenoon visiting farmers in the locality where the institute is to be held and that their talks shall have special reference to local conditions observed during these visits.

Mr. F. F. McConnell of Nez Perce, county agent of Lewis County, Idaho, writes: "In this county we are having rather a dry winter so far although there has been fair sleighing for the past two weeks. Live stock has done very well as there have been no bad storms. Most of the farmers have received good prices for their barley and wheat as most of them held for the rise. Quite a number attended "Farmers' Week" at the University of Idaho, Moscow, January 25 to 30. More winter wheat than usual was sown this fall and had the appearance, when the snow came, of producing a bumper yield next summer."

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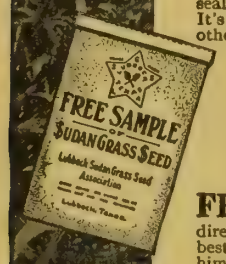
The standing and responsibility of the organization behind it is what gives a guarantee any real, acceptable value to you, and never was this so true as in the case of ***Sudan Grass Seed.*** The certificate "Inspected Seed" doesn't protect the buyer. You have to depend upon the honesty of the grower and seller of the seed.

The ***Lubbock Sudan Grass Seed Association*** is composed of Lubbock County growers of ***Sudan Grass.*** Our object is to produce and distribute to farmers genuine Lubbock County Sudan Grass Seed. The reputation of every individual member is pledged to maintain the purity and quality of all seed sold under the association's name and seal.

Our methods have the endorsement of Mr. Victor L. Cory, Superintendent, Sub-Station No. 8, located in Lubbock County, who has written:

"As chairman of the inspection committee of the Lubbock Sudan Grass Seed Association, I can assure you that the work of the committee was carefully, thoroughly and satisfactorily done. The members of the Lubbock Sudan Grass Seed Association, through their own inspection committee, made intelligent effort to see that their instructions were rigidly carried out."

Buy your seed under the protection of the association's trade-mark seal and warranty, and you will get nothing but the pure and genuine. It's the only way to keep your fields clean of weeds, Johnson grass and other pests.



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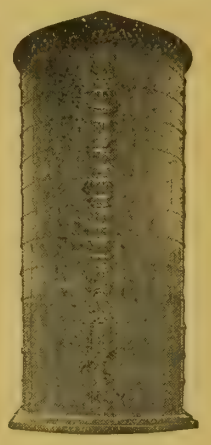

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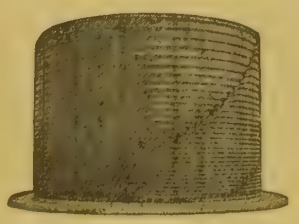

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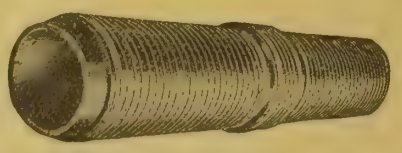

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See Announcement at Head of Editorial Page

Live Stock and Dairy

MAKING AND FEEDING SILAGE

SILAGE during the last three decades has come into general use throughout the United States, especially in those regions where the dairy industry has reached its greatest development. Silage is universally recognized as a good and cheap feed for farm stock, and particularly for cattle and sheep, are the observations made in Farmers' Bulletin 578 of the United States department of agriculture.

Silage is the best and cheapest form in which a succulent feed can be provided for winter use, continues the bulletin. An acre of grain can be placed in the silo at a cost not exceeding that of shocking, husking, grinding and shredding. Crops can be put in the silo during weather that can not be used in making hay or curing fodder, which is an important consideration in some localities.

A given amount of corn in the form of silage will produce more milk than the same amount shocked and dried. There is less waste in feeding silage than fodder. Good silage properly fed is all consumed and in addition very palatable. Like other succulent feeds it has a beneficial effect upon the digestive organs, and some stock can be kept on a given area of land when it is the basis of the ration.

On account of the smaller cost for labor, silage can be used for supplementing pastures more economically than soiling crops, unless only a small amount of supplementary feed is required. Converting the corn crop into silage clears the land sooner than if the corn crop is shocked and husked, and because of these advantages silage in the general opinion of dairy farmers has increased milk production per cow and has increased profits per acre.

Corn

In all parts of the United States where the silo has come into general use the principal silage crop is corn. One reason for this is that ordinarily corn will produce more food material to the acre than any other crop which can be grown. It is more easily harvested and put into the silo than any of the hay crops, such as clover, cowpeas, or alfalfa.

Furthermore, corn makes an excellent quality of silage. The legumes, such as clover and alfalfa, are liable to rot unless special care is taken to pack the silage thoroughly and force the air out. The only objection which has been raised concerning corn silage is the fact that it contains insufficient protein to fully meet the requirements of animals to which it may be fed. The best variety of corn to plant is that which will mature and yield the largest amount of grain to the acre, since the grain is the most valuable part of the corn plant. The variety commonly raised in any particular locality for grain will also be the most satisfactory to grow for silage.

Cultivation and Yield

In some sections it is a common practice to plant the corn a little thicker when raised for silage than for grain. Weeds should be kept out or they will be cut with the corn and may impair the quality of the silage. The amount of silage that can be obtained from an acre of corn will vary from 4 to 20 tons or more. A 50-bushel per acre crop of corn will yield about 8 to 12 tons of silage per acre, depending upon the amount of foliage and stalk that accompanies the ear. Southern varieties of corn as a rule carry a larger proportion of the plant in the form of stalk and leaves than do the northern-grown varieties. Corn should be harvested for the silo at about the same time that it is harvested for fodder.

Sorghums

Sorghums, both saccharine and non-saccharine, are readily made into silage. On account of their superiority to corn as drouth resisting crops they are more commonly grown in those regions of the West where the rainfall is too light or irregular for a good growth of corn. It is important that the sorghums be harvested at the proper stage of maturity if the best results are to be secured. A mixture of corn and sorghum has proved satisfactory in some localities where the rainfall is so variable as to make the corn crop uncertain.

Cowpeas, Alfalfa, and Soy Beans

Cowpeas, alfalfa, and soy beans can be successfully made into silage by exercising precaution. They should be cut at the same time as for haymaking. However, it is ordinarily preferable to make them into hay rather than silage. The fermentations which take place in silage made of legumes cause a greater loss of nutritive material than with corn silage. Corn husks and pea vines from canning factories, beet pulp and other by-products are also used in certain localities for filling the silo.

Corn for the silo can be cut either by hand or by machine. Hand cutting is practiced on farms where the amount of corn to be harvested is so small as to make the expense of purchasing a corn harvester too great to justify its use. Hand cutting is slow and laborious and there are probably few localities now where the purchase of a harvester would not be a profitable investment.

There are on the market several makes of silage cutters that will give satisfaction. The capacity of the machine to be purchased is an important consideration which should not be overlooked. Many persons make the mistake of getting a cutter which is too small, thus making the operation of filling the silo very slow and interfering with the continuous employment of the entire force of men. It is better to get a machine large enough so that every one will be able to keep busy all the time. The larger cutters are equipped with self-feeders, a labor-saving device which the smaller sizes lack.

The usual length of cutting varies from one-half to one inch. The latter is considered a little too long, since pieces of this length will neither pack so closely in the silo nor be so completely consumed when fed as will the shorter lengths. On

the other hand, the longer the pieces the more rapidly can the corn be run through the cutter.

In case the corn has become too dry or ripe before it is put into the silo, water should be added to supply the deficiency of moisture necessary to make the silage pack properly. Unless it is well packed the silage will "fire-fang" or deteriorate through the growth of mold. Enough water should be added to restore the moisture content of the corn to what it would be if cut at the proper stage. The water may be added by running directly into the silo by means of a hose or by running through the blower. It is claimed that by running it into the blower the water is more thoroughly mixed with the cut corn.

PIGS POISONED BY SALT

"On Saturday morning we gave to ten pure bred Poland China gilts three pounds of crushed rock salt which they ate greedily. On Sunday morning we found two of the number dead and six others in spasms from which they died during the day. The other two, being smaller, were crowded away from the trough and so did not get much, or any, of the salt. We made a post-mortem examination of two of the pigs and found nothing wrong with them except that the livers were soft.

"They have had all the charcoal they would eat and have been fed on shorts, slop, and sound corn. They were in good condition and had warm quarters. We usually keep a trough of salt before our pigs.

"I am sending a sample of the salt. Kindly advise us regarding our difficulties."

This letter came to the Wisconsin College of Agriculture. Veterinarian F. B. Hadley answers:

There seems to be no doubt but that the gilts were poisoned by the salt. Salt acts as an irritant to the stomach and bowels. Under ordinary conditions it may be placed in front of hogs even in large quantities and they will eat very little. However, if they have not had access to salt very recently they will greedily consume large quantities of it with very disastrous effects. It takes but a few minutes after eating salt for symptoms of poisoning to develop.

The hogs will first be noted to be restless. They run about the feed lot in an uncertain sort of manner and squeal more than usual. They will lie down for a moment and then jump up again and run along the fence, squealing and stamping their feet. Finally the irritation becomes more marked, the animals begin to froth at the mouth and are seized with convulsions in the course of which the muscles become rigid and the hogs throw themselves about in a violent manner. Vomiting is usually a prominent symptom. Pain becomes severe as the cases proceed. Finally the animals begin to pass into a sort of stupor. The hind parts become paralyzed and death is preceded by convulsions. In some cases a very pronounced watery diarrhea is present.

Salt is necessary for all animals and pigs in particular. It should be kept before them at all times either as rock salt or as fine salt. We prefer to mix the salt with charcoal and copperas, using 25 pounds of charcoal and ten pounds of salt and two pounds of copperas. Hogs will eat considerable quantities of this and it will do much toward keeping them in good condition.

Kings County swine raisers have organized an association.

NATIONAL LIVE STOCK

The American National Live Stock Association will hold its 18th annual convention in Hall A, first floor of the Exposition Memorial Auditorium, San Francisco, March 24-26. President Jastro writes:

"At our last annual meeting it was decided to hold our 1915 convention in San Francisco during the Panama-Pacific International Exposition, at a date to be fixed by the executive committee. It has been customary to hold our annual meetings in January, but, owing to the fact that the exposition does not open until February 20, 1915, it became necessary to fix a later date, and the executive committee, after considering the dates of other annual live stock meetings to be held early in the year, selected the above as the most convenient for the majority of our members.

"The live stock industry was never confronted with more serious problems. It is passing through a very widespread attack of the foot and mouth disease. Railroads are proposing largely to advance their rates on live stock and its products. Range conditions are yearly becoming more unsatisfactory. The cost of raising and maturing live stock has increased. Importations of meats have affected prices. The war in Europe has seriously disturbed all commercial conditions in this country.

"Among the many subjects for consideration at our convention are: Federal control of the semiarid, unappropriated, public grazing lands; various land bills before congress, administration of forest reserves, railroad rates and service, delays at terminals, cases pending before the interstate commerce commission regarding live stock rates, valuation in

Harness is like a leather boot—if you don't keep it oiled, it rots. Moisture that works into the pores of your harness robs tugs, straps and breechings of the strength they need to give you good long service.

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LOSSES SURELY PREVENTED by Cutter's Blackleg Pills. Low-priced, fresh, reliable; preferred by Western stockmen because they protect where other vaccines fail. Write for booklet and testimonials.
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Use any injector, but Cutter's best.
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of Registered Percheron, Shire and Belgian Horses

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Will be Held

WEDNESDAY, FEBRUARY 24th

At The UNIVERSITY FARM, DAVIS

Sale to Commence 1 p. m.

Auction Sale of Drafters

The attention of horsemen is hereby called to the advertisement of the first annual combination sale of Percheron, Shire and Belgian horses.

This sale has been inaugurated by the California Draft Horse Breeders' Association, and is the first step towards the development of a better market for pure bred draft horses in California. It will be an exceptional sale in many respects, but particularly in the effort which is being made to protect the buyer.

In the first place, the rules laid down by the association bar all unsound horses from the sale, and every breeding animal must be accompanied by a signed statement from the consignor, showing clearly the horse's breeding ability. There will also be in attendance at the sale, a member of the veterinary staff of the University of California, who will examine any horse upon request.

These precautions will make the sale, even for the most inexperienced, a perfectly safe place to buy a horse, either in regard to soundness or breeding ability. By bringing a large selection of stallions and mares together at a centrally located place, the buyer is given an opportunity for comparison and choice not often available. This fact certainly makes this sale a good and safe opportunity to buy either a stallion or a mare at breeders' prices.

All desiring Catalogues can obtain same by writing to

PROFESSOR J. I. THOMPSON

WM. HIGGINBOTTOM, Auctioneer

Secretary California Draft Horse Breeders' Association, University Farm, Davis, California

What Those Who Know Say About Ideal Green Feed Silos

San Luis Obispo, Jan. 28, 1915.

De Laval Dairy Supply Co.,
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Gentlemen:—

We are anxious to tell you of the good results we are having since erecting an Ideal Green Feed Silo. The corn we put in is coming out perfect silage, no waste and good to the very edges.

This amount of feed, for as you know we erected a silo of two hundred tons capacity, is going to practically double the income of our dairy.

We raise a great amount of feed in the shape of corn on a comparatively small acreage for the silo, giving the extra land to raise grain, thus cutting the expense of mill feeds to a minimum.

We can honestly recommend this Ideal Green Feed Silo to any dairyman and firmly believe a silo will prove very beneficial and remunerative to our coast dairymen. It is an insurance policy that makes its own payments and pays the amount of the policy in a short time besides.

Sincerely,
SINSHEIMER BROS.

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Everything for the Dairy

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A RIDING orchard cultivator and mulcher. Gets all the weeds—large and small. Used in orchards or for summer fallowing; keeps down weed growth and properly mulches surface soil.

Foot Lift Lever enables operator, on seat, to clear off weeds that may gather while working. All steel construction. Light draft. Depth of cut adjustable. Price right.

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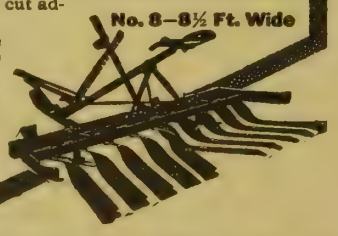

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live stock contracts, suppression of foot and mouth and other infectious diseases, and appropriation by congress for same; sanitary regulations, meat inspection law, importation of live stock and meats, inspection of imported meats, hides and wool; prohibitive tax on oleomargarine, financing of live stock loans, reports of officers and standing committees."

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Hard Milker

We have cows which are hard milkers. What is the best method of curing this trouble? If by slitting teats is it best to slit the entire length or how far should the knife be inserted? Would like instruction as to procedure. —Subscriber, Porterville.

The sphincter muscle that closes the opening is very small and right at the end of the teat. When it is too tight and too much pressure is required to cause the milk to flow it may be stretched by placing a dilater, shaped like a collar button, in the opening and leaving it from one milking to the next. By doing this, in time the muscle will relax and the milk flow much easier. When the dilater is left out entirely the muscle is liable to contract to its former size and the cow become a hard milker again. Some open the teat by cutting the sphincter muscle in three or four places before using the dilater. If this is not done carefully the opening may be made too large and the cow lose her milk after it. These are the methods employed and often the results are very satisfactory.

Heifer in Poor Condition

What is the cause of grubs in a heifer's back? She did not clean for a week after calving. I gave her a cup of flax seed with alfalfa and bran mash once and twice a day for a few days. She cleaned and then looked better but is still poor. Feed lima bean straw and alfalfa and bran mash once a day now. She does not give as much milk as last year when fresh with her first calf. At what intervals do cows come in heat?—Subscriber, Moorpark.

Grubs or warbles are the larvae of a fly that is much like the bot fly that bothers horses. A fairly good description of them was given in the Cultivator of December 31, on page 681, under the heading "Warbles."

Cows in good health usually come in heat every three weeks. Give the heifer the following powders for a tonic: Powdered gentian six ounces, powdered nux vomica four ounces, bicarbonate of soda six ounces and farina enough to make two pounds. Mix and give a tablespoon in the feed twice a day.

Broken Wind

Please give me directions how to treat a blocky mare that has a very deep cough. She is in good condition and seems to be all right every other way. It is not from a cold and I do not know what to do to relieve her.—Subscriber, Garden Grove.

The mare probably has broken wind or heaves. This is caused by overfeeding. You may be able to cure her by reducing the feed and giving it very regularly. Do not feed her over two pounds of hay in the morning and the same amount at noon. At night give her ten or twelve pounds of hay according to weight. Divide the grain about equally for the three feeds and every day she is not worked give no grain at noon. Also give the following powders: Powdered gentian four ounces, powdered nux vomica three ounces, powdered belladonna leaves one ounce, powdered digitalis leaves one ounce, bicarbonate of soda three ounces and enough farina to make one pound. Mix and give a small tablespoon in the feed every night.

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COMMERCIAL ENGINES

Best Built Engines In The West

For every need, on every occasion, you will find throughout the State of California a majority of "Commercial Engines" working silently, powerfully, day after day, year in and year out, at a wonderfully low cost of operation. Their efficiency and perfect service makes them the standard by which all other engines should be judged.

Write at once for our catalogue 18-C and any information you may desire on the subject "Power On the Farm."

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Raise Your Calves Without Milk

Let Blatchford's Calf Meal take the place of milk in raising your calves. Costs less than half as much and the calves are stronger, bigger - boned and healthier.

Blatchford's Calf Meal

has been known as the complete milk substitute since the year 1800. It prevents scouring and contains just the ingredients necessary to promote early maturity. Sold by your dealer or direct from the maker.

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Send your name and address and get actual figures that show the possibilities for making money from your calves.

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RUN THIS ENGINE for 30 DAYS FREE

Detroit Kerosene and Gasoline engine sent YOU on 30 days FREE TRIAL; guaranteed 10 years. Economical horse power, lowest prices; farmer agents wanted everywhere. Engine operates on gasoline, kerosene, alcohol, distillate or naptha. Saws wood, grinds feed, churns, pumps, separates, makes light any job around the farm. Only 3 moving parts, no cams, gears, sprockets, etc. Send for "Common Sense Power Book."

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Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.
Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Right-of-way

Would like to get right-of-way across one corner of my neighbor's land. I own land cornering on two sides of a stake. Land has never been fenced, now the neighbors want to fence and I must have a right-of-way out. It would probably take a piece of land 15 feet by 30 feet. Do I have to buy the land or just fence across the corner?—Subscriber, Bachelor.

As the land over which you wish to pass belongs to your neighbor you would have to purchase it from him. —L. F. S.

Questions like the above could be answered more satisfactorily by the attorney if full particulars were given. For instance, it is barely possible that a right of way has been acquired over this land by continual travel. Again, it may be impossible to secure any entrance to the property except over a neighbor's land. These facts would all have a bearing on the question.

First Mortgage

A holds first mortgage on real estate and B holds second mortgage. First mortgage is due in February. If first mortgage is not paid does the second mortgage become first and has the present owner any right to renew first mortgage?—Subscriber, Covina.

The renewal of a first mortgage does not admit of a second mortgage acquiring a prior lien upon the property. To be entirely safe it is usual to secure the second mortgagee's consent, but not necessary.

Wife's Signature

A buys land on contract with inherited money and does not consider it community property. He sells to B before he gets deed. A's wife, without his consent or knowledge, files on it as a homestead to prevent the sale and transfer. Can A give B good title without his wife signing, and if so how?—Subscriber, Strathmore.

A homestead may be selected from the community property or separate property of the husband or with the consent of wife from her separate property; this being property upon which the family are residing at the time of making and filing declaration. Thus it is apparent that A could not give clear title to his property without wife signing deed. There may be other circumstances, however, which if you will take up with your local attorney would be of assistance to you.

Promissory Notes

Three promissory notes are given and secured by second mortgage on real estate. One note is sold before due and endorsed, signed "John Doe, without recourse." Is John Doe or the mortgage liable in any way on account of the original signer's failing to pay said note?—Subscriber, Covina.

If note is endorsed without recourse the endorser is not liable thereon, but as the mortgage secures the three notes, the holder of such note would undoubtedly be entitled to an interest in the mortgage proportioned to the value of his notes to the other notes. This is very frequently the case in regard to railroad bonds, which are simply notes secured by a general mortgage.

Inheritance

Husband and wife own real estate in their own names, also hold contracts for real estate in favor of both and signed by both. Husband has father and brothers living; wife has brothers living. In the event of death of either, without a will, where would the property go?—Subscriber.

If the property is community property, upon the death of the wife it would go to the husband without administration. As to the separate property of each, there being no children, one-half goes to the surviving husband or wife and the other half to the father in case of the husband and in case of the wife in equal shares to her brothers.

Witnessing Will

Does a will have to be witnessed in this state to make it valid?—Subscriber, Covina.

A will wholly written, signed and dated in the handwriting of the testator is not required in this state to be witnessed. The other common form of will requires two witnesses.

Iowa Mortgage

Would real estate mortgage on Iowa property held by deceased party here be directed by the court here or Iowa courts?—Subscriber.

A real estate mortgage is a mere personal obligation secured by real property and its disposition would be directed by the California court.

Tricky Agent

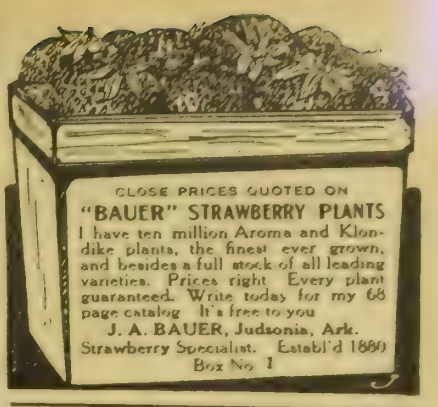
A man sold me a desert relinquishment through an agent. The agent told the owner that I was only willing to pay $400 for the papers. The agent told me that the owner had to have $625, which amount I paid him. The agent then asked the owner for $25 commission out of the $400, which he paid him. He thus profited $250 through the deal. Can the former owner get any of this money that is due him, or could I take the matter up on the charge of obtaining money under false pretenses? Or is this a perfectly straight real estate transaction?—Subscriber.

The agent was acting for the owner and not you. The original owner could undoubtedly recover from him the extra $250 as a principal is entitled to secret profits thus made by the agent.

Settling Company's Affairs

A B & C have been in business together. The company sells out and B is settling up the business.

(Continued on Page 214)



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As rubber came down our prices came down. As our output multiplied, reducing factory cost, our prices came down with it. In two years our reductions—including the present—have totaled 45 per cent.

Last year we increased our output 26.6 per cent. A few days ago the embargo on rubber was modified so that supplies seem assured. The market price for rubber seems for a time established. Fabric costs less than last year. So, under our minimum profit policy, we announce this new reduction.

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We consider profit margin on a tire the only fair price basis. We keep that margin just as low as our line allows.

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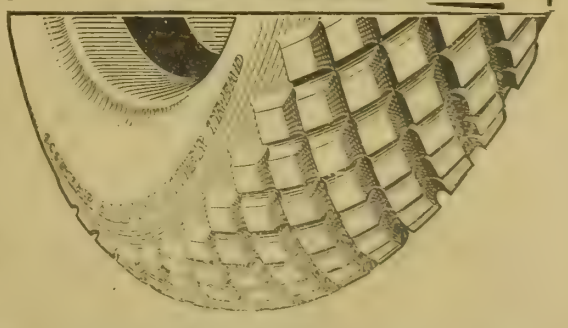

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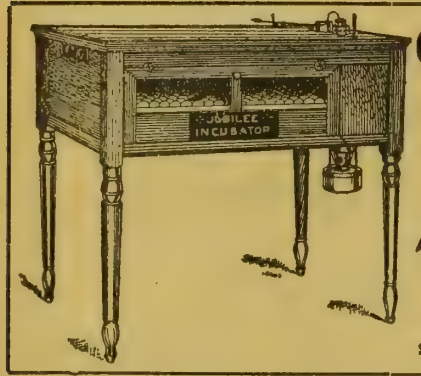

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Ask the poultryman who has one.

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Poultry for Profit

SUCCESS OR FAILURE IN 1915?

THE approach of spring is a happy season for the poultryman as well as the spring poet, but unfortunately we have too many poultrymen who confine their enthusiasm largely to these months, as do many of the sentimental writers of springtime literature. We cannot impress upon you too strongly that the poultry work is a year-round business and cannot be neglected at any season, but there are more points to be looked after at the approach of the breeding season than at any other time. You are then laying the foundation, and upon the intelligence that you use at this time largely depends your future success. Look well to your matings for 1915.

You should have by this time fully made up your mind as to the breeding pens. This work cannot be done in a day and you should have records kept throughout the year that will enable you to do away with guesswork and mate with accuracy. Now it is true that everybody cannot use the trapnest, but even the man with one pen of fowls can toe-mark and leg-band his chickens and have ways of identifying his flock so that he may do the work of mating with intelligence.

We wish to especially urge you to study the Standard and the requirements for your variety. The new Standand is now ready and your birds should be mated with that in view, as it will be the judge's guide at the poultry shows next summer and fall. Get the Standard at once and take another look at your pens to see if you can make any further improvement in your 1915 matings. We feel confident it will be the best Standard ever issued. We hope it will prove to be at least.

Don't overlook vigor or vitality in every bird in your pens. That should always be the first requirement, for without that your birds cannot retain their good shape, their brilliancy of plumage, or be good producers from any point of view. Breed from males and females that have been good producers or that have been bred from good producers. Don't forget that the egg basket is where most of the profit is and that eggs represent more than half the income from this great industry.

You should also realize the importance of hatching at least a few early chicks. The great Panama-Pacific Exposition takes place this year, and the poultry show at that place in November will be one of the largest and best ever held in this or any other country. It should be the ambition of all to breed at least a few birds good enough in age and quality to win the blue at this show. Also if you are going to exhibit at the state and county fairs you need at least some early hatched stock.

In some sections of the country February and March are excellent months to raise poultry and it is possible to produce birds that will lay eggs during the early months of fall when eggs are the highest, birds that will be in prime condition for the early show room and that will be mature enough for breeders the following season. The hatch may not be quite so good, but if you will provide comfortable quarters the chicks will be freer from disease and vermin than when hatched later in the season. Then too those birds that you wish to cull out bring a good price on the market as broilers. Reaching the market with early broilers is one method by which paying returns are brought to the specialist who raises fowls for the market.

For the above reasons and for others which might be stated we think that every farmer and every poultry raiser should have at least one good incubator holding 120 eggs or over. It is the practice of too many people to set the first hens which go broody in the spring, and these are usually the very hens which they should breed from, and they should be kept laying. These hens are the ones which had the ability to lay in winter when eggs were highest. Start the season of 1915 right and you will find pleasure and profit later in the poultry business as a result of your carefulness and common sense used at this time. —Director T. E. Quisenberry, Missouri Experiment Station.

PROFIT IN FALL EGGS

Mr. J. F. Williamson of Coalinga writes of his experience in getting fall eggs.

I read the account of Mary E. Edwards for nine months of the year; I'd like to give mine for the three months that she says chickens will not make their keep, October, November and December. I am sorry I have not the record for October as I moved in October and just commenced to keep a record the first of November.

I have 15 Barred Rock hens. In November I got 10 dozen eggs at a total cost of $2.76. The eggs were worth 50 cents per dozen here in November and December and 40 cents in January. In December I got 20 dozen eggs and in January 19 dozen. The feed averaged $2.76 per month or $8.28 for three months, and the eggs laid were worth $23.75 here on the market. They laid better in October than November, as when I moved them they quit laying for almost two weeks.

I keep the following mash before them all the time: five parts bran, two parts shorts, one part corn meal, one part oil cake, one part dried beef scrap, one-half part ground bone by measure. In the evening I fed about two and one-half pounds wheat; in the morning part of the time, sprouted barley and part of time bran, shorts and corn meal mash; about twice a week I fed green ground bone and meat together. They are still laying at the same rate. I forgot to mention that I set four hens in January, the reason for one dozen less eggs than in December, I think. From my experience chickens can be made to pay a bigger profit in October, November and December than any other months in the year.

Wise men keep out of ruts. For them there is no sameness, because they have learned to think and see and feel everything. If there is no visible sun, they draw on a reserve force of sunshine within. Some people inherit this secret source of joy; others learn to acquire and hold it.

Don't Forget

That care in selecting the grain you are going to feed your baby chicks will save you lots of trouble and loss. The ingredients of

Coulson's MADE IN PETALUMA

Special Chick Food

are very carefully selected to give the best results.

Only strong wheat, sound corn, kiln dried steel cut oats and carefully selected seeds are used in its composition.

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Incubator measures and adapts heat, moisture and ventilation to each other. Gives definite proportions of each. Results, right conditions, big hatches, strong chicks. The one really scientific hatcher. Same results for all users. Investigate. Let's latest, best poultry book free. Address
Peerless Poultry Supply Co., 409 E. 3d St., Los Angeles.

NATURAL BROODING OF CHICKENS WITH HENS

While it is still winter weather the poultry raiser is considering the raising of spring chickens for the market, and among other important problems are those of brooding. Brooding with hens, according to the United States department of agriculture's specialists, is the simplest and easiest way to raise a few chickens and is the method which is used almost exclusively on the average farm. Artificial brooders are necessary where late winter or very early chickens are raised, where only Leghorns or other non-sitting breeds of poultry are kept, or where large numbers of chickens are raised commercially.

Successful natural rearing of chickens requires convenient facilities, regular attention, and often tries one's patience, while artificial methods require a larger investment, close attention and more care, but are more commonly used where large numbers of chickens are raised. Many poultry keepers who are able to secure good egg yields and fair hatches make a failure of brooding chickens, either in raising only a small percentage of the chickens hatched or in failing to rear strong, vigorous birds which develop into good breeding stock. Brooding is still in the experimental stage, and no one system has given perfect satisfaction.

Rearing Chickens with Hens

Sitting hens should be confined to slightly darkened nests at hatching time and not disturbed unless they step on or pick their chickens when hatching, in which case the chickens should be removed as soon as dry in a basket lined with flannel or some other warm material and kept near a fire until all the eggs are hatched; or the eggs may be removed and placed under a quieter hen whose eggs are hatching at the same time. An incubator may also be used to keep the earliest hatched chickens warm in case they are removed from the nest. If the eggs hatch unevenly those which are slow in hatching may be placed under other hens as hens often get restless after a part of the chickens are out, allowing the remaining eggs to become cooled at the very time when steady heat is necessary. Remove the egg shells and any eggs which have not hatched as soon as the hatching is over. Hens should be fed as soon as possible after the eggs are hatched, as feeding tends to keep them quiet; otherwise many hens will leave the nest. In most cases it is best that the hen remain on the nest and brood the chickens for at least 24 hours after the hatching is over.

Hens are often used to raise incubator-hatched chicks and to take the place of the artificial brooder, a practice that is in operation on many poultry farms. A few eggs are put under the hen four or five days before the incubator is to hatch. In the evening following the hatch of the incubator after the chickens are thoroughly dry one or two are put under the hen, and if she is found to mother them properly then next evening as many more are added as she can brood or care for properly. Hens will successfully brood 10 to 15 chickens early in the breeding season and 18 to 25 in warm weather depending upon the size of the hen. This method of handling chickens does away with the artificial brooder, and where one has only a small number of chickens to raise it is a very easy manner in which to handle them and also a good method when it is desired to raise separately special lots of chicks. It should be borne in mind in adding chickens to a hen which already has some to brood that it is best to add those of the same color and age as the ones already with her as the hen will often pick the later arrivals if they are of a color different from the ones she is already brooding. As a rule this transferring should take place at night although with a quiet docile hen it can be done in the morning.

Powder the hen with a good insect powder before moving her and the chickens to the brood coop. The hen should be dusted every two weeks or as often as necessary until the chickens are weaned. If lice become thick on the chickens or if they are troubled with "head lice" a very little grease, such as lard or vaseline, may be applied with the fingers on the head, neck, under the wings and around the vent. Great care should be taken not to get too much grease on the chickens as it will stop their growth and in some cases may prove fatal.

The brood coop should be cleaned at least once a week and kept free from mites. If mites are found in the coop it should be thoroughly cleaned and sprayed with kerosene oil or crude petroleum. From one to two inches of sand or dry dirt or a thin layer of straw or fine hay should be spread on the floor of the coop. Brood coops should be moved weekly to fresh ground, preferably where there is new grass. Shade is very essential in rearing chickens, especially during warm weather; therefore the coops should be placed in the shade whenever possible. A cornfield makes fine range for young chickens as they secure many bugs and worms and have fresh ground to run on most of the time, due to the cultivation of the ground, and have abundant shade at the same time.

Toe punch or mark all the chickens before they are transferred to the brooder or brood coop so that their age and breeding can be readily determined after they are matured. Farmers frequently keep old hens on their farms and kill the younger hens and pullets because they are unable to distinguish between them after the pullets have matured.

Brood Coops

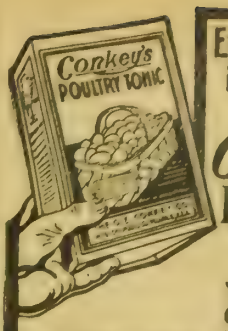
Chickens hatched during the winter should be brooded in a poultry house or shed while the outside weather conditions are unfavorable; after the weather becomes settled they should be reared in brood coops out of doors. Brood coops should be made so that they can be closed at night to keep out cats, rats and other animals, and enough ventilation should be allowed so that the hen and chicks will have plenty of fresh air. Details and specifications for building a good coop are given in the department's Farmers' Bulletin 574, "Poultry House Construction," page 13, which is to be had on application.

The hen should be confined in the coop until the chicks are weaned, while the chickens are allowed free range after they are a few days old. Where hens are allowed free range and have to forage for feed for themselves and chicks, they often take them though wet grass where the chicks may become chilled and die. Most of the feed the chicks secure in this manner goes to keep up the heat of the body, whereas feed eaten by those that are with a hen that is confined produces more rapid growth as the chicks do not have so much exercise. Then too in most broods there are one or two chicks that are weaker than the others, and if the hen is allowed free range the weaker ones often get behind and out of hearing of the mother's cluck and call. In most cases this results in the loss and death of these chicks due to becoming chilled. If the hen is confined the weaklings can always find shelter and heat under her, and after a few days may develop into strong, healthy chicks.

The loss in young chicks due to allowing the hen free range is undoubtedly large. Chickens frequently have to be caught and put into their coops during sudden storms as they are apt to huddle in some hole or corner where they get chilled or drowned. They must be kept growing constantly if the best results are to be obtained, as they never entirely recover from checks in their growth even for a short period. Hens are usually left with their young chicks as long as they will brood them, while some hens frequently commence to lay before the chickens are weaned.

Tells why chicks die

E. J. Reefer, the poultry expert of 405 Main St., Kansas City, Mo., is giving away free a valuable book entitled "White Diarrhoea and How to Cure It." This book contains scientific facts on white diarrhoea and tells how to prepare a simple home solution that cures this terrible disease over night and actually raises 98 per cent of every hatch. All poultry raisers should certainly write Mr. Reefer for one of these valuable FREE books.



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Vigorous birds grow rapidly, feather up fast, and pay a profit, while the weak ones drag along and are only an expense.

CONKEY'S gives them health and stamina and keeps the organs keyed up to their best without overtaxing them.

Don't just say "Poultry Tonic" to your dealer. Say "CONKEY'S" and know you are getting pure tonic, absolutely free from filler or cayenne. Buy it by the Pail, and use every day.

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Send 4c in stamps for Conkey's Poultry Book. It tells facts you want to know. Worth dollars to any poultry owner.

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On every 40 acres we install a pumping plant, provide trees and seed adapted to the soil, and necessary farm implements to begin your work.

This establishes you at once on good land in the early fruit district of the upper Sacramento Valley, and assures crop returns the first year. Every one who wants a farm should investigate this offer. Write to.

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From Imported Stock direct from Tom Barron
S.C.W. Leghorn Day Old Baby Chicks
from American bred Utility Hens mated to Barron strain cockerels.
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Write for prices. San Jacinto, Cal.

Spineless Cactus
Select Cuttings of
Luther Burbank Varieties
Write for information and prices.
GUSTINE SPINELESS CACTUS CO.
Gustine, (Merced Co.) Cal.

LEGAL QUERIES

(Continued from Page 211)

A has borrowed from the company. B owes A a sum of money of which he has paid all but $430, and this he refuses to pay, claiming that he has counter claim on A for the amount, through company. Can A make him pay the $430?—Subscriber.

Unless B is the holder or purchaser of the claim of the company against A he cannot offset that amount against the claim of A. The above qualification is made in view of the statement that the company sells out.

Lapsed Contract

I have a contract with the water company in which it is stipulated that if the water rent is not paid it becomes null and void. My crops were damaged because of seepage from canals and ditches of the company. This was four years ago. The company refused to pay the damage and I have not used water during that time. Now should I wish to use the water under this contract can the company make me pay delinquent assessments for the four years in which I did not use the water?—Subscriber, Laton.

The usual case when parties stipulate that upon default in payment contract becomes null and void is upon the happening of the conditions; the contract thereafter conveys no rights. If the company refuses to deliver you water except upon payment of delinquent assessments, if it is a public utility, it would be advisable to take matters up with the railroad commission. It is impossible to give you a more definite answer without seeing the contract or knowing more about the company.

Trust Deed

Trust deed held against my place is due next month. Holder has agreed by letter to extend the time. Is that all that is necessary or could he take advantage of me if he was so inclined? What would be the course to pursue to collect?—Subscriber, Los Angeles.

The usual course upon a trust deed is for the holder of the note secured thereby to order the trustee to publish notice of sale, after which sale the trustee gives deed to the property to the purchaser, crediting upon the note amount of the purchase price. If you should notify the trustee of the communication which you have it is very probable that no action will be taken upon foreclosure.

Property In Wife's Name

If I buy a piece of property and put same in my wife's name could children by a former marriage make any trouble?—Subscriber.

The best method would be to make a gift deed of property to your wife.

Second Mortgage

I hold a second mortgage. Interest has not been paid for a year and a half and no principle has been paid. Mortgage is in three notes, payable in one, two, and three years. The third note is due the 20th of this month. Will it be necessary to do something to protect my interests when my last note is due? Is there anyway by which I can collect other than by taking up the first mortgage and then foreclosing? The property has changed hands four times since I took the mortgage. The maker of the notes and at least two of the subsequent owners are individually able to pay the mortgage.

A mortgagee can always bring action to foreclose his mortgage, and in case of second mortgage the property is sold under foreclosure sale, subject to the lien of the first mortgage. For any amount remaining unpaid upon the mortgage a deficiency judgment may be entered against the maker of the mortgage and all parties who have assumed the payment thereof; which deficiency can be satisfied as in any judgment. The only case in which the second mortgagee is obliged to take up the property is when he is unable to exact payment from the debtors and must look solely to the property for his security. In other words, it is a practical proposition and not a legal one.

(Continued on Page 218)

Money Making Little Liners

Inserted in These Columns Under a Classified Heading. A Clearing House for Our Many Thousands of Readers

LINER RATES ARE 12c PER LINE PER ISSUE

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TREES

For Sale—10000 VALENCIA LATE
5000 MARSH SEEDLESS GRAPEFRUIT
8000 EUREKA LEMONS
12000 WASHINGTON NAVELS

Softland trees, perfect in quality, grown by us. Lowest price. Will plant if desired. Consider some exchange—now is most favorable time to make contract for next spring planting. Write or phone today for prices. Phone 559. Ward Realty Co., San Dimas, Cal.

We Have Made a Specialty of Placentia Perfection Walnuts on native black root for a number of years, and are offering the finest trees we have ever grown this year. 80 per cent of our stock is eight feet and up. The scions used were taken from trees in our large orchard that have made a very high record for the past five years. Good Ancestry Pays. Nursery at Villa Park. Hugh T. Thomson, Orange, Cal., R. F. D. 1.

Walnut Trees—Late blight resisting varieties grafted and budded on California Black and on FIRST GENERATION Royal and Paradox Hybrid roots, which are as much superior to the California Black root, as the California Black Root is to the English root—Eureka, Franquette, Mayette, Neff's Prolific, Concord and Placentia. Dr. W. W. Fitzgerald, Elks' Building, Stockton, Cal.

BUDDED AVOCADO TREES

Blake, Fowler, Harman, Ganter, Taft, Walker, Murrieta, Trapp, for immediate delivery. Royal, Challenge, for future delivery. MAGEE BROS. R.D. 2, Pasadena.

Home-Grown Fruit Trees—Largest assortment, including thousands of Royal Apricots, Tuscan and Phillips Cling Peaches, Pears, Apples, Figs, Grapes, etc., etc. Guaranteed true to name; strong, healthy and well rooted. Special low prices on application. Orange County Nursery & Land Co., Fullerton, Cal.

Cheap Reliable Trees—4,000 Phillips' Clings; also Tuscans, Fay Elbertas, French, and Imperial prunes, 10,000 Bartletts, 8,000 Gravensteins, Grafted Walnuts and other stock cheap. Write or wire for just what you want. Will save you money. Table Grove Nurseries, Healdsburg, Cal.

Walnut Trees—Eureka and El Monte varieties a specialty, also Franquette and Placentia. Write for prices and description of stock. Personal inspection invited. Eureka Walnut Nursery, Montebello, Cal.

For Sale—2000 Late Valencia Orange trees, two years from bud. 1300 Washington Navel, one year from bud. A1 stock. Address, H. H. Eshelman, Soldiers' Home, Cal.

Buy Fruit Trees direct from the grower. Finest Apricots and Pears, 12½c, 10c and 8c. Apples, 5c; Oranges, 25c. Let me quote you on everything you need. Julius Mayr, Tree Grower, Hemet, Cal.

The Potrero Heights Walnut Nursery still has some nice Placentia Perfection trees. Extra good, well branched, Native Black roots. Let us give you prices. A. H. Jessup, Route 2, San Gabriel, Cal.

3000 Thoroughbred Eureka Lemon Trees—Two-year, 50c balled; 1000 Navels, 30c balled; 1000 Valencias, 40c balled; 400 Avocados, Harman variety. Special price on 50 and up. A. Z. Lane, Glendora, Cal.

Seedless Grapefruit—Limited number of fine trees, propagated from a tree brought from Florida. A superior type of Marsh's Seedless. Send for circular. G. W. Sherwood, Fullerton, Cal.

Budded Avocados—All leading varieties, Feijoas, Guavas, Mangoes, Cherimoyas. Write for prices. Edgemont Avocado Nursery, R. F. D. 2, Box 213, Pasadena, Cal.

Would Consider clear lots or land in exchange for half interest in 8000 one-year-old Valencia buds near Anaheim. These are good trees. R. Toon, 1337 W. 24th St., Los Angeles, Cal.

For Sale—Grafted walnuts on black and soft root, oranges, lemons, apricots, peaches, everything in the nursery line. Get my prices. A. R. Marshall's Nurseries, Box 64, Santa Ana, Cal.

Eucalyptus—Orders filled by flat or carload. Correspondence invited regarding quantity and variety. Stratton's Nurseries, Petaluma, Cal.

The Walnut Nursery still has a few Eureka, Chase and Mayette grafts. Order quick. W. A. Litten, Prop., R. F. D. No. 2, Whittier, Cal. Home phone 7863.

Budded Citrus Trees and seedlings at fair prices. Will take auto or land. Butler's Morning Side Nursery, P. O. Box 15, Lamanda Park, Cal.

Walnuts—Choice seedlings, 10c up; also grafted Chase and Placentias. Now contracting citrus and avocados for spring planting. Magnolia Nursery, Whittier, Cal.

The 1200-Acre Nursery, growers of 1500 varieties of trees and plants. OREGON NURSERY CO., Orenco, Oregon. Sales office, 522 Chamber Commerce, Los Angeles, Cal.

Avocados—Select field grown trees of best Standard Varieties for home and orchard planting. Semitropic Nursery, Monrovia, Cal.

For Sale—Eureka Walnut Trees, budded on Native Black Walnuts. Choice stock. Order immediately. Don't delay. Wm. Holve, Fullerton, Cal.

Grafted Walnut Trees on northern black root. Eurekas and Placentia Perfection. Also Satsuma Plum trees. J. M. Koller, Puente, Cal.

You Future Nurserymen—Write for prices on special stocks of plants to start business with. Ballou's Nursery, Pasadena, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

TREES

Lease Expires Next Spring—Must sell. Have left about 3200 Eureka Lemons, three-quarters inch and up, buds selected from trees producing heavy crops of fancy fruit; 2500 Valencia Late five-Seedless grapefruit five-eighths up. These Seedless grapefruit five-eights up. These are stocky and specially adapted for desert planting. Will sell with loose roots or balled. Prices very reasonable. Small amount down and time on balance, or part trade. Reduction for cash. All information cheerfully given. E. J. Vander Sluis, Glendora, Cal.

Grafted Walnut and Paper-Shell Pecans—Exclusive propagators of Tribble Mayette, Kerr Parisienne, and Improved Franquette. All walnut grafts taken from our bearing trees. Finest trees in the State. Eureka, Wiltz, San Jose Mayette, Concord and other varieties. Bartlett Pear on Blight Proof Root. Olives, fruit trees, etc. Reduced prices. New list ready. Tribble Nurseries, Elk Grove, Cal.

I am Offering All or Any Part of 20,000 choice 2-year-old Washington Navel and Late Valencia orange trees. These will compare with any in the state; buds are from the famous Mulholland grove at Montebello: 20c each in the ground; 30c each balled f.o.b. Montebello. George W. Lyons, Room 15, County Courthouse, Los Angeles.

AVOCADO TREES

The Avocado is the most valuable of all fruits and the most important future industry before the people of California today. Vigorous, field-grown, budded trees of standard frost-resistant variety; from four to seven feet high, $2.00 to $3.00, according to size. Write for literature. W. A. Spinks, Duarte, Cal.

Olives—Mission and Manzanillo. We will save money for you. Large stock, stocky, straight, well grown, thrifty and clean. Come in and see the finest trees in the land growing in the nursery. Get our prices. Kavan Nursery Co., San Bernardino, Cal.

Genuine Franquette Grafting Wood for Sale—Also Wilson's Wonder and Genuine Franquette Walnut Trees, grafted on California Black; splendid roots. Send for illustrated circular. F. C. Willson, Encinal Nurseries, Sunnyvale, Santa Clara Co., Cal.

Citrus Trees—Have fine lot of Marsh Seedless Grapefruit, Eureka, Villa Franca and Lisbon Lemon, Valencia and Washington navel trees. Prices right. Budded on sour stock with carefully selected buds. John Shingler, Uplands, Cal.

Mission Olive Trees—Will be two years old next March. To be absolutely sure of getting Missions I only propagate from my own trees, raised thirty years ago. Also cuttings from same trees for sale. W. A. Hayne, Box 461, Marysville, Cal.

High Class Citrus Trees—50,000 fine stock, three-quarters and up. Guaranteed absolutely clean, for sale or exchange for clear land, automobile or good farm team and wagon. McMillan-Graffen Nurseries, Spadra, Cal.

Robinson Citrus Nurseries, San Dimas, Cal., R.F.D. 35A solicit correspondence and inspection of our trees and spineless cactus. Consider good work team and wagon, also clear land in exchange. Covina, Phone 902.

Fruit Trees, Plants—Cut prices, shipped from four coast nurseries. Catalogue free. Old Hickory Supply Co., Dept. 4, Portland, Sacramento, Capitola, Los Angeles.

For Acacias, Avocados, Budded Loquats, Citrus trees, Evergreens, Feijoas, Palms, Roses and all kinds of trees, shrubs, vines, etc. Write for our new catalogue. Robertson Nurseries, Fullerton, Cal.

For Sale—Navel, Valencia and lemon trees, three-quarters inch and up, 20c loose root, 25c balled. Budded Avocados, 4 to 7 feet high. Address Box 54, Glendora, Cal.

For Sale—200 fine two-year-old Valencia Orange Trees. F. E. Petersen, care Southern California Music Co., 332 So. Broadway, Los Angeles, Cal.

Apricot and Olive Trees—Royal and Tilton Apricots. Mission, Ascolano, Chemlaly olives. Choice stock. Correspondence solicited. C. E. Moyer, Hemet, Cal.

For Sale—Fig trees my specialty. Several thousand good size and varieties left, price reduced. C. C. Terbush, San Gabriel, R. D. No. 2, Box 543.

For Sale—Seed-bed and nursery stock. Will trade for city, beach or Covina property. Phone 357 Azusa Ex., S. N. Benton.

For Sale—10,000 Eureka Lemon and Late Valencia Orange Trees. Sweet root and A1 stock. Address Box F, Cultivator Office.

Before Planting Olives, Avocados, Feijoas, Rhubarb or Cactus, get my free booklet. Bishop's Nursery, Highland, Cal.

For Sale—Avocado Seed, home grown; also fine budded "Taft" Avocado trees. C. P. Taft, Orange, Cal.

2500 Grafted Walnut Trees—Still unsold. Whittier Nursery, 803 W. Philadelphia St., Whittier, Cal.

For Sale—The finest Valencia Trees in Tulare County. Threequarters up. C. H. Weed, 907 Mill St., Porterville, Cal.

For Sale—500 Lemon and 500 Valencia 2-year-old extra fine buds. Address L. M. Netzley, Azusa, Cal. Phone 551.

Royal and Tilton Apricots, 4 to 6 ft., $15.00 per 100, $135.00 per 1000. K. B. Utigaard, Hemet, Cal.

For Sale—Best variety Pomegranate trees known. As profitable as oranges or olives. J. W. Irwin, Lindsay, Cal.

RABBITS

Caldwell's Royal Red New Zealands scored and sold on merit. Catalog free. Caldwell Bros., Box 613R, Los Angeles.

POULTRY

Macfarland Strain White Leghorn eggs $5 per 100, chicks, Jan., Feb., $12, afterward $10, order now, any quantity Cockerels $2. White Rock eggs, chicks, cockerels; write for prices. Big plant, best stock, lowest prices. Newton Poultry Farm, Dept. 3, Los Gatos, Cal. N. B.—See article about us by Prof Adams, U. C., in October Poultrycraft.

Baby Chicks—White Leghorns (MacFarland strain), $9.50 per 100; $90.00 per 1000. Barred Rocks and Rhode Island Reds, $12.00 per 100. Now booking orders for present and future delivery; 50 per cent cash with order, balance before shipping. Guaranteed strong, healthy chicks. Correspondence solicited. Address Frank Miller Co., 7217 Beach St., Los Angeles, Cal.

At Five California Shows I won 112 firsts, 55 seconds, four times best bird in show and many specials. Utility and show stock. Eggs and chicks of Black, Buff and White Orpingtons, Rose and S. C. Reds, White and Blue Leghorns, Silver Campines, Anconas, Salmon Faverolles, Polish and Cornish Games. Free mating list. Holman Poultry Farm, Stockton, Cal.

S. C. White Leghorn Baby Chicks—From my pure-bred flocks S. C. White Leghorns, carefully selected for laying and Standard qualities, $9.00 per 100, $85.00 per 1000. A first class chick at a reasonable price. Eggs for hatching, $5.00 per 100, $45.00 per 1000. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

Golden Feather Poultry Yards and Hatchery, Amos Bowler, Prop.—Breeder and exhibitor of heavy laying trap-nested Buff Leghorns exclusively; eggs and chicks from Buff and White Leghorns, Barred Rocks, etc.; prices reasonable; price list free. Route 5, Box 31, Petaluma, California.

All the Rhode Island Red baby chicks and hatching eggs you want. Best all-round chicken there is; good winter layers and the only kind for broilers; special rates by the 1000; order now at the only exclusive Rhode Island Red Hatchery, 2162 48th Ave., Oakland, Cal. Phone Fruitvale 1666W.

Richey's New Zealand Red Rabbits—1st at L. A. Show. Barred Rock eggs for hatching $1.50, 15; special cockerel mated, $2.50.

Roselle, the famous jelly plant—equals red currant—annual; 10c per packet. Sow in April. Mrs. C. A. Richey, Route 8, Box 557, Los Angeles, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. National Poultry Co., successors to Allaway & Layton Co., 607 E. Third St., Los Angeles, Cal.

Try Us for first-class chicks. Eggs for hatching. Eight breeds. We ship chicks C. O. D. when 50 per cent deposit accompanies order. We guarantee safe arrival any distance within 72 hrs. Our prices are right. The Hawkeye Hatchery, Turlock, Cal.

Hatching Eggs $5.00 per 100. Baby chicks 10 to 15 cents; White Leghorns (MacFarlane strain), Buff Leghorns and Rhode Islands; all prize winning stock and heavy layers. H. E. Thomas, Box 93, Palms, Cal.

Baby Chicks—Eggs for hatching, pure bred. Booking orders for February and later hatches. R. I. Reds, Buff and White Leghorns, Black and White Minorcas, White Wyandottes. Gem City Yards, Los Gatos, Cal.

S. C. White Leghorns—McFarland 228-egg strain. Bred for years from the best layers and bred to lay large eggs on range. Eggs $4.00 per 100. Plenty of Cocks $5.00 each. S. H. Johnson, Glenwood Ranch, Wasco, Cal.

Rhode Island Reds and S. C. W. Leghorns; greatest laying strains in California. Baby chicks: Reds, $15.00 per hundred; Leghorns, $12.50. Rainescourt Poultry Ranch, Zelza, Cal.

S. C. White Leghorn Baby Chicks and Hatching Eggs that are Top Notch. Write for particulars. Prices reasonable. Ten years in business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

Petaluma Hatchery—The one that's different. We challenge the hen, or anybody else. Don't compare prices, compare quality. Circular free. L. W. Clark, Petaluma, Cal.

Baby Chicks—If looking for the best—get Golden Buff Leghorns or White Minorcas. Sandridge Hatchery, Kerman, Cal.

Booking Orders for Hatching Eggs from S. C. White Leghorns, utility birds; selected stock, $6.00 per 100; $50.00 per 1000. No baby chicks. Pine Tree Poultry Farm, Los Gatos, Cal.

Wilkie Collins R. I. Reds—Hatching eggs, $6.00 per 100; $2.00 for 15. Cockerels, $3.00 and up. A few hens at $2.00 each. R.D. No. 1, Anaheim, Cal.

Sicilian Buttercups—Choice pens and laying pullets, cock and cockerels. Prices $2.00 and up. Mrs. Dickinson, 106 S. 6th St., Alhambra, Cal.

Barred Rock Cockerels—(Hawkins Royal Blue Strain) ready for mating, also Barred Rock, R. I. Red, Buff and White Orpington day-old chicks every week. Enoch Crews, Santa Cruz, Cal.

Baby Chicks (White Leghorns)—Shipped on approval. Examine at your home before remitting. No weak ones charged for. Schellville Hatchery, Sonoma, Cal.

Barred Plymouth Rocks—Winners at New York, Kansas and California shows. Eggs and choice stock for sale. C. H. Vodden, Los Gatos, Cal.

Setting Eggs—We furnish fertile eggs most breeds chickens, ducks or turkeys. Black Bros., 455 Lucas, Los Angeles.

Guineas—White African; in pairs or trios. Address Oliver Parkes, P. O. Box 37, Davis, Cal.

POULTRY

Who's Got Cold Feet?—Not our customers, for they know a thing or two. "A look ahead with good business back of it," is what we tell them about in our circular. Part of the business is to buy right, quality and reasonable prices for a team. Our White Leghorn chicks fill that bill—from yearling stock, mated right, heavy layers, good size—pure bred, hardy chicks that are boxed and shipped right for safe delivery and a good start. Prices 8c to 10c, depending on month and quantity. Hatching eggs, $4.50 hundred; $40.00 thousand for February. All choice R. I. Reds—top notch in utility stock at prices that will interest you for chicks or eggs—any quantity—Roofden Poultry Ranch and Hatchery, Campbell, Cal.

Just Out—The Cultivator Poultry Book, "Poultry for Profit," by Jean A. Koethen. Published by the Cultivator Publishing Co. Highly endorsed by experts. Over 200 pages, 50 illustrations. Contains simple methods of avoiding and overcoming difficulties. A guide to poultry success under Western conditions—it tells what to do, why to do it, and how to do it. Nicely bound in cloth. Price $1.00 postpaid, or with Cultivator one year, $1.75. Send orders to Cultivator Publishing Co., 115-117 North Broadway, Los Angeles, Cal.

Make Money with our superb White Orpingtons; best breed for every need. Lay most when prices highest; make finest eating. 1000 grand range-raised birds, trapnested and bred for heavy laying. Eggs, chicks, stock. Send for circular. Whitten Ranch, R. 5, Box 646, Los Angeles.

White and Brown Leghorns—Day-old chicks from healthy vigorous breeders. "Chicks well hatched are half raised." We will be pleased to send you circular and prices. San Jose Hatchery, 371 Meridian Road, San Jose, Cal.

Ancona Eggs—Select stock, $1.50 per 15, $7 per 100. Baby chicks, 15c each. Mammoth Pekin Duck Eggs, $1 per 12, $6 per 100. Baby ducks, 20c each, $17.50 per 100. J. P. Clough, 3980 Peralta Ave., Fruitvale, Cal.

Day-Old Chicks—From healthy, vigorous, heavy-laying, free range stock of S. C. White Leghorns. Price, $7.00 per hundred. H. P. Hansen, R. 4, Box 177, Petaluma, Cal.

Buff Orpington Ducks—The only dual purpose duck. Large as the Pekin; can outlay the Runner; lays at five months. Drakes, eggs, baby ducks. Ferris Poultry Ranch, S. Reservoir St., Pomona, Cal.

White Rock Cockerels for Sale—$2.00 to $15.00. Took first prize on cock and second on cockerel at Riverside Show. White Rock and White Leghorn chicks on order. C. J. Scidmore, Rialto, Cal.

Pit Games—A few choice specimens for sale. Write for prices. Delivered your station. O. L. Crane, R. D. 3, Santa Rosa, Cal.

Barred Rocks—Only a few fine breeding cockerels for $3.00 each. G. L. Hawley, Madera, Cal.

White Wyandottes—White Rocks, Cockerels, $2.50; eggs, $2-15; $7-100. Ramona Farm, Box 1361, R.D., Sacramento, Cal.

Hatching Eggs—Hoganized S. C. White Leghorns four dollars per hundred. Thirty-five per thousand. D. Clayton, R. D. 2, Modesto, Cal.

LIVE STOCK

Ohio Improved Chester White (O. I. C.)—Entire herd immunized against hog cholera. Nothing but immunized stock sent out. Extra fine lot of fall pigs, both sexes, ready for shipment during February and March. Three herd boars used. All stock crated and registered. Make reservations now. C. B. Cunningham, Mills, Sacramento Co., Cal.

Grape Wild Farm Thoroughbreds—Guernsey Bulls of A. R. Breeding. BERKSHIRE HOGS. Finest herd in the state. All ages for sale. A. B. Humphrey, proprietor. Mayhews, Sacramento Co., California.

For Sale—Registered, Berkshires;. 25 choice pigs of best breeding from the best strains in America. For prices and description address H. L. Murphy, Perkins, Sacramento Co., Cal.

You Can Buy a beautiful hornless, three-months Anglo-Nubian Buck for $60.00. Swiss grade does fresh and due soon to kid by Anglo-Nubian Buck. R. M. Cartwright, Foster, Cal.

Thoroughbred Berkshire Boars of all ages; two grade Holstein Bull Calves from seven gallon cows and registered bull; born Aug. 11, 1914, Jan. 10, 1915. $45, $20. Riccomi Bros., Mountain View, Cal.

For Sale—Young registered Berkshire boars and sows; fine, strong stock. Boars ready for service. Stanislaus Ranch Co., Crows Landing, California.

For Sale—Thoroughbred Duroc Jersey boars and sows. Strong and vigorous stock. Fred Hart, Exeter.

One Holstein Bull—Born January 10, 1915, $25. Riccomi Bros., Mountain View, Cal.

Glenview Poland China—Stock for sale. Chas. R. Hanna, R. F. D. No. 3, Riverside, Cal.

For Sale—Full-blooded, French Percheron stallion. L. E. Stockton, Ramona, Cal.

M. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale.

HORTICULTURAL PRINTING

Catalogues for the seed and nursery trade. The live stock and poultry industries are a specialty with us. Two thousand illustrations to select from. Write for prices and samples. The Kruckeberg Press, 237 Franklin St., Los Angeles.

WANTED

Farms Wanted—We have direct buyers. Don't pay commissions. Write describing property, naming lowest price. We help buyers locate desirable property free. American Investment Association, 12 Palace building, Minneapolis, Minn.

Wanted—A reliable party to put out large acreage to Burbank Cactus on half shares. For information write to John Zuur, Santa Rosa, Cal.

Wanted—400 two-year-old Washington Navel buds, packed in moss. Quote price to F. C. Desmond, 1727 Sycamore, Hollywood, Cal.

Wanted—To hear from owner of good farm or unimproved land for sale. C. C. Buckingham, Houston, Texas.

WANTED

Wanted—To hear from owners of good fruit ranch or irrigated land well adapted for fruit ranch. Send price, terms, legal description. O. O. Mattson, 923 Andrus Bldg., Minneapolis, Minn., Dept. D.

Wanted—A few pure Duroc Jersey pigs, bred or ready to breed. State price crated. W. R. Faries, Coachella, Cal.

MACHINERY

USED WINDMILLS, TANKS, PUMPS, ENGINES, RANCH MACHINERY
WHY BUY NEW? SAVE HALF
MATERIAL GUARANTEED
TRADE WHAT YOU DON'T WANT WITH A LITTLE CASH FOR WHAT YOU NEED

8-ft. Aermotor mill, tower, 2000 redwood tank, pipe, pump complete, $59. 16-ft. Aermotor, four post tower, cost new $235, for $100. Also all sizes.

NEW AND USED TANKS

New 1000-gal., galv., $19.50; 2000, $29.50. Fine 2000 redwood, $25; 3000, $28; 12,000, $55; 15,000, $65; 25,000, $85.

ENGINES, PUMPS, BOILERS

100 H. P. NEW BOILER, engine and compressor, complete steam pumping plant, $1000; cost $5000; PORTABLE 80 H. STEAM BOILER and 60 H. engine complete, $600; 5 H. Fairbanks, $115; 15 H. Fairbanks, used two weeks, $350, with No. 5 centrifugal pump, $425, complete with suction pipe, belt, etc.

RANCH MACHINERY

Champion Binder, $75; Header, $95; 2-Gang Deere Disc, $35, fine; 3-Gang Disc, $35; 15-in. Mouldboard Riding, $35, nearly new; 6-Gang Tractor Disc, $140, cost $270; 2 Holt, 60-H. P. Ranch Tractors, cost $4000, $750 each; Knox Road Tractor and Trailer, 10 tons, cost $6000, for $2000; new Southwick Power Baler; Whitman Empress Baler; 4 Mowers, $25 and $30 each; Mounted Hand Sprayer, tank and pump, $12; Scrapers, harrows, potato and beet machinery. Fan Mill, Corn Sheller, Power Ensilage Chopper; small ranch tools. Absolutely cheapest serviceable material can be produced for.

WANT TO BUY IRRIGATION PIPE AND RANCH TOOLS OF ALL KINDS
Pioneers in our line. DEMMITT CO., UPSTAIRS, 120 N. Main, Los Angeles.

Gas engines, centrifugal and deep well pumps, motors, and everything pertaining to irrigation, for sale and exchange. If you want a complete plant or any part write us; we are experts in irrigation; advice and estimates cheerfully given. Will buy, sell or exchange. Reliable and responsible, everything guaranteed as represented. Machinery & Motor Exchange, Inc., 733-735 San Fernando St., Los Angeles. Main 6382, F-3433.

For Sale—Used and new gas engines, 2 H.P. up, rebuilt and fitted with modern equipment. 22 years' experience enables us to repair and rebuild gas engines correctly. Get our prices. Lloyd, 306 N. Main, Los Angeles.

For Sale—Avery three-ton Farm Motor Truck, steel rim, also extension rim. Sell half price. Good condition. H. Krenz, 1619 Argyle Ave., Hollywood, Cal.

MISCELLANEOUS

Free for Six Months—My special offer to introduce my magazine "INVESTING FOR PROFIT." It is worth $10 a copy to anyone who has been getting poorer while the rich, richer. It demonstrates the REAL earning power of money, and shows how anyone, no matter how poor, CAN acquire riches. INVESTING FOR PROFIT is the only progressive financial journal published. It shows how $100 grows to $2200. Write NOW and I'll send it six months free. H. L. Barber, 430, 28 W. Jackson Blvd., Chicago.

OPPORTUNITY FOR DAIRYMAN

Wanted to lease—$75 a month to a Dairyman having cows, a fully equipped stone, dairy building, with large dairy barn, 40 acres of wet pasture and a good residence. Plant located at Victorville, Cal., where there is no dairy and where 1000 pounds of butter are used monthly. For further particulars apply Rancho Verde Co., Victorville, Cal.

For Sale—My entire loft of breeding pigeons, Carneaux and mixed stock; 500 birds, $250. Small lots matter of correspondence. Have sold ranch and must move birds. Mrs. J. H. Babbitt, Martinez, Cal.

"Smith's Pay the Freight"—To reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St., San Francisco.

Posts—Genuine, axe-split Puget Sound Red Cedar. Strong, long-lasting, sold direct to user at big saving. Write quick for freight-paid prices. Hewitt-Lea-Funck Co., 168 Crary Bldg., Seattle, Wash.

For Sale—At bargain, fifty light Acetylene gas plant and fixtures all in good condition. Carl J. Klatt, Santa Ana., Cal., R.D. No. 1.

Indian Corn Silage—200 tons for sale. Heavily eared corn. Box 24, Butte City, Cal.

TURKEYS

Thoroughbred Mammoth White Holland Turkeys from strong, vigorous prize winning birds, thoroughly domesticated; the stay at home kind. Eggs in season. Orders given prompt attention. Prices on application. Mrs. E. H. Broadwell, Crows Landing, Cal.

Mammoth White Holland Turkeys—A few fine toms for sale. Also eggs in season from two very select pens. Orders given prompt attention. Prices on application. Address H. McKusick, Box 733, Calexico, Imperial County, Cal.

20 Giant Bronze Turkey Toms—From prize winning stock. Weight from 25 to 30 pounds at nine months. Price, $8 and $10 each. Special reduction after Feb. 18. Mrs. Nellie Hart, Holtville, Cal.

For Sale—Bourbon Red turkeys and eggs for hatching. My birds won all the honors in the Alameda County Poultry Exhibition in Oakland, 1914. A. E. Balmer, Alhambra Valley, Martinez, Cal.

Mammoth Bronze Turkeys. Largest and best flock in the world. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

BEES

Beekeeping Pays Big—Price list, bees, instruction books, etc., free. Spencer Apiaries Co., Box 14, Nordhoff, Cal.

DOGS

Registered Airedales—Young and grown stock, hunting or show type. $20.00 and up. Tunitas Kennels, 959 Phelan Bldg., San Francisco, Cal.

SEEDS AND PLANTS

New Varieties of berries originated by Alfred Mitting. New Dewberry White Fawn, the berry is white, large, fine, sweet flavor, $1.00 each. New blackberry Black Prince, a prolific bearer, berry 1½ inches long, quite tart, fine shipper, $1.00 each. New strawberry Santa Cruz, a rich, large, berry, dark red inside and out, fine flavor and shipper, 6 for $1.00. Send orders to Santa Cruz Bulb & Plant Co., 8 New St., Santa Cruz, Cal.

For Sale—8000 Burbank Spineless Cactus, Hardy. These two varieties went through the freeze of 1913, without injury, when five other varieties and one-year-old orange trees were frozen to the ground by their side. These varieties are rapid growers and just the plant for cold sections. These varieties won't last long, so place your order early. F. K. Strasser, San Jacinto, Cal.

For Sale—Non-irrigated, San Fernando Valley Grown Seeds. Black Seeded Chilean and Angeleno Melon, 80c per lb.; Improved Hybrid, Golden Beauty and Pineapple Casaba, $1.50 per lb. First class seeds direct from the grower. M. C. Sutton, Van Nuys, Cal.

Sudan Grass—Government inspected. 2 lbs., $1.50; 5 lbs., $2.50; 10 lbs., $4.00, prepaid. Special prices on larger quantities. Also headquarters for Feterita, White Maize and Black Kaffir. Amarillo Seed Co., Amarillo, Texas.

For Sale—11 sacks of Tepary Seed Beans. This is the new bean advertised to stand hot climates. Eight cents pound in 100-pound lots. N. C. Johnson, Chatsworth, Cal.

For Sale—2500 Pierce Isabella rooted grape cuttings, commonly known as California Concords. Fine hardy plants. Address, Barbour Ranch, San Gabriel, Cal.

Berry Plants, Rhubarb, Cacti—It will be worth your while to send me a postal right now if you are interested. Louis F. Scribner, R. 2, Pasadena, Cal.

Rhubarb—Crimson Winter, $3.00 per hundred; Wagner's Giant, $5.00 per hundred. Good, strong, one-year plants. Currier Bulb Co., Seabright, Cal.

100,000 Winningstadt Cabbage Plants—$1.00 per 1000. Get our seed price list. West Coast (Cut Rate) Seed House, 116-118 East 7th St., Los Angeles.

For Sale—10,000 Burbank cactus leaves of highest type. For information and prices write to John Zuur, Santa Rosa, Cal.

Alfalfa Seed—Pure and fine, $12.00 per hundred by the sack. Enquire of H. S. Garrison, grower, Murrietta, Cal.

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Sudan Grass—Wonder of the age. Free sample of seed. Full information. C. Ullery, Lubbock, Texas.

Rice Seed for Sale—Free of grass or other seeds. Write Jesse Peter, Pond, Kern County, Cal.

FARM LANDS FOR SALE

For Sale—400 acres near Orosi, Tulare County. I offer tracts of 20 acres or more. If you will make improvements I will give you possession without paying one cent down on the land, and you need pay me nothing for three years, except the interest and taxes. The soil is especially adapted to the growing of figs, olives, peaches, plums, grapes, oranges and many other crops which are in full bearing on all sides of this 400 acres. Price, $150.00 an acre. First payment 1918, balance in annual installments. Investigate now. Planting time soon here. W. C. McKee, 546 Title Insurance Bldg., Los Angeles.

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Special inducements; government land, railways, free schools; cheap irrigation; 31 years to pay for farms adapted to alfalfa, corn, grains, fruit, etc.; climate like California; ample markets; reduced passages; special excursion being arranged. Free particulars from F. T. A. Fricke, Government Representative from Victoria, 687 Market St., San Francisco, Cal., Box X.

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For Sale—Orange, olive, peach and rice land. Close in, on good terms. Fred Hart, Exeter.

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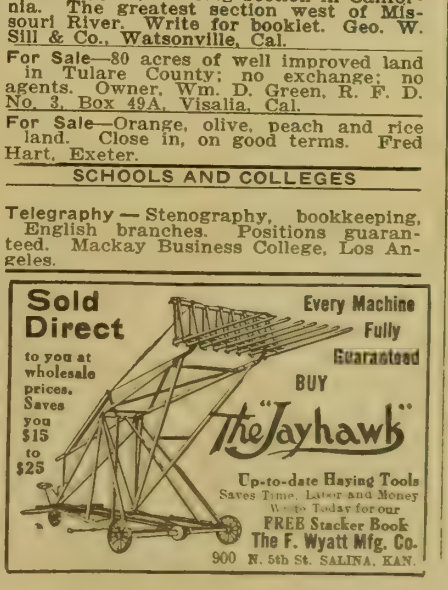

PANAMA-PACIFIC EXPOSITION

(Continued from Page 195)

grade of his herd so that he may get more butter fats in proportion to the feed which his herd consumes.

The methods of manufacture from raw rubber, grains, cocoa beans and hundreds of other agricultural products to the finished articles of trade are carried on.

As a supplement to the working machines there are hundreds of moving picture exhibits operating continuously to show methods of production.

In the palace of horticulture are shown the wonderful flowers and growths of the equatorial region. The dome of this palace is the biggest glass dome in the world, and under its spread are hundreds of specimens of dates, palms, bananas, bread fruit trees, orchids, and all tropical and hothouse plants and flowers.

Here are also a great many working exhibits. The National Canners has an educational exhibit where all fruits and vegetables will be canned in season. A battery of 14 canning machines is also shown in operation. In the Oregon exhibit there will be a home cannery in operation. At all of these exhibits the formulae used and the methods will be fully shown and explained by the experts attached.

There are a number of packing houses in operation which will give every one the chance to see how the fruits are handled which top the Eastern markets every year.

An integral part of the horticultural exhibit is to be found in the wonderful gardens which surround the building. These gardens have been planted to show the specialties of each nation, and many seed firms have planted plots with flowers which they themselves have originated through selective methods.

The exposition grounds are one huge garden with the paths and roads lined with trees from all over the world which have been transplanted and are now beautifully green and flourishing. The acres of flower beds have been planted to flowers and shrubs so that every day in the year they will be in full bloom. All of the spaces not used for buildings or roads, paths or flowers, have been planted to lawns.

The live stock show is particularly noteworthy because arrangements have been made to keep typical herds in the barns during the whole period of the exposition. These view herds are composed of typical animals in the different breeds.

There are nine stock shows scheduled for the fall for which premiums have been offered in an excess of $500,000.

There are many other features scheduled in this department, among which can be mentioned the horse racing, polo, bird and sheep dog trials, sheep shearing and wool grading contests.

THE WALNUT INDUSTRY

(Continued from Page 199)

the older or bearing trees will be cut out to make room for a better paying crop.

Comparing crop figures with those for acreage, it would appear that a good crop in the state allows only about one-third ton of nuts per acre. If this be so, it is not a very good showing, and yet it is the best which the most reliable figures on hand justify us in making. And in this case we must assert that there is considerable walnut acreage somewhere in the state which does not bring proper returns to the grower.

In a good crop year the yield should not be less than one ton to the acre. Some orchards are doing as well as this; some few are doing better. But the majority of orchards fall far below what should be the average yield.

Although the price for walnuts in the last few years has been good it is evident that walnut growers are not in the get-rich-quick line. Whoever would make a success of a walnut orchard must have the right start in conditions of soil, climate and variety, and then must give such careful attention to fertilizing, cultivating, and watering as will assure him the largest crop possible.

Be A Producer

Don't waste your time. Spend it in your garden. The European war has caused a tremendous demand for American products, and has boosted all foodstuffs. In the midst of this high cost of living, your small ranch, back yard or old corral lies unproductive. A few cents in seeds will produce dollars for you in vegetables, and a wealth of bloom.

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Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Pigeon Paper and Association

Is there a paper published on the Pacific Coast devoted to pigeons and squabs? Will you kindly give me the address of the Pacific Utility Pigeon Association.—Subscriber, Calipatria.

There is no pigeon or squab journal published upon the Pacific Coast today. Until recently there was one published in Oakland, but it has been transferred to Kansas City, Missouri. The address of the Pacific Utility Pigeon Association is 1014 Fruitvale Avenue, Oakland, and its manager is Mr. Wm. Gabrielson.—R. V. M.

Milo Maize

Will you kindly tell me if sorghum and millet are of value for fattening cattle? What is their value compared to alfalfa?—Subscriber, Alpaugh.

Milo maize is used rather more than the sorghum or millet. We do not know of any extensive use of millet, but in the Imperial Valley the growth of dwarf milo is very general. Stock are not only given access to the fodder but are fed the heads. A few growers have preferred cutting the heads, threshing and grinding, but it is generally considered that this does not give enough better results to justify the additional expense. As to comparison with alfalfa, we think if you are fitted to grow the alfalfa that it would give far better returns per acre.

Silo and Ensilage

I have a wooden tank 30 feet across with sides eight feet high and three inches thick. Could I change this into a silo? Would two small ones be better than one large one? Also, is ensilage good for hogs in winter? How large a silo would be required for about 50 hogs and ten cows?—Subscriber, Yermo

We do not fully understand the subscriber's desire. If it is to use the tank as at present constructed, it would have no value. That is, instead of being 30 feet across and eight feet high the dimensions should be exactly reversed. Possibly the subscriber means to reconstruct entirely and make a silo of material now used in this tank. Only examination of the material could determine the advisability of so doing. One of the prime factors of a successful silo is that it shall be small enough in diameter so that it may be fed down at least two inches per day. Otherwise, as soon as the silo is open the ensilage quickly spoils and with the number of head of stock which the subscriber has he would need only a comparatively small silo. For ten cows about the smallest size should be 12 feet in diameter and 24 feet deep. This would hold 48 tons. We are not certain how much the 50 hogs would require per day and we ask any of our subscribers who have had experience in feeding ensilage to hogs to inform us on this point.

Grafting Walnuts

I have two large native black walnut trees. The limbs are from four to eight inches in diameter, and are very healthy trees. Is it advisable to graft or bud into English walnut?—Subscriber, Santa Cruz.

Such trees can be successfully grafted to English walnuts but the process is expensive when undertaken on very large trees. It is not advisable to graft in branches larger than three inches in diameter because of the difficulty of preventing decay at the place where the scion was inserted. This necessitates going well out on the branches and the placing of a large number of scions. It will also be necessary to erect a scaffold from which the operator can work when scions have to be placed in branches more than 15 feet from the ground. This scaffold should be left in place the first season as it will be convenient in examining the waxing of the scions and in tying the new growth to the supports. All places where branches have been cut off and where scions have been inserted should be painted every year until fully grown over. This paint can be either a heavy metallic paint or a covering made by dissolving asphaltum in gasoline.—J. B. N.

Pecan Nuts Not Filling

In planting pecan trees is it necessary to plant male and female trees or does each tree have perfect blossoms? Why do the nuts on some fail to have meats in them?—Subscriber, Escondido.

The pecan has perfect blossoms, and it is not therefore necessary to plant more than one tree to get fruit. The reason for some nuts failing to fill is, perhaps, due to imperfect pollenization from some local cause which might occur in one variety and not in another, and the remedy would be to discard such and plant varieties which do mature. It is also a fact that the pecan generally in California does not mature well near the Coast, as it seems to require more heat in summer, as well as abundant root moisture. Varieties more suited to Coast conditions may be found or originated later.—Leonard Coates.

Lice On Hogs

Is there a dip or a spray which will eradicate lice on hogs?—Subscriber, Yermo.

There are several dips on the market offered to stock raisers which we believe are generally satisfactory, especially any of the coal tar preparations. These may be purchased and used in the regular dipping vat or, as is more often done, sprayed over the stock. In spraying use particular care to spray back of the ears and along the neck and under the breast. At the same time clean up the pens and surroundings which are breeding places for more of the same kind of pests. While spraying rub vigorously with the broom. The large spray pumps which deliver the spray with considerable force are to be preferred. Don't be afraid of the dip or the spray but administer it often. These dips or sprays come under various names such as chloronaphtholeum, zenoleum, Lincoln dip, carbolic dip, creso, etc. A two or three per cent solution of creolin or the common tobacco dip is also efficacious.

Pruning Orange Trees

What is the best time to prune and fertilize orange trees? We have large amount of cow manure.—Gardener, El Monte.

Probably the best time to fertilize orange trees with cow manure is whenever it may be gotten. That is, we would put it on at any time of the year. This is one of the best times. With commercial fertilizers a limited application of nitrate of soda within the next month and another a month later, with phosphoric acid and potash still later, would probably be about right. As to pruning, we would prune as soon as the crop of oranges is off.

On Shares

We are repeatedly asked as to division of shares in renting a farm. As a general thing in the East the rental proposition considers the three factors of land, labor, live stock and equipment, and each of these on the same basis. The quality of the land, nearness to market, and many other points are of course factors. On this basis, if the land owner furnishes the land, the live stock and equipment, the division of proceeds is on two-thirds and one-third basis. We submitted this question to the state university to learn as to California practice and from Mr. V. C. Bryant of the division of agricultural extension we have the following:

"As to fair proportion of the crop where barley is put in on shares I will state that this depends somewhat upon the type of soil. Generally speaking, if the soil is fairly good and the tenant furnishes the seed, the owner receives about one-third of the crop for the rental of the land. Where the soil is not quite so good, as in some parts of the Sacramento Valley, the owner only receives one-fourth of the crop for rental of the land. I think that one-fourth is a little more general than one-third. Where the landlord furnishes the seed, the tenant does all the work and gives one-half of the crop for rental of the land."

More Katydid Eggs

I enclose twig from peach tree containing some kind of eggs. What are they?—Subscriber, Laton.

Katydid.

Garden Crops

I have about ten acres in the foothills of Fresno County where I picked ripe tomatoes in March last year. About two or three acres of this land is located where the air is so warm that oak trees do not shed their leaves for two years. This year they have a new growth now at the end of January. I send you leaves. The soil is a dark gray granite, four to eight feet deep. Would like to know what to plant as a permanent crop and what is the best early vegetable?—Subscriber, Orange Cove.

We believe that with such land we would not plant trees but would continue to raise tomatoes and other vegetables. Potatoes might have been planted a month or two ago and given exceptionally early crop which would bring long prices. Strawberries, raspberries and other crops of that nature would grow fine winter crops. Of course, nearness to market, which is now largely a matter of good roads, is a factor in determining just what should be grown. The leaves sent with fresh young buds just starting new growth indicate practically a frostless belt.

Breeding Doe

Can you inform me how soon after kidding a doe comes in heat again? I have been informed that goats that kid in the spring will not breed again until the following fall.—Subscriber, Pasadena.

If a doe kids before February she may come in heat about three weeks after kidding, but should she kid later the chances are she will not again come in heat till July, August or September. Our experience teaches it is best not to breed a doe more than for one kidding a year, which was apparently the way intended by nature.—Winthrop Howland.

Alkali Ground

We are planning to plant 300 fruit trees on alkali ground. It is black alkali, all on top of the ground. From a foot down the soil is sandy loam with no alkali in it. Water has been standing on the top of the ground and the alkali has all come to the top. Should we dig a large hole for the trees and haul in other dirt and put around them? Is gypsum good to put around roots of trees when planted? What is the best kind of fruit to plant on alkali ground?—Subscriber, Lemoore.

The subscriber has apparently some subsoil other than sandy loam, for with sandy loam and plenty of water one could soon wash away any ordinary alkali, even if it is black alkali. It is probable that this sandy loam is underlaid with an impervious hardpan. A good deep soil investigation is probably the only way to determine best method of handling. If the land is very valuable drainage, which would permit washing out the alkali, would be the surest and most satisfactory. The application of a great quantity of gypsum will change

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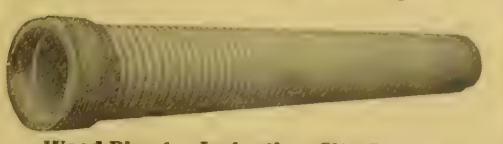

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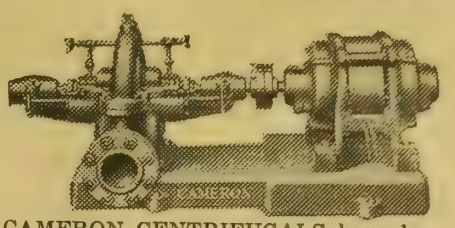

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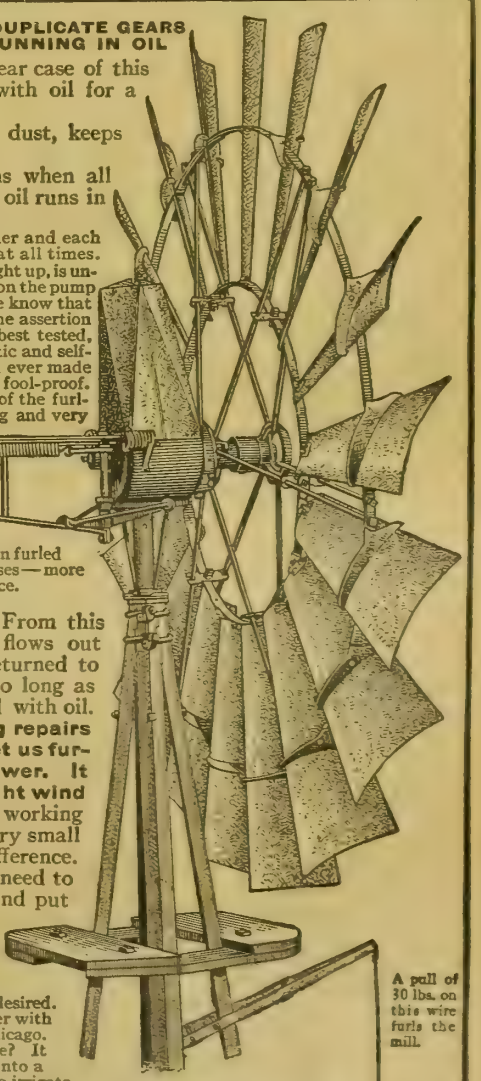

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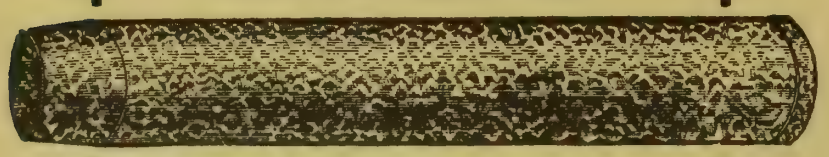

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the black alkali into white or sulphate of sodium instead of carbonate and that is more soluble in water and more easily washed out of the soil. The alkali does not come up because of standing water, but usually because of evaporation of moisture during the summer season, bringing with it a large quantity of the salt which destroys the plant growth.

LEGAL QUERIES

(Continued from Page 214)

Chickens Trespassing

I have requested my neighbor to keep his chickens at home, but he fails to do so. Can I spread poison and let him take the consequences? What recourse does one have against chickens?—Subscriber.

Every person who willfully exposes any poison with intent that some shall be taken by an animal is punishable by imprisonment in the state prison or county jail. The best method would be to take action against your neighbor for the damage caused.

Removing Boundary Stakes

A has his line surveyed and stakes set by the county surveyor. B removes the stakes? Is that a criminal offence?—Subscriber.

Every person who maliciously removes any monument erected for the purpose of designating any point in the boundary of any lot or tract of land is guilty of misdemeanor.

Adopted Child

Does an adopted child share equally with own children in property left by parents? If a husband dies leaving property, what share does his wife get, also what share does a husband get of his wife's property at her death?—Subscriber.

After adoption, the person adopting and the child adopted sustain towards each other the regular relation of parent and child and have all the rights and are subject to all the duties of that relation. Upon the death of the husband without issue the wife takes one-half of the community property and one-half of the separate property. Upon the death of the wife without issue, the husband takes all community property without administration and one-half of her separate property.

Damage From Flood Water

Would I have any cause for suit for damages against city on account of flood water which could have been prevented? I was forced to move out with my family and lost chickens, hay, vegetables, etc., and the damage to the premises is considerable. I am forced to rent until I can get my place cleaned up. The city authorities were aware that said premises were subject to flood water, but refused to do anything to prevent it.—Subscriber.

Municipal corporations are bound to provide for the escape of surface water in all that class of cases where the surface water, owing to the conformation of the adjacent country, has formed for itself a definite channel in which it is accustomed to flow. There are usually so many other circumstances such as charter provisions, change in grade of streets, that it is impossible to give a more definite answer.

Inheritance Tax

Is inheritance tax only on real estate? Man dies without will, leaving as only heirs six children of deceased brother and one child of deceased sister. Will the brother's wife, mother of the six children, receive any share of the estate?. Are the laws of Illinois and California the same governing such estates?—Subscriber, Woodland.

The inheritance tax law of California applies to all property real or personal. Other states have various other laws and some have none. The property in this case would go in equal shares to the brothers and sisters and they being dead to the children or grandchildren by right of representation; that is to say, one-half to the children of one sister and the other half to be divided among the six children of the brother. The mother of the children should apply for letters of guardianship and will be entitled to have the children maintained out of their own estate.

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March 22 has been named Stanislaus Day at the Panama-Pacific.

BREAD MADE WITH 30 PER CENT POTATO MEAL ACCORDING TO AUSTRIAN IDEA

Baking experiments to test the value of making bread of potato meal mixed with wheat flour are now being undertaken by the United States department of agriculture's bureau of chemistry. This is to test the possibilities of the potato in the same manner as Germany and Austria are now advising their people to do. The increased cost of living throughout the world has emphasized the fact that flour made of other substances than wheat, or of these substances mixed with wheat, might provide people with healthful food quite as nutritious as the pure wheat flour and at the same time cheaper.

Austrian bakers are now compelled by law to use at least thirty per cent potato meal in making their bread. The bureau of chemistry's potato meal bread has been baked with from 25 to 50 per cent potato meal and the remaining percentage wheat. The most satisfactory loaves in combining economy and appearance were those made with the minimum percentage allowed in Austria or less. The loaves made with more than 30 per cent potato meal were not so satisfactory as they were heavier and less attractive in form. The bread has a rather coarse texture and dark appearance but possesses a distinctive and agreeable flavor. It also retains moisture for a much longer period than ordinary wheat bread.

The bureau of chemistry used the imported "potato flake" in some of its experiments, and in others, meal made by slicing, milling and drying potatoes on a small scale in its laboratories. It should be added that such ordinary "potato flour" as is on our American markets is not the same as the German "potato flake" or Walzmehl which has given such satisfactory results in the experiments.

The question has been raised as to whether the ordinary cooked potato might not be satisfactorily substituted for the prepared potato meal. The experimenters believe that it might serve the same purpose if used in just the right proportion, but this would be difficult for the average housewife to determine as there is great danger of using too much and producing a very soggy loaf. However, the custom of adding a very little potato is already used by many housekeepers to keep their bread moist and this practice can very well be recommended for more general use.

New Ways of Using Potatoes

Cultivator Monthly Household Help Contest Proving More Popular Than Ever

Potato Soup

Four medium sized potatoes, one-half a small onion, one pint of milk, one tablespoon of butter and one heaping teaspoon of flour. Pare the potatoes, cut in cubes and cook until tender, in plenty of water. Slice the onion very thin and add to the potatoes. Drain off half the water and add the pint of milk, also the butter. Rub the flour smooth with a little of the cold milk and when the potatoes are boiling, thicken. Add salt and pepper to taste and send to the table as hot as possible. This will serve six people.—Mrs. Willis A. Grove, Inglewood.

Potato Biscuit

One cup cold boiled potatoes mashed, two cups flour, one cup sweet milk, one tablespoon shortening, one tablespoon sugar, one teaspoon salt, three teaspoons baking powder. Roll and cut as for other biscuits and bake in hot oven—Mrs. F. Dahlstrom, Fairoaks.

Southern Potato Biscuit

Bake four good sized potatoes well done. Remove from skins and mash well. Add a teaspoon each salt and sugar and two-thirds cup lard and butter mixed. Beat well then add one egg well beaten. When cooled to lukewarm add one yeast cake dissolved in half cup of warm water, stir well and then add flour to make stiff batter. Set in a warm place to rise. When raised add more flour and let rise again. About two hours before a six o'clock dinner add flour to make like biscuit dough, roll out and cut into biscuit. Grease muffin rings, place one biscuit in ring, dip one in melted butter or lard and place on top of other. Repeat until all are in pan. Set in a warm place to rise. Bake in moderately hot oven. Always put two in same ring, one on top of the other. Set about 10:00 a. m. for six o'clock dinner.—Mrs. A. L. Vandiviere, Moreno.

Potato Doughnuts

Five good sized potatoes boil and mash, one teaspoon butter, two cups sugar. Mix while hot and beat well. Let cool, add three eggs (beaten), one cup sweet milk, pinch of salt and nutmeg, five teaspoons baking powder in a little flour. Flour enough to roll out, and fry in hot grease.—C. A. C., Loomis.

Potato Biscuit

Into one pint of hot potato, mashed smooth, mix one teaspoon salt, two tablespoons butter, one pint sour milk into which has been stirred one teaspoon soda, and flour enough to make a soft dough. Make into small biscuits, let stand in a cold place for an hour, and bake in a quick oven.—Elma Iona Locke, Santa Monica.

Potato Puffs

One cup cold mashed potatoes, one and one-half tablespoons cooking oil (or melted butter), one-fourth cup sifted flour, one cup yellow corn meal, one-half cup milk, two eggs, two teaspoons baking powder, one level teaspoon salt. Drop into hot greased gem pans and bake about 25 minutes. —Mrs. C. D. Luedke, Tropico.

Potato Hotcakes

A German dish. Take seven fair sized potatoes, peel and grate them raw, also peel and grate two fair sized onions with potatoes, then add three tablespoons of flour, two eggs and salt to taste, mix all well, and bake in a griddle pan, a spoonfull at a time, just as you would hotcakes. Pan should be well greased, and cakes fried to a nice brown. Eat with apple sauce or anything preferred.—Mrs. L. S., Escondido.

Potato Pancakes

Two cups mashed potatoes, two cups milk, one cup flour, one egg, one

One egg; one cupful milk; one teaspoonful corn-starch; one-half cupful sugar; two teaspoonfuls of Ghirardelli's Ground Chocolate; one teaspoonful vanilla. Scald milk and add the corn-starch which has been dissolved in a little of the cold milk; beat egg and add to the mixture with the sugar, chocolate and vanilla.

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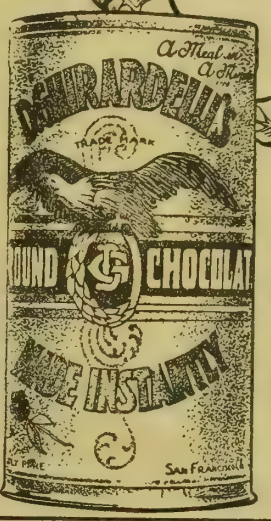

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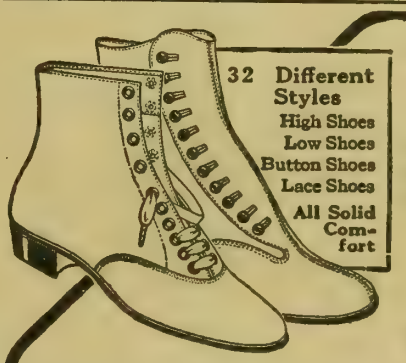

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teaspoon baking powder, one teaspoon salt. Stir the potato, milk and beaten egg thoroughly together. Put the flour, baking powder and salt in the flour sieve and add last. Bake like pancakes on a hot, well-greased griddle until a light brown. This is an excellent substitute for breakfast bread and is an economy, in that it utalizes small portions of left-over potatoes.—Caroline M. True, Lancaster.

Potato Pancakes

Pare and grate six medium sized potatoes. Drain off the liquid and add two teaspoons salt. Beat the yolks of two eggs and fold into the potatoes. Whip the whites until quite stiff and add last. Grease a griddle pan lightly and pour from the spoon into cakes the size desired. The potatoes may be ground, but better results are obtained by grating them. This recipe makes a good sized batch, and many prefer the cakes when warmed up the next day.—Mrs. D. M. McPherson, Los Angeles.

Potato Pancakes

Peel and grate raw potatoes until you have one quart. Add one pint of milk, three eggs, salt and baking powder, and enough flour to hold together. Beat vigorously. If you have a large family you will need double the recipe.—Mrs. A. L. Dupray, Carpinteria.

Delicious Potato Pancakes

Peel and grate enough raw potatoes to make one pint. Add one teaspoon salt, three well-beaten eggs, one-half cup milk, two teaspoons baking powder, and one-half cup flour, or enough to make thick as any pancake batter. Bake same as any other pancakes.—Mrs. J. F. C., Hemet.

Potato Bread

In the afternoon or evening make a sponge as for any white bread. In making this sponge I boil three or four good-sized potatoes. When done drain the water off and mash potatoes thoroughly and salt as for table use. I use a tablespoon heaping full of the potato and the water in which they were boiled, adding enough warm water to make three pints with the water in which the cake of yeast is already soaking. Add two tablespoons of granulated sugar and two rounding teaspoons of salt, or to suit taste. Then stir in white flour enough to make a stiff batter. Beat well. Set in a warm place to rise over night. If it is cool weather I warm the flour. In the morning I remash the remainder of the potatoes cooked the previous day.

For each pint of sponge allow four heaping tablespoons of mashed potato, two rounding teaspoons of shortening, one tablespoon level full of sugar, soda size of a large bean, with or without one egg.

Mix well with a spoon and stiffen with equal parts of graham and white flour, well mixed. Knead and set in a warm place to rise. When light make into loaves. Let rise again and bake as white bread.

We find this excellent, especially when made into toast, with butter, for breakfast.—Mrs. J. F. Delzell, Lindsay.

Potato Bread (Sponge Method)

One cake yeast, one quart lukewarm water, two tablespoons lard, one tablespoon salt, four quarts sifted flour, two tablespoons sugar, one quart mashed potatoes. Dissolve the yeast and sugar in one quart water, and add to it the potatoes and one quart flour. Beat well. Cover and set in a warm place to rise. When well risen, add to it the lard and salt and remainder of flour, or enough to make a moderately firm dough. Knead thoroughly. Place in a greased bowl, cover, and let rise until light; mold into loaves, filling pans about half full. Set in a warm place and when light bake 40 to 50 minutes, reducing the heat after the first ten minutes.—Mrs. Minnie Claussen, Fallbrook.

Potato Doughnuts

One cup sugar, shortening about the size English walnut, two well-beaten eggs, cream together. Add one cup hot mashed potatoes, one cup milk, two teaspoons baking powder sifted with flour enough to make soft dough. A little salt, any flavoring desired. Fry in hot cottolene.—Mrs. L. L. Wilcox, Banner.

Delicious Sponge Cake With Potato Flour

Yolks five eggs beaten, one cup sugar, two teaspoons flavoring, five whites beaten stiff, one-half cup potato flour, one-half teaspoon baking powder (level measure). Beat the yolks until thick and lemon colored. Add the sugar gradually, continue beating until all is added. Add the flavoring, fold in the stiffly-beaten whites and the flour mixed with the baking powder. Bake in an angel cake tin.—Mrs. H. W. Schroeder, Marshall, Minnesota.

Potato Cake

One cup butter, two cups sugar creamed, one cup mashed potatoes, one cup seeded raisins, one cup blanched almonds cut coarsely, one-fourth pound finely chopped citron, four eggs beaten separately, one teaspoon soda, four cups flour, two teaspoons baking powder mixed with flour, lastly add beaten whites of eggs and flavor with one-fourth teaspoon bitter almond extract. Bake in loaf pan in moderate oven.—Kathryn Jones, Chicago Park.

Potato Spice Cake

One cup butter and two cups sugar creamed, one cup mashed potatoes, four eggs beaten, one-half cup sweet milk, two cups flour, two rounded teaspoons baking powder, one-third teaspoon cinnamon, one-third teaspoon cloves, one-third teaspoon grated nutmeg, one cup coarsely-chopped walnut meats. Beat vigorously. Add to above batter two-thirds cut bitter chocolate filled to top of cup with hot water and blend evenly. Bake in bread pan in moderate oven. —Mrs. Burle J. Jones, Nevada City.

Potato Cake

Two-thirds cup butter, two cups granlated sugar, two cups flour and pinch of salt, two cups mashed white potatoes, one-half cup chocolate, two cups chopped walnuts (if preferred), four eggs, two teaspoons baking powder, one-half teaspoon ground cloves, one teaspoon cinnamon, three-fourths teaspoon nutmeg. Cream butter and sugar and add yolks of eggs beaten light. Add milk and mash potatoes, which have been beaten light with a little milk, spices and chocolate, which has been melted. Sift baking powder and salt well with flour. Beat the whites of eggs stiff. Put in flour, then whites of eggs, one teaspoon of vanilla and lastly nuts. Bake in loaf. —Helen Palla, Linne.

Chocolate Potato Cake

Mix together one cup cold mashed potatoes, two cups sugar, one-half cup butter, three well-beaten eggs, one cup sweet milk, two tablespoons grated chocolate, two teaspoons of a mixture of ground nutmeg, allspices, cloves and cinnamon and two teaspoons baking powder sifted in a tablespoon of flour, add two more cups of cold mashed potatoes. Beat well, mix in half a cup of chopped walnuts and one cup of stoned raisins. Bake in a moderate oven for 30 minutes, placing the cake pan in center of oven. This recipe never fails if directions are closely followed. Be sure and let it bake until done.—Mrs. Jenny Cummings, Turley, Oklahoma.

Potato Cake

One cup butter, two cups sugar, four eggs, one-third cup sweet milk, two cups sifted flour, four tablespoons grated chocolate, one teaspoon cloves, one teaspoon cinnamon, one teaspoon nutmeg, two teaspoons baking powder, one teacup cold mashed potatoes, one cup chopped nuts. Bake 45 minutes.—Mrs. Ora Jackson, Modesto.

Potato Caramel Cake

Two-thirds cup butter, two cups granulated sugar, two cups flour, one

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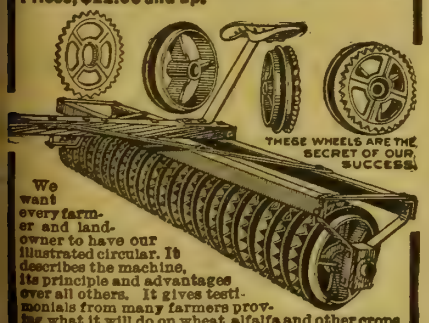

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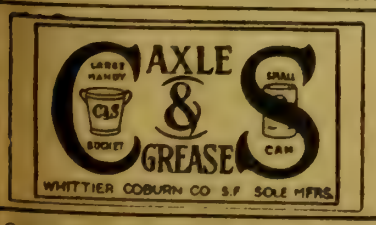

Orange County Dedication day at e Panama-Pacific is April 19.

cup mashed potato, one-half cup sweet milk, four eggs, two teaspoons baking powder, one cup grated chocolate or two squares melted, one cup chopped walnuts, one teaspoon each of cloves, cinnamon and nutmeg (half as much if preferred). Cream the butter, sugar and yolks of eggs. Add the milk, mashed potato, spices and chocolate. Sift the flour and baking powder and beat the whites of the eggs to a stiff froth. Sift the sifted flour into the batter and lastly beat in the whites. The nuts are added just before the cake goes into the tins. A nut cake is always finer if the nuts are put in the last thing. This makes a large loaf.—R. Ferris, Woodlake.

Potato Cake

One scant cup butter, two cups sugar, one cup hot mashed potatoes, four well-beaten eggs, one-half cup milk, one teaspoon vanilla, two cups flour, two teaspoons baking powder, one and one-half cups walnuts ground fine. Bake in either layers or loaf. Use chocolate frosting.—D. E. C., Hemet.

Potato Gems

One egg beaten well, to which add one cup of sweet milk, then one cup of cold mashed potatoes. Sift in one cup of flour in which is a rounded teaspoon of baking powder and one-fourth teaspoon of salt. Beat for several minutes, pour in greased hot gem pans and bake in a quick oven.—Mrs. H. P. Dralle, Sanger.

MARCH PRIZE CONTEST

A splendid response has come to the Cultivator's request for recipes telling how to use potatoes otherwise than as vegetables. We have recipes for potato bread, potato biscuits, potato pancakes, potato doughnuts and potato cakes which everyone of our women readers will be eager to try.

Request has been received that the March contest be for rice recipes. How do you cook rice?

For best recipe, $2.00 cash; for second best, $1.00; for all published, six months' subscription to the California Cultivator.

Recipes should be in this office by the morning of Thursday, March 11, Write on one side of paper only. Send name of member of your family now receiving the Cultivator that the six months' extension of subscription may be credited to that name.

PRIZE WINNERS

Winners in the potato recipe contest for February: First prize, Mrs. J. F. Delzell; second prize, Mrs. C. D. Luedke.

HOUSEHOLD QUERIES

Canning Pimientos

The Cultivator has request for information as to canning pimientos. Several subscribers will appreciate information regarding canning both pimientos and chiles.

Pickled Limes

Can you tell me how to pickle limes?—Subscriber, Pasadena.

Lemons or limes may be pickled as follows: Use three ounces of chillies, four ounces of garlic, four ounces of turmeric, three ounces of green ginger. Pack the lemons or limes in a jar, sprinkle thickly with salt, cover and let stand for one week. Pound the garlic, chillies and turmeric together, and add the ginger sliced; add just enough vinegar to make a paste. Stuff this into the limes, tie them together and stand in glass or stone jars for one month, when they will be ready for use.

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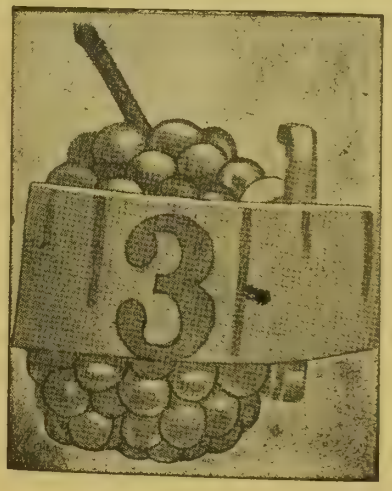

Try this New Blackberry At Our Expense

TO CULTIVATOR SUBSCRIBERS ONLY—To have this New Macatawa Everbearing Blackberry tested in as many localities as possible, claiming it to be the sweetest and best table berry on the Coast, the propagators of this berry have made us a proposition for supplying same in shipments of 6 plants each by parcel post, all charges paid.

Their description of the Macatawa is as follows: "It is a cross between the true Giant Himalaya and the Eldorado. The fruit is very large and sweet, in fact, it is the sweetest blackberry grown. It is coreless and almost seedless; very solid, jet black when ripe and can be shipped 1000 miles without bruising. The shape is oblong, very uniform, averaging three and one-half inches around one way by three and one-fourth inches the other way. The bloom is almost semi-double, about the size of a silver dollar. So far all who have tested this berry say it is the sweetest and best flavored berry they ever tried."

DO YOU WANT SIX OF THESE PLANTS? If so send in the regular subscription price for one year's subscription to the Cultivator, new or renewal; add 25c to cover cost to the nursery of postage and packing, and the six plants will be carefully packed and mailed you promptly without additional charge.

REMEMBER—The regular price of the 6 plants alone is $1.00 postpaid. Only one shipment will be made to a customer, but subscriptions and plants may be sent to different addresses.

ADDRESS ALL ORDERS TO

Cultivator Publishing Co.

115-117 No. Broadway

Los Angeles, Cal.

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, Feb. 17, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade 4 cents above following quotations:

Creamery Extras	27
Firsts	25
Country	22
Ladle	21

CHEESE

Prices to trade, 1 and 2 cents higher:

California Fresh	15@15½
Cheddar	20@21
Domestic Swiss	20@21
Eastern Daisy	18½@19
Longhorn	18½@19
Imported Swiss	32-@34

EGGS AND POULTRY

Prices to trade, 3 cents higher than following quotations:

Fresh Ranch, case counts	25½
Candled	27½@29½
Northern case counts	24
Petaluma-Santa Rosa	25

Prices to producers:

Hens ,lb.	14@16
Roosters, old	8@9
Broilers, lb.	26
Fryers	22
Roasters, lb.	17
Turkeys	17@21
Ducks	19
Geese	16
Squabs, doz.	2.00

LIVE STOCK

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs., per cwt.	7.40
Prime Steers	7¼@7½
Heifers	6¼@6½
Calves, lb.	8½@9
Sheep—	
Ewes, head	4.50
Wethers	4.50@5.00
Lambs, head	4.50@4.75

POTATOES

Wholesale selling price:

Idaho Russet	1.30@1.40
Early Rose Seed	2.25@2.50
White Rose Seed	1.50@1.60
Sweets, lug	75@80
New Potatoes, lb.	5@7
Northern Burbanks, cwt.	1.40@1.45
Salinas	1.90@2.00
Shimas	1.50@1.60
Lompocs	1.90@2.00

ONIONS

Wholesale selling price:

Australian Brown, cwt.	1.25@1.45
Oregon Globes	1.50@1.60
White Globe	4.50@4.75
Yellow Danvers	1.25@1.45
Sets—	
Yellow	9
White	10
Sets, Garlic	25@28

VEGETABLES

Wholesale selling price:

Artichokes, Northern, doz.	75@1.00
Beets, doz.	30@35
Cabbage	75@85
Carrots, doz.	30@35
Cauliflower, doz.	75@85
Celery—	
Northern, crate	3.25@3.50
Cucumbers, hothouse	75@3.00
Egg Plant	18@22
Escarole, doz.	40
Horseradish, lb.	10@12
Leeks, doz.	35@40
Lettuce, crate	75@80
Mint, doz.	35@40
Mushrooms, Outdoors, lb.	25
Onions, Green, doz. bunches	15@20
Oyster Plant	35@40
Peas, lb.	17@19
Parsnips, doz.	30@35
Peppers—	
Bell, lb.	30
Chili, lb.	20
Pumpkins, lb.	1@1½
Rhubarb, box	80@1.00
Spinach, doz.	19@22
Squash—	
Crookneck	50@60
Hubbard, lb.	1¼@1½
Turnips	30@35
Tomatoes, lug	1.65@1.75
Florida, crate	2.50@2.75

FRESH FRUIT

Wholesale selling price:

Apples—	
Bellflowers	75@90
Rome Beauties	1.25@1.75
Pearmains	85@1.10
Spitzenbergs	1.35@1.75
Pippins	90@1.00
Avocados, doz.	4.00@8.00
Bananas	3½@4
Berries—	
Strawberries, basket	8@15
Cranberries, bbl.	8.75@9.00
Grapes, lug	1.25@1.35
Guavas, basket	4@6
Pears, Winter Nelis, lug	1.50
Persimmons, lb.	7@10
Pineapples, lb.	5@5½
Pomegranates, box	1.75@2.00
Quinces	65@75

CITRUS FRUIT

Wholesale selling price:

Lemons	1.00@2.00
Grapefruit, Seedless	2.00
Navels	1.75@2.00
Tangerines	1.50@1.75
Limes, basket	1.25

DRIED FRUITS

Wholesale prices to retailers are:

Evaporated Apples, Fancy, lb. boxes	6¼@8
Apricots	8¾@11½
Nectarines	12½
Peaches	5¾@6¾
Pears	10@11
Prunes	5¾@16
Plums	10

HONEY

Wholesale selling price:

Comb, Fancy, Water White	14
White	12
Light Amber	11
Extr. Water White	7
White	6½
Light Amber	5½
Beeswax	32

NUTS

Prices named by California Walnut Growers' Association are:

No. 1	16½
Budded Walnuts	20
Jumbos	19
No. 2	12
Culls	9

Prices fixed by California Almond Growers' Exchange, f. o. b. California.

Almonds—	
Nonpareil	21
I X L	20
N P U	19
Drake's Thinshell	15
Pecans	17
Peanuts—	
California, Raw	6
Japan	7½
Eastern	7½
Rice Corn	5.00@5.25

RICE

Wholesale selling price:

California	4.75@5.00
Broken	3.75@4.00

BEANS

Wholesale selling price:

Producer's price not far from one dollar under these quotations:

Limas	6.35@6.50
Bayous	7.00
Lady Washington	6.00@6.10
Pinks	5.65@5.75
Black Eyes	6.00@6.25
Lentils	10.00@12.00
Small White	6.00
Garbanzos	7.00@7.25

HAY

Buying prices f. o. b. cars Los Angeles:

Barley Hay	10.00@11.00
Wheat Hay	10.00@11.00
Tame Oat	11.00@13.00
Alfalfa	9.00@11.00

GRAIN

Wholesale selling prices f. o. b. Los Angeles:

Corn, Yellow	2.20
Corn, White	2.30
Wheat	2.75@2.90
California Red Oats	2.10
Cal. Seed Oats	2.10
Texas Seed Oats	2.50
Oats, White	2.20
Oats, Hulled	2.75
Millet	3.75
Popcorn	4.75@5.00
Egyptian Corn	2.30
Barley Seed	1.85
Barley, Hulled	2.15
Milo Maize	2.10
Rye	2.40
Sunflower Seed	7.00

FEED STUFF

Wholesale selling prices f. o. b. Los Angeles:

Bran, Heavy	1.85
Alfalfa Meal	1.20
Alfalfa Molasses, per cwt.	1.25
Beef Scraps	3.00
Beet Pulp	1.25
Cracked Corn, cwt.	2.25
Cracked Wheat, cwt.	2.90
Cotton Seed Meal	1.80
Bloodmeal	3.45@3.55
Bone Meal	1.95
Meat Meal	3.00
Bone, Green	1.85
Charcoal	2.00
Oil Cake Meal	2.35
Fish Meal	3.15@3.25
Rolled Oats	2.20@2.25
Rolled Barley	1.80
Middlings	2.15
Feed Meal	2.30
Scratch Feed	2.50

San Francisco Market

SAN FRANCISCO, Feb. 16, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade, 4 cents above following quotations:

Extras	29
Prime Firsts	26
Firsts	24
Seconds	22

CHEESE

Wholesaler to retailer.

Oregon Y. Am.	16
Young America	13½@15
California Flats	10@14
Cheddar	20
Oregon Twins	14

EGGS AND POULTRY

Prices to trade 3 cents higher than following quotations:

Extras	24
Select Pullets	21

Price to producer:

Hens, lb.	17@19
Fryers	22@23
Roosters, old	15
Roosters, young	18@20
Broilers	25@26
Squabs	3.00@4.00
Belgian Hares, lb.	8@11
Turkeys, Dressed	20@22

LIVE STOCK

San Francisco prices, gross weight:

Steers	4@7¼
Cows and Heifers	3@6¼
Calves, lb., live weight	6@9½
Hogs	5@7¼
Wethers	6½@6¾
Ewes	5¼@5¾
Yearling Lambs	7½@7¾

POTATOES

Wholesale selling price:

Delta Burbanks	90@1.25
Salinas Burbanks	2.00@2.10
Oregons	1.60@1.70
Washington	1.25@1.40
Sweets, cwt.	1.60@1.80

ONIONS

Wholesale selling price:

Yellow, cwt.	90@1.00
Garlic, new	17½@20

VEGETABLES

Wholesale selling price:

Beans, string	15@20
Brussels Sprouts	2.00@2.50
Celery—Delta	1.50@2.25
Cucumbers, lug	75@2.00
Egg Plant, lb.	5@7
Lettuce—	
Sacramento	1.00@1.25
Southern	75@1.15
Peas, lb.	15@17½
Peppers—	
Bell, lb. Small	5@8
Bell, lb. Large	15@20
Chili, lb.	5@10
Rhubarb, crate	1.00@1.50
Squash, sack	25@35
Tomatoes—	
Los Angeles, crate	1.00@1.25
Imperial Valley	1.50@2.00

FRESH FRUIT

Wholesale selling price:

Apples—	
Newton Pippins	50@1.00
White Winter Pearmains	50@75
Bellflowers	50@75
Bananas, Hawaiian, bunch	75@1.50
Pineapples, doz.	1.00@2.25

CITRUS FRUIT

Wholesale selling price:

Grapefruit, Seedless, new crop.	1.50@3.50
Lemons	1.50@2.50
Lemonettes	1.00@1.50
Navels	1.25@2.00
Tangerines, halves	75@1.75

DRIED FRUITS

Wholesale prices are:

PRUNES—1914 crop, bulk basis: 30-40s, 7c; 40-90s, 6½c; 90-100s, 6c. The above are for both Santa Clara prunes and stock from outside sections.

Other Fruits.	Stand- ard	Choice	Extra Choice	Fncy
50-lb. boxes—				
Ev'p'd Apples.	....	5½c	5¾c	6 c
Peaches	4 c	4¾c	4½c	5¾c
Apricots	9 c	9½c	10 c	11 c
Pears	7 c	8 c	9 c	10 c

RAISINS

RAISINS—The following prices are f. o. b. Fresno, as given out by the Associated Raisin Company, for immediate shipment, and are guaranteed against a decline till April 1st: Fancy seeded, 16-oz., 7¼c; 12-oz., 6¾c; bulks, 6c; choice seeded, 16-oz., 6⅞c; 12-oz., 5⅝c; bulk, 5½c; Thompson seedless, No. 1, 16-oz. pkgs., 7⅝c; 12-oz., 6¼c; 50-lb. cs., 6½c; loose, Muscatels, 1-crown, 5½c; 2-crown, 5½c; 3-crown, 5⅞c; 4-crown, 6c; Sultanas, 50-lb. cs., 5¾c; bulk, layers, 50-lb. bxs., $2.75; in 20-lb. bxs., 6-crown, $2.75; 5-crown, $2.25; 4-crown, $160; 3-crown, 5-lb. bxs., $1.50; on all bulk stock, 50c additional. Cartons—Clusters, 20 to cs., No. 1, $1.70; No. 2, $2.10; No. 3, 4 to cs., $2.25. Local representatives of the association are asking about ¼c higher, while several of the largest independent packers are quoting ½c under these figures.

NUTS

ALMONDS — Prices fixed by Almond Growers' Exchange to the trade, f. o. b. California:

Nonpareil	21
I X L	20
Ne Plus Ultra	19
Drakes	18

Wholesale selling price:

Peanuts—	
Unpolished	5@8
Polished	6@6¼
Shelled, Jap	6¼@6¾
Italian Chestnuts	6¼@7

BEANS

Wholesale selling price:

Limas	5.85@5.90
Pink	4.75@4.90
Black Eyes	6.00@6.50
Cranberry	5.00@5.25
Small White	5.60@5.70
Garbanzos	6.25@6.75
Large White	5.30@5.40
Bayou	5.50@5.70
Manchurian Speckled Bayous	4.00@4.50
Manchurian Butters	4.50@4.75
Red Mexican	5.60@5.70
Red Kidney	6.00@6.25
Horse Beans	4.00@4.50

HONEY

Wholesale selling price:

Comb, Water White	14@16
Amber	10@13
Dark	7@10
Extracted White	7@9
Light Amber	5½
Dark	4@5½
Beeswax	27@32

HOPS

1914

Wholesale selling price:

Sacramento Valley	7@9½
Sonoma-Mendocino	9½@11½
Oregon Clusters	9½@11½

HAY

Under date of February 13 Scott Magner & Miller say:

Receipts for the past week were 2164 tons, the preceding week 1345 tons and the week before 1799 tons. Several hundred tons of hay have arrived this week from San Benito County. Alfalfa is arriving in a small way with a very light demand. It is almost impossible to sell straw, cheap hay being used in place of same.

Fancy Wheat Hay (light bales)	11.00@12.00
No. 1 Wheat or Wheat and Oat	9.00@10.50
No. 2 Wheat or Wheat and Oat	6.00@8.50
Choice Tame Oat	10.50@11.50
Other Tame Oat	6.00@9.00
Barley	5.00@8.00
Wild Oat	6.00@8.00
Alfalfa	6.00@9.00
Stock Hay	4.50@5.00
Straw, per bale	30@45

GRAIN

Wholesale prices.

Alfalfa Seed	14@16
Wheat, Cal. Club	2.45@2.50
Corn, Eastern Yellow, blk.	1.78¾@1.80
Corn, Egyptian White	1.85@1.90
Barley, Feed	1.52½@1.55
Oats, Red, Feed	1.62½@1.67½
Millet	3@3¼
Flax	6@6½
Rye	2.10@2.25
Sunflower	5@5½

FEED STUFF

Wholesale prices.

Alfalfa Meal, car lots	16.00@16.50
Bran, ton	33.00@34.00
Feed Cornmeal, ton	40.00@41.00
Cracked Corn	40.00@41.00
Rolled Barley, ton	33.00@34.00
Rolled Oats, ton	37.00@37.50
Middlings	34.00@36.00
Shorts	34.00@35.00
Oilcake Meal	38.00@39.50
Cocoanut Oilcake Meal	24.00@25.00

WEATHER CONDITIONS

For Week Ending February 13, 1915

Report from the various stations of the United States Weather Bureau, by George H. Wilson, director, San Francisco.

	Rainfall Data		Temperature	
	Past Week	Seasonal to Date	Normal to Date	Maximum	Minimum
Eureka	2.17	31.74	27.86	54	36
Red Bluff	3.40	22.88	15.57	60	36
Sacramento	1.59	10.53	12.24	60	40
San Francisco	2.57	17.72	14.39	60	46
San Jose	2.98	15.28	10.30	60	38
Fresno	2.04	7.47	5.86	74	40
Independence	.02	2.26	5.74	54	26
San Luis Obispo	4.64	18.77	12.21	66	40
Los Angeles	2.26	12.86	9.54	70	44
San Diego	1.43	11.69	6.20	70	44

Citrus Fruit Market

LOS ANGELES, February 17, 191[illegible]

With continued wet weather in orange growing sections and a generally improving market, the fruit now on track is offered a very good opening. Compared with other years the present prices are fully as good or a little better than average. With this condition as soon as the rain ends and picking conditions are improved, every packing

house will be worked to the limit. Florida's crop is somewhat over two-thirds marketed. Lemons show no material change and a disposition on the part of the grower is noticed to hold for better prices when warmer weather comes.

NEW YORK, Feb. 15.—Twenty-four cars navels, one mixed car and two cars lemons sold. Market firm on navels, slightly better on lemons. Partly cloudy.

NAVELS—	Avge.
Mahala, L.V.W. Brown	$2.50
Swastika, L.V.W. Brown	2.25
Blue Banner, Sutherland Ft. Co.	2.60
Green Banner, Suth. Ft. Co.	2.20
Blue Banner, Suth. Ft. Co.	2.45

BOSTON, Feb. 15.—Fifteen cars sold. Market is strong.

NAVELS—	Avge.
Violet, D.M. Ex.	$2.05
Florencia, Covina Ex.	2.00
Venecia, Covina Ex.	1.70
Green Banner, Suth. Ft. Co.	2.25
Perfection, Highgrove O.G.A.	2.55
Plain Ends, Highgrove O.G.A.	2.10
H. & M., Merryman F.L.&L. Co.	2.25
Monarch, Merryman	2.05
Red Owl, Imp.	2.55
Red Owl	2.35
Squaw, Imp., P. & Lett.	2.35
Rubidoux, Imp., P. & Lett	2.15
NAVELENCIAS—	
Blue Hussar, O.K. Ex.	$2.70
Red Hussar, O.K. Ex.	2.80
Princess	2.20
Red Hill	2.45
Purity	2.15

PHILADELPHIA, Feb. 15.—Four cars sold; market unchanged on oranges, lower on lemons.

NAVELS—	Avge.
Geo. Washington, Or. Ex.	$2.15
Martha Washington, Or. Ex.	1.80

PITTSBURGH, Feb. 15.—Six cars sold. Market is steady.

Violet, D.M. Ex.	$2.30
Pointer, A.C.G. Ex.	2.20

CLEVELAND, Feb. 15.—Three cars sold. Market is strong.

NAVELS—	Avge.
Aurora, Amer. Ft. Dis.	$2.55
Vulcan, Amer. Ft. Dis.	2.45

KANSAS CITY, Feb. 15.—Two cars sold by Kansas City Fruit Auction Company.

NAVELS—	Avge.
Redlands Eagle	$1.96
Buffalo	1.90
Baseball	1.73

ST. LOUIS, Feb. 15.—Seven cars sold. Market is easy.

NAVELS—	Avge.
Blue Winner, Covina Hgts. G.	$1.55
Red Winner, Covina Hgts, G.	1.55

CINCINNATI, Feb. 15.—One car sold. Market unchanged on lemons.

LEMONS—	Avge.
Linnet brand, O.K. Ex.	$2.60
Crest	2.50

LOS ANGELES, Feb. 15.—Averages on Los Angeles sales are f.o.b. shipping point.

NAVELS—	Avge.
Pansy, M.O.D. Colton, and Silver Foam, ch. (straight car)	$1.25
Baseball, Ball & T., Downey	1.10
Green Banner, Suth. Ft. Co.	1.32½

CHICAGO, Feb. 15.—There is a brisk trade in apples. Not much storage stock left, and supplies are coming out of coolers freely. Apples, boxes, western stock, 1.50@2.25; barrels, out of coolers, 2.25@2.50; some finer grades up to 4.00. Oranges, boxes, California, 2.00@2.50; Floridas, 1.50@2.00; Tangerines, straps, 2 boxes, 1.75@2.50. Lemons, boxes, Californias, 2.75@3.35. Kumquats, 12½@15 per quart. Limes, barrels, imported, 12.00. Grapefruit, receipts slackening, but supply ample, box, 1.75@2.00. Strawberries, supply well cleaned out at 30@35 per quart.

The Silva Bergtholdt Company is sending out a final "teaser" in a stock list with attractive prices which shows this concern to be carrying an immense stock of fruit trees. The planting season is drawing to a close.

Burpee's Seeds Grow

THE truth of this famous slogan is proved by thousands of pleased and permanent customers. The Burpee Idea of Quality First—"to give rather than to get all that is possible"—combined with efficient service, has built the world's greatest mail order seed business. We deliver seeds free by parcel post, and have not advanced prices because of the war. Write today for **Burpee's Annual, *the* "Leading American Seed Catalog" for 1915.** It is mailed free.

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Contains 13 per cent Nitrogen in the most available form. Is a powerful plant tonic and energizer, besides the 25 to 30 per cent Soluble Lime, which we give free. We also sell Nitrate of Soda. For information and prices write.

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Trees of All Varieties

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Seedless Lemon

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A brief history of the ITALIAN SEEDLESS LEMON will be furnished upon application.

Also information with reference to Planting, Care, Fertilization, Pruning, etc., of the OLIVE.

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The Cultivator Publishing Co., Inc.

115-117 North Broadway **LOS ANGELES**

Studebaker

WAGONS BUGGIES HARNESS

A STUDEBAKER THAT HAS SAVED MONEY FOR ITS OWNER

I bought my Studebaker from your agent, D. M. Smith, at Flint, Mich., in 1876, and have used it continuously on my farm.

I have a farm of 140 acres, with good buildings, and this wagon hauled all the material.

Two years ago my son put on three tons of sugar beets and hauled it over frozen ground to the scales.

Last summer we hitched a loader behind it and drew our hay to the barns.

The wagon had not been sheltered half the time for the last twenty years yet has never broken a wheel or an axle.

John H. Wood,
Flushing, Mich.

Hitches other wagons to his 37 year old Studebaker

A WAGON thirty-seven year old that can stand the strain of having another laden wagon hitched to it might be called a remarkable example of wagon building.

But it is a Studebaker—and Studebaker wagons are built to withstand any reasonable strain; and to last, not ten or twelve years, but a lifetime.

An investment that pays

Think what it means to get 37 years and more of work out of a wagon.

Cuts down the cost—doesn't it?

Especially if you compare 37 years with the 12 years an ordinary wagon lasts.

Studebaker wagons last a lifetime—because they are *built* to last. Wheels, body and gear are the work of experts. Air-dried lumber, tested iron and steel make for strength and lasting qualities.

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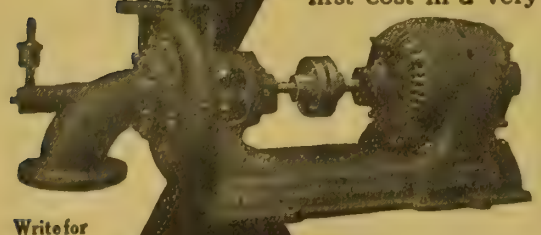
The pump you buy should raise the maximum quantity at the lowest cost per gallon, run constantly without repairs and with the minimum attention. "Jackson-Made" Pumps not only do this, but they are Self Payers because their saving in power and repairs will pay their first cost in a very few months.



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Write us, tell us your pumping problem—our expert engineers, without cost to you, will help you.

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212 N. Los Angeles St., Los Angeles, Cal.
WORKS: WEST BERKELEY, CAL.

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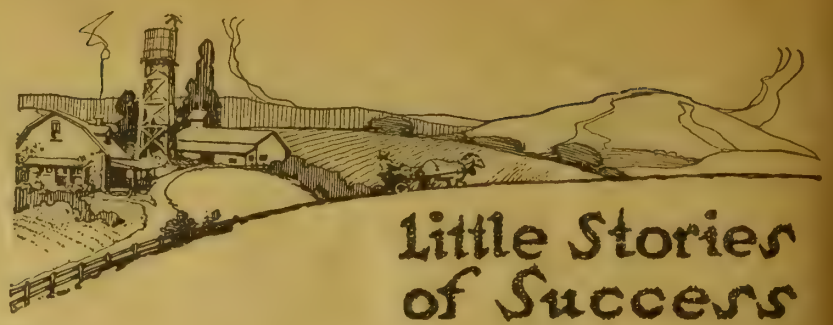
NOW BEST TIME TO PLANT. Should return from $1,000 to $1,500 per acre first year. If interested in Rhubarb, Berries or Cactus, write J. B. Wagner, Specialist, Pasadena, Cal.



Little Stories of Success

No. 3

Paul Talbott of Kings City ordered another Caterpillar last June. He already had two, but he found he needed another to farm his 4,000 acres. He knows tractors, too, as he tried a 100-h. p. round-wheel gas tractor first, and then went back to horses. Then he bought a steam tractor to run his stationary thresher and found it wouldn't steam on the short straw we had two years ago. Then he bought a Caterpillar. That Fall he ordered another one. This June he writes: "In the past two years these two Caterpillars have saved me about $16,000 over the old way of farming. I have now placed my order for a third one."

Mr. Talbott has proved for himself what a steady, powerful motor the Caterpillar has for belt work, as well as the saving of time and money in traction work.

CATERPILLAR

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Don't say Caterpillar unless you mean Holt

THE HOLT MFG. CO.

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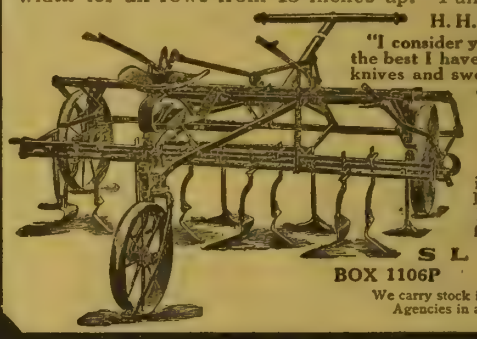
Stockton San Francisco Los Angeles

Both Expositions — San Francisco and San Diego

Planet Jr. Beet Cultivator

The greatest time- and labor-saver ever invented for beet and bean cultivation is this **No. 3 Planet Jr 4-row Sugar Beet and Bean Horse Hoe.**

Especially adapted to western requirements by a practical farmer and manufacturer who studied the vital needs among largest beet-growers. Cultivates four rows of beets at a time, 18 to 22 inches apart. Works equally well for beans. Equipped with patent hoes that hoe close at surface and curve away from roots. Front of hoe acts as leaf-guard. Two-wheel seat rig for 3-row cultivation. Wheels are changeable in width for all rows from 18 inches up. Fully guaranteed.



H. H. Castwood, Oxnard, Cal., writes: "I consider your No. 3 Beet Cultivator by far the best I have ever seen or used. I think the knives and sweeps as near perfection as they could be made."

New 72-page Catalog (168 illustrations) **free**

Describes over 55 tools, including Seeders, Wheel Hoes, Horse Hoes, Harrows, Orchard- and Beet-Cultivators. **Write postal for it today.**

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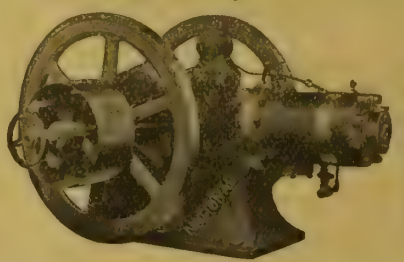
We carry stock in San Francisco and Los Angeles. Agencies in all principal Pacific Coast cities.

National Oil Engine

An engine which will burn fuel costing three cents per gallon, and at the same time is an engine with 90 per cent less parts, is the engine for the rancher to buy.



A LETTER FROM A USER OF THE NATIONAL OIL ENGINE

Kingsburg, Cal., Dec. 19, 1913.

National Steam Pump Co.,
Los Angeles, Cal.

Gentlemen:

I bought the first NATIONAL Oil Engine sold in this State. Any one wanting an engine let them come and see my 15 H. P. pulling a 6-in. centrifugal pump lifting thirty feet throwing two cubic feet moving one foot per second, using low grade fuel. I will answer any letter.

Truly yours,
(Signed) L. E. HURLEY.

We guarantee the saving in fuel expense and purchaser's own judgment will tell him that in doing away with 90 per cent of the small, delicate and complicated parts, springs, gears, etc., that he is getting away from engine trouble when he invests in a National. 1915 catalog now ready.

NATIONAL STEAM PUMP COMPANY

Upper Sandusky, Ohio

Address California Representative, J. C. WRIGHT,
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Hill Street Between 4th and 5th.

CALIFORNIA CULTIVATOR

Rural Californian combined with California Cultivator

An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES February 25, 1915 SAN FRANCISCO

5

Leading Oakland Superiorities

Great Strength with Light Weight

High Speed Motor with Great Power

Low Center of Gravity with Usual Road Clearance

Flying Wedge Lines with Least Wind Resistance

Economy with Luxury

And Each One Spells Economy

Economy is a result of the Oakland's great strength with light weight—economy in fuel, in tires, in upkeep.

Economy is a result of the Oakland's high-speed, balanced motor with great power—economy in the even flow of gases, in reduced wear and strain, in added efficiency.

Economy is a result of the Oakland's low center of gravity with usual road clearance—economy in sure, safe, steady going and the sturdy, compact construction of every unit of the car.

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Economy is an ever-present feature of Oakland service; and Oakland service is complete, as a demonstration will show you.

Economy in upkeep throughout—but luxury in appearance, in appointments, in riding qualities.

The Oakland dealer near you will take you for a ride. Write for his name and address. Illustrated catalog free.

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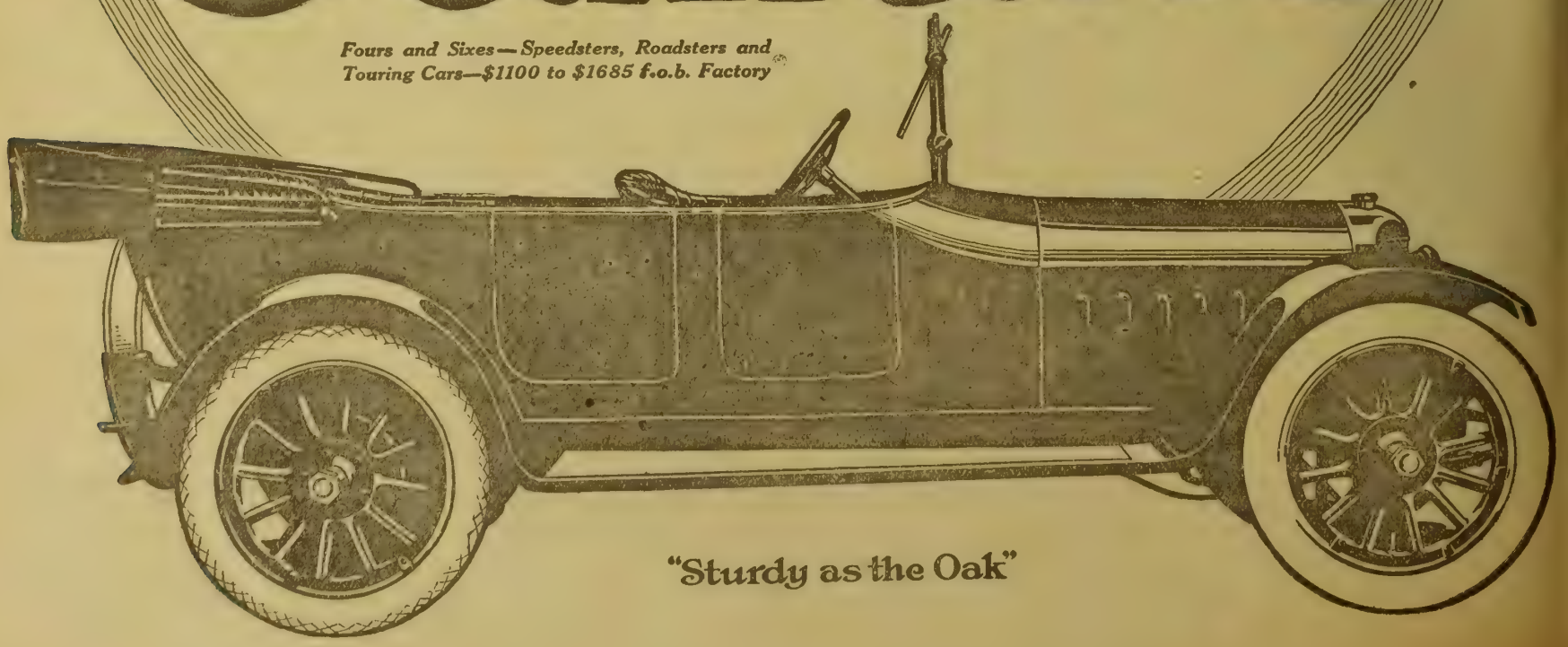
Fours and Sixes—Speedsters, Roadsters and Touring Cars—$1100 to $1685 f.o.b. Factory



"Sturdy as the Oak"

California Cultivator

Rural Californian combined with California Cultivator

Vol. XLIV No. 8 LOS ANGELES: THURSDAY, FEBRUARY 25, 1915 One Dollar Yearly

Opening Day at the P. P. I. E.

Greatest Number of People Ever at any Such Event. The Panama-Pacific International Exposition Opens at San Francisco February 20. Opportunity for an Education, Especially in Agriculture and Horticulture, at This Great Fair. Editorial Correspondence

IT'S Open.

The "Ohs!" the "Ahs!" the 'What do you think of thats?" have been said. The cheers have been cheered, the songs have been sung, the flags have been waved and unfurled. The fountains were loosed, the bombs fired and the many colored lights flashed and man said, "It is finished." All because the President of the United States, 3,000 miles away, pressed an electric button—also because man, man in blue overalls, has done his work and done it well.

"It" means, of course, "1915", "The Fair," "The Jewelled City," "Fairyland of Color," "The $50,000,000 Show" or, more properly and officially, "The Panama-Pacific International Exposition."

Adjectives have all been worn to a frazzle and as there are none of sufficient super-superlativeness to fit the case, perhaps "It's open" is an all sufficient announcement to Cultivator readers. All are going and that's better than reading descriptive stuff as to what the other fellow saw.

But about the opening day. It opened showery. However, the "pilgrimage" started. The pilgrimage was made by the president's representative, Franklin K. Lane, Governor Johnson, Mayor Rolph, exposition officials, newsboys and some thousands, or tens of thousands and even twenties of thousands, of others. Everybody walked. It wasn't any common affair where some big one was pulled in a coupe by the "populace." We were all populace. It was our show.

Naturally it was the greatest ever. St. Louis, Chicago, Buffalo and all other world's fairs' first day records fade away. Even first week's records in former shows barely reach "our" record of well up toward a quarter million. As one lady said, "Honestly, I didn't suppose there were this many folks in the world that I didn't know." She was sitting on a rubbish can waiting for her husband to return with something to eat. The crowd was so thickly massed he failed to arrive near enough to the Frankfurter sandwich foundry to get a supply.

It was like the movement of a mighty glacier. When one got into it he moved and as "it" directed. Where the directing force was it was impossible to see. I wondered why some did not go into the buildings. There are hundreds of them and nearly all were open. I soon drifted into and part way through the Palace of Machinery—eight acres in it. Then I wondered why some of the people didn't get out. I did as soon as I could and found a breathing spot on a velvety lawn with a "keep off the grass" sign. This morning—the morning after—these lawns on which McLaren and his great force of gardeners have worked for months and all for this day, were a most pitiful sight, tramped into mud with little semblance of velvety green, at least in many spots.

This crowd was scattered everywhere over the 600 acres. The grounds are two and one-half miles long, though in some portions quite narrow.

The showers with which the day opened continued occasionally till about an hour before the moment of unfurling and official opening. The clouds then broke away and almost as if by magic the burst of sunlight flooded the jewels of the great 435-foot tower and the sparkling pendants answered back to the thousands of waving flags, pennants, hats, umbrellas and handkerchiefs. In fact, everything movable got into action at 12 noon.

Then the crowd broke up or tried to, but couldn't get away from itself. Everyone staid till evening to see the illumination. That's when the exposition shines. A battery of a half a hundred searchlights from Fort Moro with scores of others on other vantage points plays on different parts of the grounds, but always some of them are on the Tower of Jewels. Then when some dozens or scores of electric bombs are used to bombard the sky and searchlights with color screens of red and green, orange and purple and various shades are used to bombard the smoke drifting over the buildings, the effect is—but I find the desire to

(Continued on Page 255)

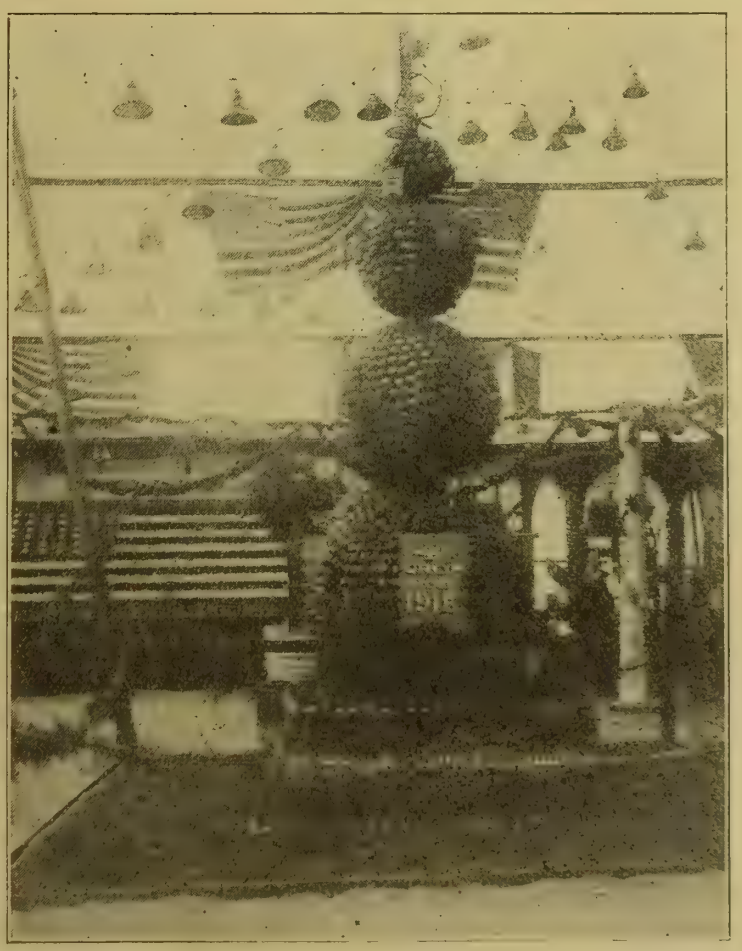
The National Orange Show

The National Orange Show Draws Out Large Attendance. Finest Exhibit Yet Made of Citrus By-Products. Fine Fruit, also Many Orchard Appliances and Accessories Exhibited

IN the by-products and household booth of the National Orange Show, just held at San Bernardino, were to be seen exhibits of orange bread, cake, pie, cookies, tarts, pudding, salad, sauce, marmalade, jam and preserves, jelly, candy, candied peel, ades and punches, extracts, pastes, orange puffed rice, in fact, I believe nearly everything edible unless it was soup—the first course of the meal only seemed to have been left out—but certainly the housekeeper's section of citrus California did itself proud in its effort to show what could be done with oranges, lemons, limes and grapefruit in a culinary way. Nor should we overlook the citrus face cream, which formed a part of the exhibit. What is better, this section was more crowded than any other.

By the way, it is in order to refer to the announcement made during Orange Show week that the by-products of the citrus are to be a factor which will add materially to the citrus industry of the future. The exchange, or rather the members of the California Fruit Growers' Exchange, are organizing a concern to handle low grade citrus fruits in a way which will make them bring more money and take them from competition with better grade fruits in the markets.

This is the fifth of the National Orange Shows, the biggest, and in many respects the finest. Various citrus growing sections are not so generally represented in the feature exhibits as in some former years, but there is a finished look to those which



RIVERSIDE'S EXHIBIT PORTRAYING THE FOUR DECADES OF THE WASHINGTON NAVEL ORANGE

are there and a quality of fruit in all the exhibits which has never been equalled. I do not believe that finer lemons were ever exhibited. Montecito, Santa Barbara County, has one of the very finest exhibits along this line. We were assured that the fruits had not been waxed, oiled, or even rubbed, but were exactly as they had come from the packing house, having only been through the washing room.

One of the most striking exhibits was that of Riverside, erected in honor of the fortieth anniversary of the navel orange in California. The exhibit consisted of a series of four globes made of oranges, and in varying size from top to bottom. The small globe at the top represented the first decade of the navel industry, the next the second decade, and so on to the fourth, many times the size of the small one at the top. It is very probable that when the fifth decade is added it will still be immensely larger, and such exhibits as this one just noted at San Bernardino will aid in advancing the industry. It will aid not so much because of the advertising in attracting attention to the industry as in calling attention to methods of packing and methods of food preparation and methods of utilizing the by-products until the wastes will be saved.

The box exhibits from the fruit quality and commercial pack standpoint were almost perfect. The judges , State Horticultural Commissioner A. J. Cook, B. A. Woodford, former manager of the California Fruit Growers' Exchange, and Mr. W.

(Continued on Page 236)

Citrus and Tropical Fruits

THE OAK FUNGUS DISEASE OF FRUIT TREES

By W. T. Horne Before State Fruit Growers' Convention

THE oak fungus disease or fungous root rot caused by the fungus, Armillaria mellea is a very common and a very serious disease of orchard trees in California. Its most striking characteristics are its marked localization and slow progress. The fungus which causes it probably existed in the roots of wild trees, attacking living roots but working so slowly that vigorous trees were not killed, and also persisting in the dead wood, causing roots to decay. It appears that many wild trees are infected in nature and I do not have sufficient evidence to say that oaks are more subject to infection naturally than other trees. Not all roots in the soil are infected, so that we can not say that because an oak tree grew in a given place oak fungus will appear there.

When the roots of a fruit tree come sufficiently near to infected wood in the soil fungus grows over and attacks the living roots. We must believe that this may happen long after the original clearing, because the fungus will not die out of the soil until the root in which it lives is very completely decayed. It is probable that new infections have appeared ten years after planting an orchard.

The course of the disease is now well understood by fruit growers. Often several trees have died before particular attention is given to the trouble. It is then found that two or three trees nearest to those which have died are dying or diseased. The trouble can be recognized with certainty only by an examination of the roots. Usually two or three years will elapse after the first signs of weakening have appeared before the tree dies, and after the first collapse some part of the tree may start up and continue to grow for an indefinite time, finally to be blown over by the wind or to die completely if it does not first exhaust the grower's patience and get pulled out. Two or three years or more may pass before the disease spreads to the next tree. It is thus seen that the rate of spread is slow but we have maps of spots in citrus orchards 15 years old where 25 to 30 trees have been lost. In some cases practically whole orchards have been swept over. Some have not been replanted. Others have been replanted, part of the replants living and others dying, so that the result is very discouraging. After the disease has become well established occasional new centers of infection appear. It is believed that probably such new infections arise from a diseased root being carried along and, before it dries, plowed under near a healthy root. I have picked up from the moist cover crop a piece of diseased root which had fallen from the cart in which a dead tree was being hauled from the orchard. If this root had been plowed under so as to come near a healthy root the fungus would almost certainly have grown over into the healthy root and in a few years another tree would have died and a new center of infection would have been established.

Toadstools or mushrooms appear during early winter about most of the sick and dead trees. These toadstools may continue to come up on some stumps for at least five years. They are light tan color and are found in large clumps. They arise directly from the diseased roots and are the fruiting bodies of the fungus. White spores are found on them in immense numbers but probably these spores do not cause new infections in living trees, although we have repeatedly grown them artifically. They might easily infect a decaying stump.

If we examine carefully a root newly killed by this fungus we see that its bark is somewhat puffed and when cut into is soft and moist. By care we can separate it into layers exposing white plaques of fungus which are soft and felty and tend to radiate out in fan-shaped bodies. The appearance will vary somewhat according to the kind of tree. The odor is a sharp, sweet mushroom odor and not putrid or sour. Precisely such bodies are found in artificial cultures. Sometimes the bark is cracked and fungus bodies pushed out into prominent ridges which are black on the surface but white below. Roots which have been attacked for some time will be found to have the wood with a white decay working in from the surface. After a time the wood becomes very soft and moist and finally almost completely disappears.

Dark brown to black shining root-like structures coming out of the diseased bark and running along its surface are often found. These are the rhizomorphs; they resemble roots but have a different structure, the center being composed of soft white fibers. They give the fungus the power to go several inches from one root to another. When the tip of the rhizomorph comes to a healthy root the very small microscopic threads of which it is composed seem to loosen like the cut end of a rope and the individual threads penetrate into the bark and start a new infection.

Prevention

It is often recommended to take great expense to get out all roots from new land before planting. Evidently the fewer roots left in the soil the less chance there will be of infection. However it is not within the limits of practicability to get out all roots from wooded land. A good practice would be to clear the land, cultivate thoroughly, then keep it several years in alfalfa before planting the orchard. However in view of the scattered nature of infections and the impatience of planters it does not seem worth while to insist on such a program.

Treatment of individual trees may have a certain value but usually will be disappointing and is doubtfully worth while for orchard trees. If the crown of an affected tree is uncovered and by a generous amount of digging all diseased roots are removed or the diseased bark scraped off and the wood treated and the place allowed to dry out well, the remaining roots will grow freely, provided the tree has not been girdled by the fungus. By repeating such treatment and by keeping the crown as dry as practicable it is entirely possible that a tree may be kept alive for many years.

Treatment of Spots

We have insisted that two problems are involved: First, checking the outward advance of the fungus so that new trees will not become affected and second, treatment of area already infected.

Treating the margin of the spot has

Here's What Satisfied Customers Say About "R&W" ORANGE TREES

Read This:

"Exeter, Cal., Nov. 27th, 1914.

"Gentlemen:—

"In 1906 I purchased from you 2160 Washington Navel Orange Trees and planted same on my 20-acre place 1½ miles southeast of Exeter. My orchard has made a remarkably fine growth and the fruit is not only the very finest type of Washington Navel, but my trees have borne regularly and they produced oranges, most of which have been marked as extra fancy.

"The trees came into bearing three years after they were planted, and they have done so remarkably well that it is always a pleasure for me to recommend any of my friends, in case they want trees, to buy Roeding & Wood stock.

"As I have stated before, the quality of my fruit has been the very best, but this season, now that the trees are practically at an age where you might say they are in full bearing, I am not only very proud of my orchard, as there is none better in the country, but I am confident that I will receive returns from the fine crop of golden globes that I am getting that will repay me handsomely for the care that I have given this orchard. **I estimate my crop this season at six to seven thousand packed boxes.**

"Yours very truly,

"(Signed) L. L. THOMAS."

CITRUS Trees —the finest stock ever grown.

We have for this season's planting a splendid assortment of all the leading varieties of oranges, lemons, pomelos, limes, etc., and can fill your orders complete with almost any quantity. Our stock is all grown in the choicest spots of California, under ideal soil and climatic conditions, from buds of select strain—the kind that produces premium fruit.

In addition to citrus trees we also make a specialty of Olives—Manzanillos, Mission, etc. Ask for prices.

Olives

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Deciduous Fruits

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San Dimas Citrus Nurseries

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Citrus Trees Exclusively

All Leading Varieties

REMEMBER, MR. PLANTER

Practically anybody can grow a citrus tree, but it takes years of experience to produce a tree that will prove a money-maker when it comes into bearing. Nice-appearing nursery trees are desirable and promising, but do not always prove to be good bearing trees in the long run. Plant for profit and not for appearance only. Our trees are straight, thrifty, well rooted and have strong, full heads, but the main consideration is that: Our buds are carefully selected from heavy fruiting trees and will prove true-to-name revenue producers.

OUR TWENTY-FIVE YEARS

of experience in the growing and handling of citrus nursery trees gives the buyer the advantage of starting out RIGHT, thus avoiding disappointment at the end of four or five years' labor in bringing the young orchard into bearing.

ANOTHER POINT TO CONSIDER

Growing a good tree is only part of having it do well after planting. Many a good tree is ruined in the taking up from the nursery and shipping. We give the best of service in the proper handling and delivering of our trees.

WRITE,

'phone or call on us before buying your trees. Tell us your wants and we shall be glad to give you the benefit of our wide experience as to planting, soil conditions, fertilizers, etc.

Our illustrated new booklet on citrus culture mailed to any address upon receipt of 25 cents.

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(INCORPORATED)

Established in 1890 by R. M. Teague

San Dimas
California
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Teague trees are started right, grown right, and shipped right.

been practiced, I understand, in German forests by digging a ditch about the affected area so as to enclose all the fungus. The fungus travels along the roots and a ditch makes a space which it has no way to pass. We have some experiments under way to test this method. Our orchardists object to an open ditch, so we allowed the ditches to be refilled. One spot ditched was in an orange orchard in good mellow soil, trees good and more than ten years old. There were two dead trees and two infected at the root but with the tops still fine. The ditch was made three to three and one-half feet deep, no wider than necessary for digging. It seemed to have cut all the roots. Infected roots could be readily recognized. As finished it was believed that no diseased orange roots crossed outside the ditch. A layer of tarred building paper of good quality was put against one side of the ditch to prevent new roots from crossing back into the diseased area.

After a little more than two years the ditch was reopened. The building paper was worthless for stopping the roots as they grew through it very readily. The rest of the experiment was highly encouraging. In repeated cases a root from which a piece had been cut out could be recognized unmistakably on the two sides of the ditch. The place within the diseased area would be in an advanced condition of decay with the fungus, while the end toward the unaffected trees and outside the diseased area would be entirely unattacked and putting out numerous roots. There could be no reason to doubt that if the ditch had not been made the fungus would surely have followed the root and there would have been no hope of saving the tree. Around this area which included four diseased trees, no less than five good trees were saved from infection. If once opening the ditch will save the sound trees from infection for two years there is no reason why the thing can not be done again in the same place and the spot permanently restrained to its present area.

Several points in the work should be noted. In one case unintentionally a diseased piece of root was thrown back into the ditch. The new roots which had grown out from the healthy side had come in contact with this and were already diseased but this infection had not gone far back toward the good tree. I believe we succeeded in removing all of this infection.

It should be pointed out that many new roots were getting close to the infected areas and would soon have become infected, so that if the ditch is made once and not reopened the trouble will be only slightly delayed and the work will hardly be worth while. Some orange roots which were cut off in working the ditch remained alive in the soil for more than two years and were pushing out growth from the cut end which might have become a leafy shoot. This is an important matter because it shows that a long time must elapse before roots will be entirely decayed in the soil.

Treating Diseased Area

It would not seem to be a difficult matter to find some substance which could be put into the soil and kill everything. Carbon bisulfid is the most promising material thus far suggested. If used properly and in sufficient quantity I feel sure it will do the work. It is simply a matter of studying out the method and counting the cost. I feel rather doutful if it will be possible to kill the fungus and not kill good roots lying in the soil, because the fungus penetrates into the wood and part of it is deeply buried, while the living part of roots is the cambium layer just between the bark and wood. The way carbon bisulfid spreads and works in the soil may be illustrated by one experiment. A row of holes was bored with a small soil auger one foot apart and about 14 inches deep. One ounce of carbon bisulfid was poured into each hole, and it was filled and tamped with the heel at once. This row of holes passed just at the edge of the branches of a good orange tree.

After a little more than two months part of this row of holes was dug out. Roots near the surface of the ground were found dead a little more than a foot on each side of the holes while the deepest roots (less than three feet) were killed nearly three feet

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CITRUS TREES

Will save years of labor and expense.
DON'T BUY CHEAP STOCK
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Guaranteed Citrus Trees
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All selected buds from proven prolific bearers, budded on sour stock, trees all standard size, straight, clean, thrifty, finest large block in California.
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California's great soil need is Phosphorus. The most economical and logical source of Phosphorus is
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Efficiency and Economy are Inseparable Everywhere.
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Orange and Lemon Trees
Big — Clean — Thoroughbred Trees
GROWN IN A CLEAN DISTRICT
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200-page, handsome illustrated seed catalogue. Surpasses all previous editions. Complete listing of seeds. Poultry hints valuable to ranchers. Write for it.
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Gophers

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SQUIRLGOPHENE

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Go to the nearby store, get the prices of first-class apples—

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Yucaipa is 2400 to 3000 feet above the sea, eight miles from Redlands. Land is selling at $285 per acre, on easy terms, one share of water stock in a Mutual Water Company goes with each acre. This is the time of year to plant deciduous fruits.

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LAND: Level, clean, strong; no brush or stumps; ready for plowing; between two railroads and within 1½ miles of stations on Southern Pacific and Western Pacific. In the Upper Sacramento Valley.
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SPECIAL: This land is absolutely above all flood from rivers; the titles are clear and guaranteed; there is no bonded indebtedness; there are no reclamation or irrigation assessments. This is clean, strong land without incumbrance of any kind.
THE PRICE is $150.00 per acre with equipment, or $125.00 for the bare land. Terms, ¼ cash, balance 6 equal annual payments, 6%. I want to show you this specially selected piece of land.

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Grafted Walnut Trees On Black Root
Placentia Perfection ∴ Neffs Prolific
Select Pedigreed Scions
FRANK B. McMILLAN, - - Alhambra, Cal.

from the holes. There was no way to guess how deeply the material was effective but evidently it would be for a good way. Wetting or covering the soil after injecting the carbon bisulfid will probably be more important than the amount used. We have taken a treatment of injecting 1½ ounces at 1½ feet each way as a sort of standard for experimental purposes. I am convinced that the treatment is worthless if the material is injected into dry loose soil. I do not yet have a precise method worked out which can be depended on but there is much hope of getting such a treatment in the future.

Ways of utilizing the infected areas are by planting annual crops or resistant trees if they can be found. Such areas have sometimes been used by well-meaning growers for nurseries. The nursery would probably grow very well so far as could be observed, but it will be clear that such planting is highly undesirable. I have found spring replants badly infected the following fall. Of resistant trees the pear is decidedly the favorite in California and I have no definite data to oppose to this view. However, I understand that the pear is not entirely immune in the states north of us nor east of the Rocky mountains. Black walnut, cherry, apple and fig probably all possess decided resistance. I can only advise caution in replanting diseased areas with supposedly resistant trees. The strain of heavy fruit bearing and occasional bad seasons may reduce resistance in some cases. I would urge at least that a large hole should be dug and the soil not used to fill the hole, but spread out to dry around it and all roots gathered up. The best quality of soil free from pieces of sticks or wood should be used to fill the hole in which to plant the trees. The fine roots I believe are less liable to infection than the larger ones, so that in this way resistant roots will be given the best chance to escape infection.

I cannot close this paper without calling to your attention that there has been suggested, on the basis of experimentation, one definite way, the ditch method, for stopping the spread of oak fungus disease. The work suggested is not unduly difficult nor expensive and should be practicable under some conditions. We hope in the next few years to be able to suggest treatments more adaptable for large trees such as walnuts.

In starting in to treat an oak fungus area, first, make sure that the oak fungus is present and that you can recognize it on the roots. A piece of suspected root may be sent to the university if there is any uncertainty. Next, make a map of the area and locate every tree which has the disease and indicate these on the map. Conditions of the trees should also be indicated. Then the map can be studied and it can be decided exactly what should be done. I advise deliberation. The problem is one which may take years to solve, but if worked at consistently I believe may be solved in time and without extraordinary expense.

As we go to press Prof. Wm. T. Horne sends the following warning:

Small nursery blocks are a legitimate source of income to the fruit raiser, but where set in open spaces in orchards they are in particular danger of armillaria or oak fungus. An open space in an orchard often means that the trees died out with oak fungus.

Armillaria areas in orchards are very common in the best fruit sections but often the fact that the ground is infected is not known to the present owner.

All nursery trees grown in armillaria spots should be condemned because they may establish new spots when set in good land.

Inspection cannot be trusted to discover all attacked trees, because the rhizomorphs may be brushed off and infection remain in the root in an invisible condition.

Everybody should do his best to avoid this misuse of the infected areas of orchards and should help his neighbor to avoid it also.

Anyone insisting on planting nursery in armillaria land should be reported to the local quarantine officer.

TOADSTOOLS OF THE OAK ROOT FUNGUS ARMILLARIA MELLEA. THESE SPECIMENS WERE ABOUT EIGHT INCHES TALL.

PRICE OF OLIVES

Calling attention to the answer to an olive query in a recent issue of the Cultivator Mr. Henry S. Gane of Santa Barbara writes that this season's olives have brought practically nothing. Many producers are complaining that there is absolutely no market and we regret that what Mr. Gane writes is practically true, for the buyers appear to be afraid of touching the olive at any price this year.

In addition, Mr. J. C. Ramsdale, who has had many years' experience with olives in California, writes:

"Just now there is a craze for olive planting and I feel there ought to be a pretty thorough investigation before any extensive acreage is set out. I was out of the game for two seasons and I find that there is not the demand and consequently not the price that there was two years ago. With the large number of trees set out in the past four years, some of which are just coming into bearing, it is a question whether or not olives will pay as well as they have for the past few years.

"This year a lot of growers could not dispose of their fruit at any price. I know of one firm of packers which bought olives at $25 a ton delivered at their plant, payment to be made inside a year. This was oil olives but I bought pickling olives at $60.00. I know a large grocery firm which is selling olives in gallon cans at 50 cents. It costs 25 cents to pack so this leaves 25 cents for the packer's profit and the grower. It seems to me it is very doubtful if the prices will go back to $150.00 for olives. I know your paper works in the interest of the grower, so I am giving my ideas which you can take for what you think they are worth. Personally I have always advocated planting olives if the grower is willing to give them the proper care. But while I am in the industry and expect to stay I believe there will be disappointment unless the grower knows that he has a market.

Deciduous Fruits

REMEDIES FOR "DAMPING OFF"

COMMERCIAL sulphuric acid has been found by the United States department of agriculture to be an effective remedy for the loss of pine and spruce seedlings from "damping off." It is quite common for the soft tissues of these young seedlings to decay so rapidly soon after sprouting that they disappear sometimes before the nurseryman knows that there is anything the matter with them. So common indeed is loss from this source that many nurserymen import their seedling stock from Europe. This however is not only troublesome but dangerous. The white pine blister rust has already been introduced into this country in this way and continued importations of seedlings are certain to result in the establishment in the United States of other foreign pests.

For this reason the department attaches much importance to the recent investigations of possible disinfecting agents which will rid the soil of the parasitic fungi which cause "damping off." Of these agents the most satisfactory for commercial use in the majority of cases has been found to be sulphuric acid. Treatment with this acid not only reduces losses from "damping off" but increases germination.

The number of seedlings in treated beds may be from one and one-quarter to ten or even twenty times as great as in untreated beds, depending on how serious the disease is in the untreated beds. At most nurseries the treatment also decreases the number of weeds and causes the pines to make a better growth during their first season. At one nursery jack-pine seedlings have grown three times as high in acid-treated beds as in untreated beds.

The treatment is not expensive, for commercial sulphuric acid can be purchased in quantity at very low rates. At one nursery where careful accounts were kept it was found that the entire cost of the treatment, including labor, materials, and extra waterings, was less than $5.00 per thousand square feet of bed. On the other hand the saving in the cost of weeding alone, which the treatment made possible, amounted to $5.30 per thousand square feet.

The sulphuric acid is dissolved in water and applied to the beds with a paraffin-coated sprinkler just after the seed is sown and covered. From one-eighth to three-eighths of a fluid ounce of acid should be used per square foot of bed, dissolved in enough water to make one and one-half or two pints of solution. At some nurseries it is also necessary to water the beds once or twice daily during the germination period to prevent chemical injury to the seedlings. Individual conditions must determine for each nursery whether or not this frequent watering is necessary and exactly how much acid should be used.

Sulphuric acid is now in regular use on the seed beds at nurseries in four Western states, Nebraska, Kansas, Colorado and New Mexico. Considerable quantities of carbonates, however, are contained in some soils in these states, their presence being indicated by vigorous effervescence or bubbling when a strong solution of acid is applied. Where this is the case sulphuric acid is not likely to be effective. In one nursery in Kansas zinc chloride and copper sulphate have been found satisfactory substitutes when used in the same way as sulphuric acid. For zinc chloride one-half ounce avoirdupois is used per square foot, and for copper sulphate three-eighths of an ounce or less. The chloride is less apt to injure seedlings but is more expensive than the copper sulphate. Despite its greater cost, however, it is possible that the zinc chloride may be preferred both to sulphuric acid and to copper sulphate even on soils which do not contain carbonate.

APPLE HOLDINGS AND THE MARKET

Although dealers generally report that the holiday demand for apples did not prove to be as expected, the result of investigations conducted by the office of markets of the United States department of agriculture would indicate that the movement of cold storage apples during the month of December was satisfactory under the conditions. Three hundred and six firms reported for January 1, of which number 231 reported for December 1. If the average condition for this number of storages situated in all parts of the country is a criterion, approximately 13 per cent of the total cold storage holdings December 1 were marketed prior to January 1. The decrease in barrel holdings was much greater than for boxes. After analyzing the movement it is seen that during the month of December 16 per cent of barreled apples were moved as against 4.2 per cent of boxes.

The percentage of movement in December for box apples was small, but it is to be remembered that large quantities of this pack are held in common storage in the box-apple producing areas and that box apples placed in cold storage under conditions existing this year were held largely for the later winter markets.

Remembering that cold storage apples met with heavy competition in the distribution of common storage stock, it is apparent that the movement of barreled apples in December, as indicated by the above recapitulation, was liberal. It being understood that common storage apples are chiefly marketed prior to January 1 and that the entire common storage holdings as a rule are out of the way by February 1, those interested in the cold storage deal should not be discouraged in so far as the future is concerned. This does not mean that high prices can be expected, but rather that the fruit ought to move gradually to meet the heavy demand which has been created during the past few months as a result of bountiful supply and low prices. With common storage apples out of the way, the demand for cold storage stock will increase proportionately.

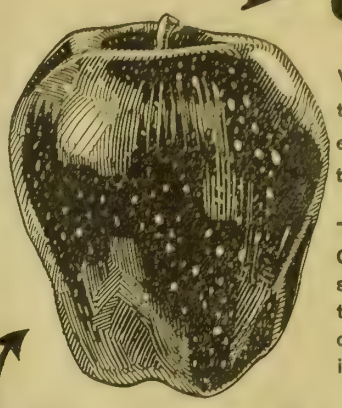
The cold storage holdings of apples are admittedly large, and a regular, vigorous movement throughout the remainder of the season may be necessary to prevent disaster in the spring. Growers and dealers are urged neither to dump their holdings nor to stand for arbitrarily high prices. Panicky selling usually means grief, but all concerned should seek to move cold storage apples gradually and with such rapidity as the market allows, so that the deal may be wound up in relatively good shape.

VALUE OF STRAW AS FERTILIZER

A large amount of straw is shipped from a county in Missouri to a nearby paper and strawboard factory. This straw brings the farmer about 50 cents per ton. A county agent recently found a pile of about 1,000 tons ready for shipment. He computes that as a fertilizer this straw is worth $2.50 per ton in addition to its value as a means of adding organic matter to the soil. He is making a campaign of the county in an attempt to show the inadvisability of the farmers selling their straw and urging its more extensive use as bedding in stables and feed lots. Straw used as a top dressing on fall wheat has been found to practically insure a good stand of clover on lands where clover is otherwise grown with great difficulty.

The Madera County farm bureau suggests the advisability of holding a Madera County fair on the 1st and 2nd of October.

Roeding's True TREES
TAKE THE RISK OUT OF PLANTING



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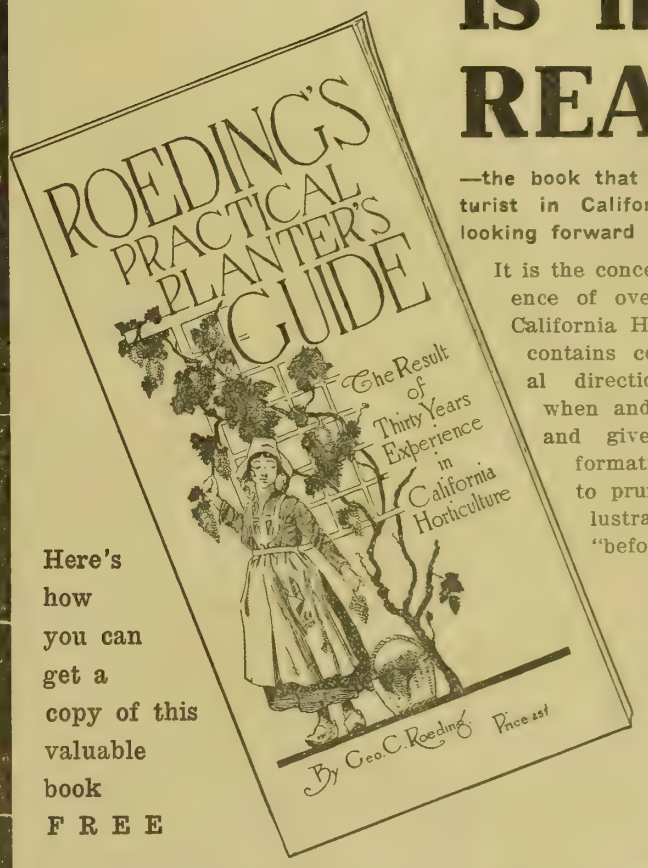

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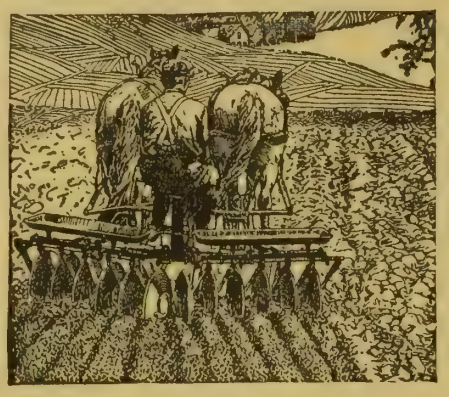

EVERY year we learn more about the proper preparation of our seed beds—every year as a result the profits from farms have grown greater. Nowadays, careful farmers would as soon do without binders as without adequate tillage implements—such as they find in the I H C line.

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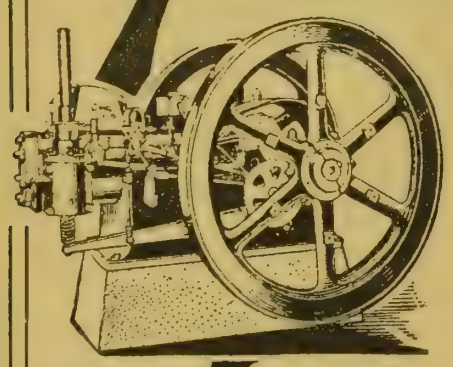

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General Agriculture

FOUNDATION STONES FOR SUCCESS IN AGRICULTURE

CONTINUING the series published in the Cultivator of February 4. In these brief summaries different experts of the college of agriculture of the University of California have set forth the basic principles of their various specialties.

FACTORS OF GOOD FARMING

By John W. Gilmore, Professor of Agronomy

Soil preparation, tillage, drainage, a good supply of organic matter in the soil, and applications of mineral fertilizers, including lime, enhance the yield and the quality of the crops.

Crops and animals bred for high production and quality lessen the cost per unit of production.

Good crops and animals generally make for better men; they increase man's appreciation and broaden his sympathies.

Rotation of crops tends to promote the crop producing power of the soil, to equalize labor distribution, to destroy pests, and to balance animal and crop production.

A legume should be grown upon land at least one year in every four.

The judicious use of mineral fertilizers combined with manures (both green and yard) will, under proper culture and tillage methods, maintain the crop producing power of the soil.

With crop producing power maintained, a proper balance between crops produced for sale and for feed, and animals fed, brings the largest returns per labor unit.

Man and horse labor should be employed constantly throughout the year.

A proper balance should be maintained in each type of farming between building, implement and working live stock equipment and land area.

Location and receptivity of the market are factors to be considered in planning and executing a cropping system.

An adequate system of cost accounting reveals the amounts and sources of income. Maintenance of crop producing power and maximum yields and quality per unit of labor expended should be the aim rather than these maxima per unit of area.

FEEDING FARM ANIMALS

By F. W. Woll, Professor of Animal Nutrition

Feeding stuffs contain three groups of components of special importance in the feeding of farm animals: 1, protein; 2, carbohydrates and fat, and 3, mineral matter.

Protein is required by the animal for making muscle and body substance of similar composition.

Carbohydrates and fat supply energy for the production of body heat and fat and for work.

Mineral matter is necessary for the building of the bone structure and for supplying ash materials in milk and other animal products.

Farm animals should receive rations containing all three groups of feed components, but the proportions of each will vary according to the kind and age of animals kept, and the character and cost of the available feeds.

Young or growing animals, cows, sheep, and poultry, require a larger proportion of protein in their feed than full grown, fattening, or working animals.

The feed requirements of the animal body for maintenance must be met before production can begin; liberal rations containing a considerable proportion of feed available for production, therefore, yield the largest and the most profitable returns.

A portion of the feed of heavy producing animals should be in concentrated form.

The more important protein feeds in this state are alfalfa, clover, peas, beans, and various oil meals.

The more important carbohydrate or starchy feeds are wild, mixed, or grain hay, cereal grains, sorghums, and dried beet pulp. The mill feeds and many other factory by-products contain a medium amount of protein.

Succulent feeds are beneficial to milk secretion.

Alfalfa is best supplemented by corn silage and grain feeds, or both, in feeding dairy cows or fattening steers.

Grain hay is best supplemented by a mixture of mill feeds, oil meals, and similar protein feeds.

THE USE OF FERTILIZERS

By John S. Burd, Professor of Agricultural Chemistry

Fertilization should always be accompanied by proper cultivation of the soil.

Fertilizers may be used to advantage: On soils which are naturally deficient in one or more of the commercially important plantfoods (nitrogen, potash, phosphoric acid). When the soil has been grown to a single type of crop for many years. When growing high priced crops. When labor is the principal factor in the cost of production.

The kind of fertilizers to apply: The one which contains the kind of plantfood in which the soil is deficient. The one which experience has shown to produce the best results with the given crop.

The form of plantfood to apply: The one which experience has shown to be best adapted to the crop (soluble phosphoric acid rather than bone phosphate for turnips, for example). The one adapted to the type of soil. The one adapted to the stage of growth of the crop.

In the application of fertilizers: Easily soluble substances may be applied as a top dressing. Less soluble substances should be worked into the soil. More than one installment may be frequently used to advantage, depending on its nature and that of the soil and crop.

FORESTRY

By Walter Mulford, Professor of Forestry

Forestry, man's dare of the forest, means the management of permanent crops of timber and the best means of utilizing those crops.

Large forests on the mountains mean more water in the irrigation ditches.

Small forests in the valleys mean local supplies of fuel and posts, and often mean more moisture in the fields because of checking hot winds.

On the mountain and in the valley the forest should be a wholesome recreation ground.

Nature's methods of maintaining forests are wasteful and shiftless; without help from man nature is unable to meet the demands which are made upon the forest by civilized man.

The forest crop will respond to man's care by greatly increased quantity and much higher quality of the product.

The control of forest fires is the first step in forestry.

Forest fires can be controlled when public sentiment insists upon it.

Leaf mulch on the forest soil serves as the fertilizer, the cultivator, and irrigator of the forest; without a leaf mulch, the forest suffers severely.

Proper thinning increases the rate of growth of timber.

The axe and saw are frequently the only planting tools needed in the forest; skillful cutting of the ripe timber is often all that is necessary for starting a desirable young crop.

The forest must pay for itself, either directly or indirectly; forestry is a business proposition.

DESIGN IN LANDSCAPE GARDENING

By John W. Gregg, Professor of Landscape Gardening and Floriculture

Simplicity is the prime element in pure beauty and in landscape design is the opposite of extravagance. In-

tricacy is the soul of landscape and is the opposite of blankness. Convenience produces a feeling of satisfaction by making every interesting feature comfortably accessible. Compactness economizes space and labor, creates the appearance of order, and renders each feature a part of the combined whole. Seclusion produces a feeling of ownership and privacy, and is in accord with good taste. Snugness involves shelter, protection, warmth, shade, and a play of sun and shadow. Unity adapts in a pleasing way the several parts of a design to the whole. Blending artistically distributes plants and groups and other features of a design so as to do away with an extreme continuity of lines. Symmetry preserves balance of parts. Graduation permits a gentle transition of parts into others without conspicuous breaks or marked interference with harmony. Richness produces a feeling and appearance of refinement by tasteful selection of all elements of design. Variety adds refined spice, freshness, and power to a design. Contrast seeks to distinguish the more important episodes and detached accessories without destroying harmony. Finish demands good plant forms, cleanliness, and completeness. Order produces a regularity and presents the appearance of substantialness, and denotes the production of a master mind.

ENTOMOLOGY

By C. W. Woodworth, Professor of Entomology

Standard insecticides are best. Secret remedies are usually fraudulent. New remedies against insects are frequently humbugs. Much of the money spent in treating insects is wasted. Losses in insecticide work are chiefly due to unwise treatments. Attempts to eradicate a pest always involve a money loss. Time of treatment is important for peach worm, codling moth, and many minor insects. High-pressure spraying is chiefly valuable because of the increased quantity applied. Fumigation is much more efficient than spraying in dense foliage like that of the orange. The question of the amount of chemicals to use per tree is more important in fumigation than in spraying. Treatments are not made unprofitable by a neighbor's insects. Most of the profit in treating insects is made in controlling half a dozen insects. Houseflies and mosquitoes are not necessary evils, they can be suppressed. A few hives of bees are profitable on nearly every ranch. The use of frame hives always pays.

MODERN CITY AND TOWN PLANNING

By John W. Gregg, Professor of Landscape Gardening and Floriculture in the University of California

Conserves human energy and protects life, especially child life.

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Results in a material saving in the cost of all public improvements.

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Preserves historic buildings and sites.

Prevents mistakes which make inevitable other mistakes which cannot be corrected.

Provides for a well-developed system of streets.

Regulates the location and grouping of public buildings.

Reserves space throughout the city for playgrounds, parks, public gardens, and athletic areas.

Provides for the democratizing movements of social centers.

Regulates and locates industrial and residential districts.

Provides areas for beautiful homes, depopulates the slums, and provides comfortable environment for the poor.

Provides for proper housing facilities.

Limits the height of buildings and the proportions of lot areas to be built on.

Establishes zones or districts to be developed in different ways.

Regulates the plotting of suburban areas in harmony with the general plan.

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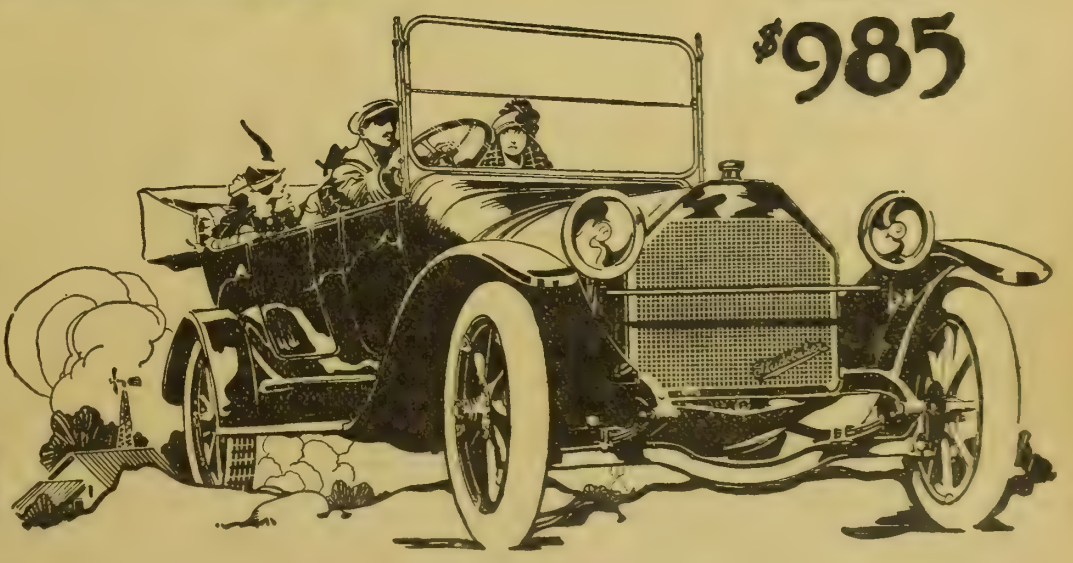

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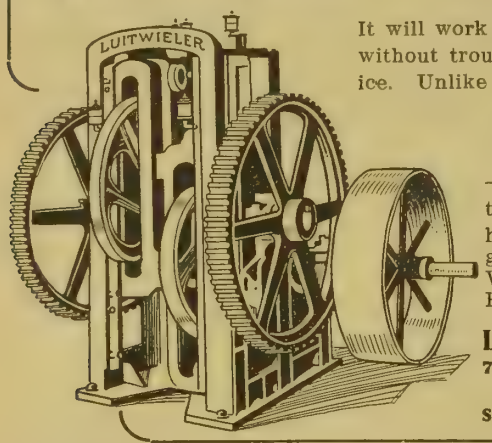

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BLACKBERRY PLANTING

UNDER good management an average yield of 2,300 quarts of blackberries per acre can be expected, according to a recent publication issued by the United States department of agriculture. Where the soil is very deep and rich and the best moisture conditions are found this may be increased to 5,000 quarts, and certain varieties on the Pacific slope have even given 7,000 quarts an acre. The last census showed that approximately 50,000 acres were devoted to blackberry plantations in the United States. This acreage is distributed over practically the entire country.

In selecting a site for a blackberry plantation the most important considerations are the moisture of the soil and the accessibility to a market. The blackberry is a tender fruit, the keeping qualities of which are seriously affected by jarring over rough roads. It is moreover essential that the berries should be placed on the market as quickly as possible after they are picked if they are to command a good price. The best land is a deep, fine, sandy loam with a large supply of humus and abundant moisture at the ripening season. On the other hand the plants are often killed if water stands on the plantation during the winter.

The year before the establishment of the blackberry plantation the land should be planted with a cultivated crop. This will help to destroy the cutworms and other insects injurious to the young plants. The soil should be plowed to a depth of about nine inches in the spring and a thorough harrowing should be given the whole field before the plants are set.

During the first summer some inter-crop may be grown between the rows, which will greatly reduce the cost of the berry field that year. This should be one that requires constant cultivation and at the same time one whose growth will not be large enough to shade the blackberry plants. Such truck crops as cabbage and potatoes are excellent for the purpose, while corn and small grains should be avoided. By the second summer the plants will be large enough to occupy all the space and an inter-crop will not be possible.

In both summers cultivation should begin early in the spring and be continued at intervals of from one to two weeks throughout the season in order to provide a dust mulch for the retention of moisture and to keep down suckers and weeds. Suckers are apt to spring up from the roots at various distances from the parent plant, especially when the roots are cut. Digging up these suckers is a favorite way of securing new plants, but this practice, interferes, of course, with the yield of the berries.

Blackberry roots live for many years, but the canes—excepting two varieties—bear only in their second year. After the fruiting season, therefore, they should be cut out and burned. The one-year-old canes may usually be left to themselves throughout the winter. Not more than three or four new canes should be left to each plant, however, and the others should be thinned out at the same time that the canes which have fruited are thinned. In some cases it will also be desirable to train the plants in order to facilitate cultivation as well as to prevent them being damaged by winter snows. A wire trellis may then become a profitable investment. The simplest form of such trellis consists of a single wire attached to posts set at intervals of from 15 to 30 feet in each row of plants. The canes are tied to this wire about two and one-half feet above the ground. Another method is to nail cross pieces to the posts and stretch two wires from the ends of these cross pieces, which form a support for the blackberry canes on each side. Varieties that grow somewhat like grape vine require a much higher trellis with two wires; one about five and one about three feet from the ground.

One hundred and forty different varieties of blackberries are now recognized, divided into three classes—the hardy, the half hardy and the tender. The hardy variety should be able to withstand a temperature of 30 degrees Fahrenheit as well as the sudden changes of temperature in the Western states. The half hardy class is more susceptible both to cold and

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If you intend to plant FRUIT TREES this year

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For our revised February Stock List and make your selections. If you know what stock you want, do not wait for the Stock List, SEND IN YOUR ORDER. If we still have the trees your order will be immediately filled.

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to change, and the tender variety can only grow where mild winters prevail. More detailed information in regard to blackberry culture is contained in Farmers' Bulletin No. 643, which has just been published by the United States department of agriculture.

BETTER POTATOES

Mr. E. H. Grubb, a large Colorado potato grower, while making a friendly call at the Cultivator office recently, when asked about his hybridizing and producing new potatoes, said that was something in which he had never engaged. He simply took the best potato he could find and selected from it until he had secured a strong growing, productive strain of potatoes. He had preferred the Peachblow and took up that potato when it was supposed to be almost entirely "run out." He has built up a strain of stock which is in demand the world over. The town of Carbondale, which he has made famous as a potato growing center, has a population of a little over 300 people, but the little valley of which it is the center, and which has a total length of only about ten miles and a width of less than two, is noted as one of the greatest potato producing sections.

Mr. Grubb selects his seed, not from the bin but from the row, and the individual potato must not only be perfect in size and shape but it must come from a hill which showed great productiveness. The old time method of using nubbins or weaklings for the next year's crop has passed and Mr. Grubb's method of work has taken its place.

GOOSEBERRIES

Mr. E. C. Hall, a Monterey County subscriber, writes regarding gooseberries which have done exceptionally well in that section. Gooseberries are not considered adapted to the warm interior valleys but it is very probable that farther north and near the Coast sections they may be grown very profitably. Mr. Hall says:

"There are several kinds that do well in some of the coast counties; namely, Downing, Houghton, Red Jacket, of American varieties, and May Duke, an English sort. Red Jacket and May Duke are my choice for home use on account of their fine flavor, containing less acid than some others. The gooseberry is fine for pies, for a tart jam unexcelled, and for sauce just try a dish with good rich milk. The bushes do not need much pruning for two or three years, all they need is clean cultivation and plenty of fertilizer."

SAUER KRAUT

One method for preserving cabbage for use during the winter when fresh vegetables are scarce is to make it up into sauer kraut. This German dish may be eaten raw, fried, boiled with pork with onions added, or with wienerwurst sausage and browned in oven, or cooked with spareribs.

The department's assistant in girls' demonstration work, who is endeavoring to aid the young women in rural communities to get the most good out of their vegetable products, recommends the following recipe for preserving cabbage in this manner:

Sauer kraut or "crout."—Use one to three quarts salt to 20 gallons shredded slaw. Remove outside and hard core of cabbage. Shred finely. Line the keg with the larger leaves on the bottom and sides as you fill it. Put in a three-inch layer of shredded cabbage and sprinkle with four or five tablespoons salt. Repeat this process, lining with the large leaves. Pound it all down well until the cask is full and covered with the brine. Cover with the large leaves and a board cover to fit inside the cask. Weight this cover down with heavy weight so it will keep the cover level. It is necessary that all the cabbage be covered with brine at all times. Keep in a cool, dry cellar three weeks to a month. Remove the scum and see that the kraut is well covered with juice. When the weather is warm the kraut will cure in 16 to 18 days, when it is ready for use or for canning.

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New Seed Catalog

1915 edition now ready. Full of useful information.

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Giant Winter Rhubarb

NOW BEST TIME TO PLANT. Should return from $1,000 to $1,500 per acre first year. If interested in Rhubarb, Berries or Cactus, write J. B. Wagner, Specialist, Pasadena, Cal.

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IF you have handled a shotgun much, and have studied the question of shotgun powders, you know that uniform quality in the powder you use is absolutely essential for consistent shooting either in the field or at the traps.

You get this uniformity when you shoot shells loaded with

Infallible
Smokeless Shotgun Powder

Day after day, in the ballistic house of the Hercules Powder Company, at Kenvil, N. J., Infallible is tested for uniformity in velocity, uniformity in pattern, and uniformity in recoil and breech pressure.

As a result every grain of Infallible is just like every other grain. You know that there will be no variation in your shooting due to a variation in powder.

Infallible Smokeless Shotgun Powder gives unusually high velocity, even patterns, and light recoil. Furthermore, it is absolutely unaffected by water. If you have ever had a box of shells fall overboard or have shot in a pouring rain you know what this means.

The next time you buy shells ask for those loaded with Infallible. It is supplied in all standard makes.

If you are a trapshooter write us for a book called "Trapshooting." It may give you some pointers even if you are an old hand at the game.

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LOS ANGELES

NATIONAL ORANGE SHOW

(Continued from Page 227)

A. Moulton, certainly had a task in reaching a decision as to the prize winners. These judges have nothing to do with the feature or community exhibits. At this writing the names of the judges of feature exhibits are not announced.

The first tent, upon entering, is given over entirely to citrus fruits and feature exhibits. In the center of this mammoth tent, however, is the pool where the diving girls draw the crowd. The management insist that the vaudeville stunt is necessary in order to make gate receipts. It certainly aided in this case for at the time of the diving attraction the crowd massed around the pool was immense.

Next to this tent is the one containing orchard and other appliances, manufactured products of the citrus, fertilizers, spray materials, etc. In this tent was observed the newly constructed fumigating machine. A similar machine has been manufactured and is working very successfully in many Southern California orchards, though some have felt that it had certain faults and they have been working to produce a more perfect machine if possible. The machine consists of a large drum or container within which are three chambers. In one of these is a solution of cyanide of sodium, in another a solution of sulphuric acid and water, with a third chamber for bringing proper proportions of these mixtures together. There is an automatic mixing appliance by which the operator simply moves the gauge to the proper point according to the size of the tree and with one push of the lever throws the two fluids together, and the result is instantaneous generation of the gas. This amounts almost to an explosion, and the entire volume of the gas is instantly forced into the tent. The machine then passes to another tent, throws the supply tube underneath, the two movements complete the work with this tree and the machine passes on along the entire length of the orchard. The machine does away with the weighing and measuring of cyanide and acid and probably will lessen the number of men required or perhaps rather increase speed of the fumigating operation; it has been tried out in orchard practice and except for a few faults, which have been discovered and are now being remedied in the construction of another machine, it is almost perfect in operation.

A detailed description of the various orchard appliances on exhibit would be impossible in this article.

Next to the appliance tent is the amusement tent, containing dancing floor, vaudeville stunts, etc.

Chairman Haven of the publicity committee has said regarding the modern day citrus fair: "Citrus fruit shows were held in San Bernardino and other Southern California cities 25 to 30 years ago, but the exhibitions of those days were of a very different type from their counterpart of the twentieth century and would now appear as very tame entertainment for the horde of visitors who annually throng the gates of the National Orange Show."

The first of these National Orange Shows was held in February of 1911. As a rule, most unfavorable weather has been given and this has prevented the complete financial success which was desired. However, San Bernardino has pluckily stuck to the proposition and pulled for its fair regardless of weather conditions, and we trust it will continue to do so.

AWARDS

SWEEPSTAKES. Best 24 boxes Washington Navels—1, Lindsay B. of T.; 2, Etiwanda Citrus Fruit Assoc; 3, Victoria Avenue Citrus Assoc.

Best general display oranges, 48 boxes or more—1, Etiwanda Citrus Fruit Assoc.; 2, Lindsay B. of T.; 3, Cucamonga Citrus Fruit Growers' Assoc.

Best general display lemons, 48 boxes or more—1, Etiwanda Citrus Fruit Assoc.; 2, Riverside Orange Co.; 3, Corona C. of C.

Best eight boxes Washington navels—1, Pachappa Hill Groves; 2, Lindsay B. of T.; 3, Etiwanda Citrus Fruit Assoc.

Best eight boxes of sweets—1, Etiwanda Citrus Fruit Assoc.

Best four boxes Washington navels—1, Sierra Vista Packing Assoc; 2, Lindsay B. of T.; 3, Victoria Avenue Citrus Assoc.

Best four boxes sweets—1, Etiwanda Citrus Fruit Assoc; 2, Lindsay B. of T.; 3, Fontana Citrus Assoc.

Best four boxes St. Michael's—1, Fontana Citrus Assoc; 2, Cucamonga Citrus Fruit Growers' Assoc.

Best four boxes of seedlings—1, Lindsay B. of T.; 2, Fontana Citrus Assoc.; 3, Pachappa Hill Groves.

Best four boxes tangerines—1, Alta Cresta Groves; 2, Victoria Avenue Citrus Assoc.; 3, Cucamonga Citrus Fruit Growers' Assoc.

Best four boxes Valencias—1, Whittier Chamber of Commerce; 2, Lindsay B. of T.; 3, Charles Cowles, Lindsay.

Best four boxes Malta Bloods—1, Pachappa Hill Groves; 2, Riverside Heights Orange Assoc; 3, Cucamonga Citrus Fruit Growers' Assoc.

Best four boxes Thompson Improved Navels — 1, Sierra Vista Packing Assoc.; 2, Alta Cresta Groves; 3, Arthur Brown, Riverside.

Best four boxes Ruby Bloods—1, Mr. Cole, Lindsay; 2, Lindsay B. of T.; 3, Mrs. Cora B. Ocheltree, Riverside.

SWEEPSTAKES. Best 24 boxes of lemons—1, C. D. Hubbard Fruit Co., Carpinteria; 2, Etiwanda Citrus Fruit Assoc.; 3, Whittier Citrus Assoc.

Best four boxes lemons—1, C. D. Hubbard Fruit Co.; 2, Etiwanda Citrus Assoc.; 3, East Highlands Assoc.

Best four boxes seedless grapefruit—1, George Sparks, Lindsay; 2, Victoria Avenue Citrus Assoc.; 3, Lindsay B. of T.

Best four boxes seedling grapefruit—1, Lindsay B. of T.; 2, Fontana Citrus Assoc.; 3, Placentia C. of C.

Best commercial pack one box of Washington navel oranges—1, Lindsay B. of T.; 2, Victoria Avenue Citrus Assoc.; 3, Alta Cresta Groves.

Best commercial pack one box lemons—1, Riverside Orange Co.; 2, Corona C. of C.; 3, Bloomington Fruit Assoc.

Plate or table displays

Washington Navels — 1, Etiwanda Citrus Fruit Assoc.; 2, Victoria Avenue Citrus Fruit Assoc.; 3, Pachappa Hill Groves.

St. Michaels—1, Etiwanda Citrus Fruit Assoc; 2, James Barnhill; 3, Fontana Citrus Assoc.

Ruby Bloods—1, Riverside Orange Co.; 2, Lindsay B. of T.; 3, Etiwanda Citrus Fruit Assoc.

Malta Bloods—1, James Barnhill, Colton; 2, Pachappa Hill Groves; 3, Whittier Chamber of Commerce.

Sweets—1, Etiwanda Citrus Fruit Assoc.; 2, California Portland Cement Co.; 3, Fontana Citrus Assoc.

Seedlings—1, Lindsay B. of T.; 2, Fontana Citrus Assoc.; 3, James Barnhill.

Tangerines—1, Lindsay B. of T.; 2, Pachappa Hill Groves; 3, James Barnhill, Colton.

Lemons—1, Etiwanda Citrus Fruit Assoc.; 2, C. D. Hubbard Fruit Co.; 3, Riverside Orange Co.

Seedling Grapefruit—1, James Barnhill; 2, California Portland Cement Co.

Seedless Grapefruit — 1, Etiwanda Citrus Fruit Assoc; 2, Victoria Avenue Citrus Fruit Assoc.; 3, Lindsay B. of T.

Valencias—1, Whittier C. of C.; 2, Victoria Avenue Citrus Assoc.; 3, Etiwanda Citrus Fruit Assoc.

Thompson or Improved Navels—1, Sierra Vista Packing Co.; 2, Etiwanda Citrus Fruit Assoc.; 3, Riverside Orange Co.

Navelencias — 1, Etiwanda Citrus Fruit Assoc.

Greatest number varieties of citrus fruit—1, Mrs. A. S. Bradford; 2, James Barnhill; 3, Lindsay B. of T.

Most artistically arranged table or plate display—1, Lindsay B. of T.; 2. Etiwanda Citrus Fruit Assoc; 3, Del Rosa C. of C.

Best tray 12 Washington navel Oranges—1, Pachappa Hill Groves; 2, Etiwanda Citrus Fruit Assoc; 3, Lindsay B. of T.

Best tray 12 lemons—1, Etiwanda Citrus Fruit Assoc; 2, C. D. Hubbard Fruit Co.; 3, Whittier C. of C.

Best cluster oranges—1, Del Rosa C. of C.; 2, California Portland Cement Co.

Best cluster grapefruit—1, Placentia C. of C.; 2, Etiwanda Citrus Fruit

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ON the modern farm, and by progressive farmers, dynamite is used to serve a multitude of purposes. Whenever it is properly used it increases efficiency, increases crops, decreases labor, and decreases expense. It has proven its ability to do these things in almost every field of agricultural labor.

HERCULES DYNAMITE

is used extensively for subsoiling, tree planting, stump and rock removal, ditch running, the blasting of cisterns, and other work of a similar nature.

Probably the results produced by sub-soiling and in tree planting are the most interesting because they are the most remarkable. Very often the crop yield from a sub-soiled field will more than double that from the same field before sub-soiling was done—an increase of 100 per cent. This has happened with corn, wheat, rye, hay and other crops. When trees are planted in a dynamited instead of a spade dug hole they develop more rapidly, are stronger and bear more heavily.

Sub-soiling gives new life to the ground. It breaks up the hard sub-soil thereby improving drainage and giving the crop new and untouched plant food.

You should write for the book, "Progressive Cultivation." It tells how, when and why to use dynamite on the farm. To many, it has proved an eye opener and a money saver.

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LOS ANGELES

Assoc; 3, California Portland Cement Co.

Largest Orange—1, Lindsay B. of T.;

Largest lemon—1, Whittier C. of C.

Largest grapefruit—1, Placentia C. of C.

MORE SANITARY CONDITIONS ON FARM

In an address before sanitary engineers Mr. Hyde R. Russell, speaking on rural sanitation, its interest and value to residents of cities, puts the farmer as a class in a not very desirable light before his city audience. He compared the great efforts on the part of the city to protect its food and water supply and to secure for itself the best of sanitary conditions with the usual slipshod methods of the ordinary Eastern farmer. He spoke of the auto party often wishing for fresh air and a drink of pure water and a bit of farm cooking taking a trip to the country and stopping at some resort or possibly a farmhouse and being served with polluted drinking water and possibly milk and food which would never pass inspection in the city market, this because of the carelessness of the individual farmer or resort keeper. This carelessness is most evident in the arrangement and location of outhouses. Referring to one resort he says:

"I will relate in connection with the summer vacation an interesting experience and investigation of last summer. I stopped at one of the best and highest class summer resorts, in other words, a hotel noted for its sanitary protection. It was found that the drinking water used in this hotel was brought from many miles away on account of its unquestioned purity. The milk supplied was beyond question, and in fact is seemed to the ordinary observer that every modern protection was taken to quard the health of the guests. In spite of all this protection a very dangerous practice was in use. It was found that the radishes, lettuce and celery, before being placed on the table, were washed in water drawn from a surface well, anl only 50 feet from this well, outhouse privies were in actual operation, being used by the employees. A condition like this needs no further comment."

Many other instances are given more from the city man's standpoint than from the farmer's, and intended as a warning to city people visiting the country. The writer makes appeal for more attention to sanitation on the farms, especially in this matter of outbuildings. Screening and preventing the access of flies in addition to protection of wells are features referred to by the speaker, and above all he would have them as convenient as possible for this reason.

"Is is recognized, I believe, that most human ills are due in a great measure to auto-intoxication, which is self-poisoning. If we accept this theory we have to go farther and accept the possibility of auto-infection. If we wish to protect against auto-reinfection it is very essential that we to the best of our ability strive in every way to insist on proper methods for the disposal of human waste."

NAMES OF CONGRESSMEN

We have request for names and addresses of representatives and senators in the national congress. Of course, these may all be addressed at the present time at Washington. Those serving during the present session are: Representatives William Kent, John E. Raker, Charles F. Curry, Julius Kahn, J. I. Nolan, Jos. R. Knowland, D. S. Church, Everis A. Hayes, C. W. Bell, William D. Stephens, William Kettner, and Senators George C. Perkins and John D. Works.

All the above will return to the next congress excepting that Representative C. W. Bell will be succeeded by Chas. H. Randall of Highland Park, and Joseph R. Knowland will be succeeded by J. A. Elston. Senator James D. Phelan, Phelan Building, San Francisco, will take the place of Senator George C. Perkins.

Have confidence in yourself; get the idea impressed into your cranium that you can do as well as your competitor, and then prove it.—Albright.

THE POINT OF VIEW FOR FARM RECORD KEEPING

The whole subject of farm accounting is a complex one and has many different aspects, depending on the point of view. In the application of the principles of farm accounting to the needs of a particular case, a better perspective and better results will be obtained by attacking the problem seemingly backward, but really forward, by first determining the results desired. A house builder would be considered unwise to buy his material first and rely upon this to give him the house he wants; yet this would be no more foolish in principle than to start a system of record keeping by buying the books and forms without knowing in advance the points concerning the business which these records are desired to bring out. Having determined these, the next step is to decide upon a system of record keeping that will emphasize these points.—J. S. Ball.

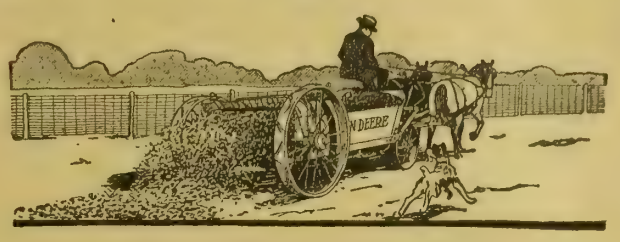
A CLEVER PRECAUTION

Mike—Begorra, an' I had to go through the woods the other night where Casey was murthered last year an' that they say is haunted, an', bedad, I walked backward the whole way.

Pat—An' what for wuz ye after doin' that?

Mike—Faith, man, so that I could see if anything wuz comin' up behind me.—Tit-Bits.

John Deere Implements



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The Spreader with the Beater on the Axle

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Write for more facts. Also ask for "Farm Manures and Fertilizers", a valuable textbook you can get free.

John Deere Wheel Plows

With Quick Detachable Shares
Unscrew One Nut—That's All

John Deere Wheel Plows, known the country over as "Quality Plows" are now fitted with John Deere Quick Detachable Shares—an exclusive John Deere feature.

Here are some advantages of these shares:

1. No trouble to change shares.
2. Eighty per cent of time saved.
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4. Share is drawn up closer.
5. Share is stronger—not weakened by bolt holes.
6. Resharpened or sprung shares can be drawn into place—no drift punch necessary.
7. No unequal strain on share.
8. No danger of injury to hands in taking share off.

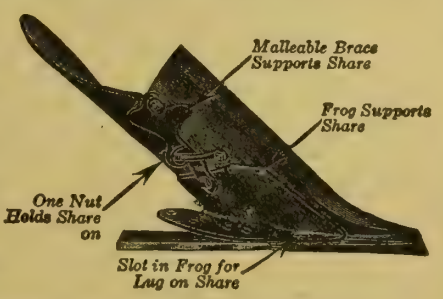
We have beautifully illustrated booklets on the following plows with John Deere Quick Detachable Shares:

New Deere Sulky and Gang (High Lift Frame Plows)

John Deere Stag Sulky and Gang (Low Lift Frameless Plows)

John Deere Two-Way Sulky (Side Hill or Irrigated Land)

John Deere Engine Gangs (For Traction Engines)



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A reliable, efficient, low priced but high grade engine. Easy to start, smooth running, requires no attention when in operation, economical in use of fuel and perfectly safe in and around buildings. All working parts are back of the fly wheel out of the way—a neat outfit in every respect.

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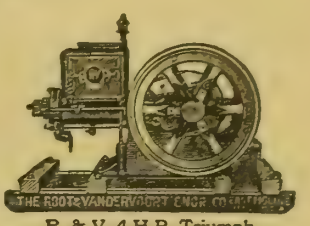

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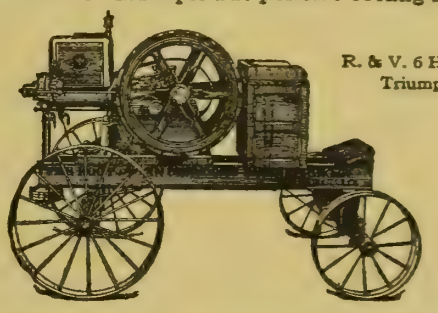

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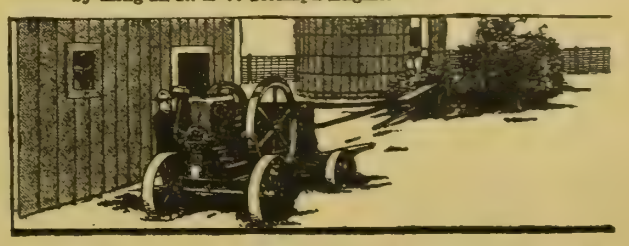

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Rural California Combined with the California Cultivator

A Journal of Horticulture and Agriculture

By
THE CULTIVATOR PUBLISHING CO., Inc.
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Thursday, Feb. 25, 1915

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

REPORT YOUR INCOME

Farmers whose incomes are in excess of $3,000 per year must make report to the internal revenue officials prior to March 1.

WANTED

The Cultivator has request for copies of the Cultivator of January 22 and February 19, both in the year 1914. We will appreciate it if subscribers who are not particular about saving them for their own files will forward us these copies. For this we will advance the subscription of the one sending three months.

BREAKING RECORDS

Some time ago the poultry world was gratified and astonished at the production of Lady Show-You with her 281 eggs in 365 days. A few weeks ago an Oregon hen went her five better and made a record of 286. Now comes a Massachusetts biddy with a claim of 309. What the country wants, however, is not exceptional hens but exceptional averages. Our present average the country over is too close to the 100 mark to make egg production profitable at present feed prices.

ORANGES IN BASKETS

A number of Florida citrus growers are trying out the shipment of oranges in bushel and half-bushel baskets. The idea is to have fruit delivered in an original package of more acceptable size. We recall well that a similar experiment was tried in California some ten or a dozen years ago. Several cars packed with bushel baskets were forwarded but not receiving the attention expected in the retail markets the effort was soon discontinued.

MONEY FOR AGRICULTURE

The national congress has appropriated the greatest sum ever for the support of the department of agriculture. The total, exclusive of the permanent annual appropriation, is $22,627,712. This is an increase of nearly $33,000,000 over last year's, and nearly $2,000,000 over the estimates submitted by the department. The excess is because of the special appropriations of $235,000 for hog cholera work and $2,500,000 for the campaign against the foot and mouth disease. Another special appropriation was called for by the campaign against the citrus canker.

STILL SPREADING

A new outbreak of the foot and mouth disease has been reported from the stockyards of nine different states of the country. The most westerly of these are Indianapolis and Louisville. Fortunately this outbreak has so far been confined to the stockyards, and all the stock was ready for slaughter; it did not involve stockers and feeders as was the case with the Chicago outbreak. The department of agriculture is taking a strong hand and it is to be hoped will quickly exterminate this disease.

MORE FARM ADVISERS

Heretofore nine counties have been supplied with farm advisers or demonstrators by the state university. Now come two more, Glenn and Solano, and there are others—a dozen or more—on the waiting list expecting as early attention as possible from the university, which is working with limited funds, but it is probable that the funds are no more limited than the supply of qualified advisers. We are glad that the greater part of the work now being done by the advisers is proving most satisfactory to the agricultural interests of the counties in which they have been working.

FEDERAL AID

There will be one satisfaction about federal aid in the good road building campaign. Any funds supplied from this source means that taxation falls equally on the city beneficiary and the rural. At the beginning of the good roads campaign those loudest and longest in their cry for good roads were those who paid nothing or but very little for their construction and upkeep. It has, however, been shown that the business of the city is equally as dependent on good roads as is that of the country, and city people are becoming more content with bearing their proportion of the cost. Now if our government will aid in spreading the gospel of good roads and, better, finance good roads, all will be benefited. We believe there is no farmer who does not realize the money value of getting his crops to market with as little injury and as great expedition as possible.

SUGAR UP

Sugar is again being advanced, having gone from $4.95 early in January to $6.00 on February 10. It is to be hoped that this will call attention to the fact that America should be producing more of its own sugar. Unfortunately the tendency seems to be the other way, and while we are consuming over a million dollars worth of sugar every day in the year, we are importing the greater proportion of it. America has always been a great nation for exporting foodstuffs, but it has neglected the sugar industry which would employ hundreds of thousands of workmen, keep busy hundreds of factories, requiring tens of thousands of acres to supply beets. Let us produce more sugar instead of importing over 200,000 tons a month from the one little island of Cuba.

STATE ASSOCIATION

A state agricultural association was started on its way to regular organization on Washington's birthday at the exposition grounds in San Francisco. This movement was first launched at the Los Angeles meeting of the State Fruit Growers' Association last fall when a committee was appointed to call together representatives of all lines of agricultural work at this meeting in San Francisco. There was a most encouraging response. While the attendance was not large, representatives of all branches of productive industry were present. A committee was appointed to outline a plan of action and report at a mass convention to be held on the grounds of the Panama-Pacific in San Francisco, probably sometime in March.

GOVERNMENT SHIPS

Hon. Wm. D. Stephens of California has introduced a sensible bill providing for government ownership of vessels which shall be used for transports in time of war and for merchant marine in time of peace. A glance over the bill convinces us that it is a most excellent provision and would supply that which the Pacific Coast is now short on, that is, sufficient vessels to carry our produce to Eastern shores. Regarding the purpose of the bill Representative Stephens writes:

"The purpose of the bill is to 'round out' the navy by providing transports and hospital ships for war time, and to establish government-owned water transportation lines through the canal between the principal ports on the Pacific Coast and the principal ports on the Atlantic (including Gulf) Coast of the United States; also between Pacific and Atlantic ports of the United States and Mexico, Central America, South America, and such other foreign ports as from time to time the president may designate.

"If the army and navy could add such vessels as each can spare in time of peace to the merchant ships now operated by the Panama Railroad Company, that company, or any other authorized to do so, could regulate rates and supply much of the demand for ships in the trade between our Eastern and Western coasts. It could also pioneer the way to South America and to other foreign ports. There are enough government owned ships, if at once made available, to meet all water transportation undertakings advisable for the government to begin in the next 12 months.

"The bill creates no condition which might involve us in war with any nation. It makes no mention of purchase. It authorizes construction only. This bill will keep the $30,000,000 at home, and give work, wages and business to American workingmen, American merchants and American capital."

I wish to congratulate you for publishing the best agricultural magazine in the state and one of the finest in the world. I certainly do enjoy reading it from one end to the other.

Now have been getting your publication for some seven or eight years, but quite a number of the copies are missing from my collection, which I regret very much as I would like to bind each year's copies for future reference. Therefore, I wish to know if you can supply me with back numbers for about five years.—George T. Wilson, Rivera.

Agricultural Notes

The exportation of rabbit skins from Australia now exceeds in value over $3,000,000 annually.

The United States purchased more than half the hides shipped from Argentina during 1914. England was the next largest purchaser.

The Japanese government is encouraging breeding of sheep in Japan. There is a constantly growing demand in that country for woolen textiles, imports of wool now being made to the yearly value of $7,000,000.

The wheat crop of Uruguay has this year suffered serious damage through excessive rains. This makes the second successive poor crop, last year's having been damaged in the same way.

The Rocky Mountain national park in Colorado is to be established, by virtue of a law which has just been passed by congress. This will be the seventh large national park and will have an area of 230,000 acres. The six national parks already established are said to have had in the past year about 250,000 visitors.

The United States government collier Caesar brought 500 tons of government exhibits to the exposition grounds at San Francisco on January 13. The display constitutes the largest exhibit ever made by a government in an exposition. It will occupy more than 192,000 square feet, and will represent every department of the service.

Authorization has been secured from the secretary of agriculture to graze on the national forests of California, for the season of 1915, 212,280 cattle and horses, 505,750 sheep and goats, and 7,950 swine. The national forests are accommodating more live stock each year as better methods of handling are brought about and new unutilized areas are brought into use through trail construction, water development and other means.

A swine disease known locally as "purple fever" has recently made its appearance in County Mayo and County Sligo in Ireland. The chief veterinary inspector of the Irish department of agriculture and technical instruction believes it to be a form of swine erysipelas, and states that veterinarians have thus far developed no specific remedy, although vaccine treatment has been attempted in a similar affliction among English swine.

The war in Europe has been preventing exports from India of the seed of the Vateria indica tree, known also as the piney tallow tree, which produces a substance known as vegetable tallow, which formerly found its chief market in Antwerp. This tallow is said to be useful in the manufacture of candles and of soaps and to bring almost the same price as good animal tallow. It is said that after refining it is edible and suitable for use in making confectionery.

Agricultural News Notes of the Pacific Coast

Northern California

Vacaville, Solano County, reports plum cots in bloom February 7.

Fifty Russian families have located at Ravendale in Lassen County.

On January 25 direct telephone service was opened between San Francisco and New York.

The Long Valley center of the Placer County farm bureau had 75 members at its last meeting.

The farmers' union of Gridley, Butte County, held a banquet at Odd Fellows Hall, Saturday, February 6.

Price of grain bags made at San Quentin penitentiary will be six cents per bag to farmers until April 1.

The Placer County farm bureau organized units at Penryn, Loomis, Newcastle and Rosedale last week.

Various county dedication days of the Panama-Pacific are scheduled for the first two months after the opening.

Siskiyou County's Panama-Pacific Exposition commission has secured a fine lot of movies showing industries of that county.

The Yolo County farm bureau is particularly interested in cow testing and several local associations have been organized.

Cold versus heated brooders was the subject discussed at the last meeting of the Castro Valley center of the Alameda County farm bureau.

The great Panama-Pacific opened Saturday at San Francisco. The most spectacular feature of the opening day was the great foot parade of citizens.

Prof. F. T. Bioletti of the viticultural department of the state university delivered a lecture on vine pruning at Cloverdale the evening of February 12.

The monthly report of the county librarian of Yolo County shows new branches opened at the county hospital, Guinda Indian school and Jefferson school district.

Live Oak, Sutter County, is sowing great quantities of California poppy seeds in all uncultivated spots. Women's clubs are taking the lead in this beautifying movement.

Lands in Colusa County and along the Sacramento River near the junction with the Feather have been flooded during the last two weeks and much damage was done to farming and transportation interests.

"Carrying coals to Newcastle" is modernized by "Shipping California rice to New Orleans." The General Hubbard sails from San Francisco with 200 tons of Butte County grown rice consigned to New Orleans dealers.

Property owners of Sutter County living along the old Live Oak drainage ditch are considering favorably a proposition to organize an irrigation district under the Wright law, using the drainage ditch as an irrigation canal.

Napa County's exhibit at the Panama-Pacific is built of solid granite and weighs several hundred tons. It is a three-span bridge in actual size, 87 feet in length. After the exposition it will be rebuilt in Napa County for service.

Central California

The Visalia Cooperative Creamery paid out $23,500 for cream checks in January.

The Wasco district of Kern County reports that 2000 acres will be planted to rice.

The Visalia Cooperative Poultry Association is building additional warehouse room.

The Oakdale section of Stanislaus County will plant several hundred acres to rice.

Geo. C. Roeding and H. C. Wuerth have been named publicity committee for Fresno's Raisin Day, April 30.

The Tulare Cooperative Creamery Company has elected Wm. Swall president and W. D. Cartmill, manager.

Plans are being worked out for the construction of a boulevard from Porterville to Lindsay through Strathmore.

Members of the Porterville Poultry and Pet Stock Association are planning a banquet to be held early in March.

The San Joaquin Valley Counties' Association plans to distribute much literature at its exhibits at the Panama-Pacific.

Hollister, San Benito County, is making large shipments of hay, 10 and 12 carloads having gone out daily for a number of weeks.

It is proposed to form a Turlock Growers' Association, with capital stock of $75,000, to sell produce and buy supplies for members.

The annual meeting of the trustees of the Associated Raisin Company was held in Fresno February 10. Directors were reelected, as was Manager James Madison.

The raisin growers of Clovis, Fresno County, met February 17 with President Madison of the Associated Raisin Company to hear report of the business of the Associated.

The Kerman Cured Fruit Association held a conference with General Manager Ellis of the California Cured Fruit Exchange at the Vinland school house Friday evening, February 5.

President Jastro of the American National Live Stock Association has issued a call for the 18th annual convention of the association at Memorial Auditorium, San Francisco, March 24, 25 and 26.

Twenty-one students of the Visalia high school have enrolled in a hog raising contest. The one realizing the most profit in a specified time will be awarded a trip with the experimental train of the state university through Eastern states.

The Kings County Poultry, Pigeon and Pet Stock Association has been reorganized with the following officers: President, W. F. Bernstein, vice-president, Ed R. Bradley; secretary, B. B. Price; treasurer, B. D. Scott; superintendent, Ed R. Bradley.

The Turlock branch of the Stanislaus County farm bureau is establishing a demonstration and experiment farm on six acres of land just outside the Turlock city limits. Experiments the present season will be made with corn and sorghum and various fertilizers.

Southern California

Santee, San Diego County, is assured of a new cannery.

The governor has been asked to fix March 20 as Orange Day.

Beet planting in Orange County was stopped by recent heavy rains.

San Dimas, Los Angeles County, expects a record crop of lemons.

April 22 has been chosen as Imperial County day at the Panama-Pacific Exposition.

The Claremont Pomological club held its last meeting in Glendora at the woman's club house.

The bright day last Sunday brought thousands of visitors to the National Orange Show at San Bernardino.

Plans are under way for the erection of a large citrus fruit packing house near the old mission at San Fernando.

D. M. Utter, state president of the Farmers' Educational and Cooperative Union, addressed the last meeting of the union at Arroyo Grande, San Luis Obispo County.

The San Diego chamber of commerce is proposing to work with local chambers throughout the county to secure water development.

At the recent meeting of tht Claremont Pomological Club at Glendora Professor McBeath of the Riverside citrus experiment station spoke on the use of fertilizers.

The Orange County Vegetable Growers' Association has received word from a carload of rhubarb shipped to Chicago three weeks ago that sold for $2.00 per crate.

The Panama California Exposition at San Diego has set aside March 20 as farm bureau day. On that day the annual meeting of the San Diego farm bureau will be held in Exposition Auditorium.

Forest Supervisor Charlton has placed about 100 men at work on trails in the Angeles forest. These men will be put to work in the Arroyo Seco, Tejunga, San Gabriel and Pacoima Canyons.

James A. Armstrong, who has been county farm adviser of San Diego County, goes to Maricopa County, Arizona, to take up the same work there March 1. H. A. Weinland has been named to succeed him.

The farm bureau of Ventura County, in the few months of its existence, has started experiments in bud selection and seed selection of the lima bean, and has conducted a campaign to destroy ground squirrels.

The Imperial Valley Irrigation district has acquired all rights and title of the Southern Pacific Company in the irrigation system in Imperial Valley, both on the American and Mexican sides of the boundary line. The purchase price was $2,152,500.

The Hog Raisers' Association of Imperial Valley has been asking for federal aid in its hog cholera campaign. The plan of the association is to gain the services of two veterinarians, representatives of the United States bureau of animal industry, who will vaccinate hogs in the county in an effort to stamp out cholera.

The Coast

The Baker County poultry show closed last week at Baker, Oregon.

The apple crop of the Hood River district last fall reached 1200 cars.

Montana reports range stock in good condition. Snowfalls have been light.

It is reported that numbers of cattle are again crossing the line from Mexico.

Cochise County, Arizona, is discussing the possibility of securing a county farm adviser.

The Southwestern Stockmen's Association will hold a convention at El Paso, Texas, March 2-4.

The department of the interior is advertising for cattle for use on Indian reservations in Arizona.

The Stockmen's Association of Navajo and Apache Counties, Arizona, will hold its next meeting April 6 at Holbrook.

The cattlemen of New Mexico hope to have the 1916 convention of the Panhandle Cattlemen's Association at Albuquerque.

Utah reports more cattle on the range now than last year. The range is poor because of lack of rains to bring up the grass.

The Arizona State Poultry Association met February 13 in Phoenix. The cold storage problem was the principal topic discussed.

The Arizona Good Roads Association has asked the legislature for a $400,000 appropriation to be expended upon the highways of the state.

The city marshal of Yuma has this sign posted on the streets: "Vagrants, the city needs your help. If you want to work stay; if not, the going is good."

A bill has been introduced into the Arizona legislature requiring that all laborers in hazardous employment shall be able to understand the English language.

Five thousand condemned Chinese eggs were destroyed in a crematory at Spokane, making a total of 45,000 destroyed by state food inspectors in the last few days.

A bill has been introduced into the Utah legislature designed to create a state board of animal industry and abolishing the offices of state sheep commissioner and state veterinarian.

The total output of apples for the four states of Oregon, Washington, Montana and Idaho last fall reached 15,000 cars. The majority of this was marketed through the North Pacific Fruit Distributors.

Tax assessors of Mojave County, Arizona, are holding for taxes cattle owned by Utah stockmen. The owners claimed to have paid taxes on these cattle in Utah but the Arizona officials claim the cattle graze the entire year in Arizona.

The Oregon legislature has approved the Forbes bill providing a system for managing the Tumalo irrigation project in Central Oregon. It also provides for the appointment by the state land board of a project manager. The price of water rights under this measure is fixed at $40 per acre and for the land at $250.

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A GOOD SILO IS A NECESSARY PART of the dairy equipment of every cow owner or stock raiser who wants to realize a reasonable profit from his herd, and if the matter of cost has been standing in your way, please remember that it is really not a question of whether you can afford to erect a silo, but whether you can afford to do without one.

IF YOU HAVE NO SILO a little investigation will be sure to convince you that you ought to purchase an IDEAL GREEN FEED SILO right away, and be prepared to save your first cutting of alfalfa. Then plant corn to fill it again this fall.

Write for new Silo Catalog for full information.

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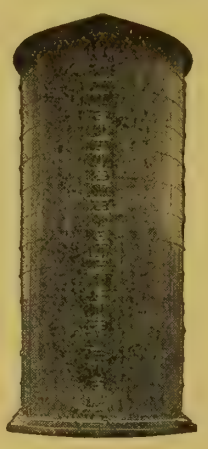

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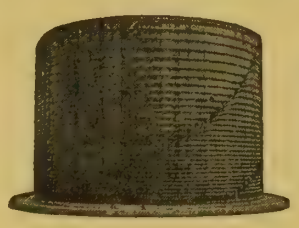

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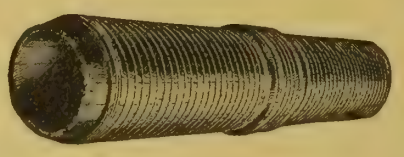

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Live Stock and Dairy

HOG CHOLERA PROBLEMS

Written for California Cultivator
By Sacramento Valley Contributor

JUST what to do under certain conditions which arise in the hog cholera situation many hog raisers would like to know. Like other emergencies that come up on the farm the only answer is for the individual concerned to obtain all of the best information on the subject, then make the decision according to the merits of his own particular case.

Let us suppose, for instance, that you have a herd of good, healthy hogs, and that as far as having plenty of feed, sanitary conditions and all of the other things that go to make a profitable hog growing enterprise, you are all right.

Then some miles away from you there is an outbreak of cholera. The chances that your hogs may have it brought to them by birds, dogs or passing wagons is remote, yet it exists. You can keep the hogs in fields away from the county roads and away from streams, yet the danger of infection is there just the same.

There are several things you can do. First, you could kill all dogs and birds that come on the place, disinfect everything about the hog yards and keep up this disinfection, keep all visitors away from the hog pens and trust to this care to keep disease away from your hogs.

Second, you could treat them with hog cholera serum alone, at a cost of about $1.00 per head for a mixed bunch of pigs and older hogs. This would make them immune for one to three months.

Or you can treat them with hog cholera virus and serum at the same time and produce immunity from the disease for one to three years—at a cost of something over $1.00 per head, probably $1.50.

Hog cholera serum is blood from an immune hog. When the serum is injected into a well hog it produces immunity from cholera for a limited time. Hog cholera virus is the blood from a hog sick with cholera. It contains living germs of hog cholera and can produce the disease. Blood from an immune hog has the ability to counteract the effect of the hog cholera virus so that in the "virus-serum" theatment the disease is produced and cured, thereby causing immunity.

But if the serum is not effective and the virus is, or any mistake is made in administering the virus, hog cholera may be produced where it did not previously exist. Hence the danger and the fact that some hesitate about immunizing their hogs. There have been some serums and viruses on the market that were not good. One firm in the East spread foot and mouth disease through hog cholera serum.

All the statistics, however, prove beyond question that good serum and viruses properly administered are effective in a large per cent of cases.

So that the man with the well herd may wait—if he chooses—until one or two of his hogs contract the disease, then treat with serum and render them safe from attack, or, using double treatment, immunize the perfectly well ones at this or a later time, and any suspected of having the disease with the serum only.

Every hog owner in a cholera district should get in touch with the veterinary department of the agricultural college of the University of California at Berkeley, secure all of the bulletins on the subject and plan his own course of action according to his best judgment.

Dryness in the hog house should be insured by thorough drainage and freedom from dust by sprinkling with water. Although sunlight is necessary, an excess of it will cause trouble in very hot weather.

THE ANGORA GOAT MOHAIR INDUSTRY

By Alva L. McDonald, Secretary American Angora Goat Breeders' Association

The first Angoras were imported into this country in 1849. The then sultan of Turkey desiring to pay a compliment to the work done by Dr. Davis, an American who had been sent to Turkey to educate the Turks in the raising of cotton, presented Dr. Davis with nine of the choicest Angoras in his domain. This action marks the beginning of the Angora industry in the United States.

Their value as brush cleaners and weed destroyers was at once recognized and for some time they were used only for that purpose. Later it developed that their fleece had a market value owing to the fact that the peculiar texture of their fleece was essential for certain fabrics, and then it was that Angora stockmen began to grow them for their mohair.

The word "mohair" is the technical name for the fleece of the Angora goat. According to George Fayette Thomson, M. S., author of the work entitled "Angora Goat Raising and Milch Goats," the word comes to us through the old French "mohere" from the Arabic "mukhayyar," meaning mohair cloth. It differs from the wool of the sheep in that it does not have the felting properties of the latter. The felting property of wool is due to the presence of scales or epithelia which cover the fibre in much the same manner that scales cover fish. It is the felting property of wool which distinguishes it principally from other animal fibres. Mohair is a hair proper, being devoid of scales, and so it is not successfully used alone in felt goods.

The fleece upon the goat is pure white; it is exceedingly lustrous and grows to an average length of ten inches annually. It hangs in beautiful wavy curls, or ringlets, from all parts of the body, if the animal is of the best breeding. The average annual production per head of mohair is about three pounds.

It will be noted that Mr. Thomson states, "The average annual production per head of mohair is about three pounds." However, it is gratifying to learn that American intelligence has succeeded in increasing this average amount, and it is safe to say that now the average clip is three and one-half pounds, while there are hundreds of breeders of Angoras in the United States who have bands which will average five and six pounds or even seven pounds per head.

As a conservative estimate the average price for mohair is around 30 cents per pound, therefore the average yearly clip per head should be from $1.00 to $1.50. There are thousands of bands of Angoras in the United States which will double and triple this. There is one mill in the East which annually turns out mohair goods to the value of from 10 to 12 million dollars. This is only one mill, and there are some 10 or 12 mills engaged almost exclusively in the manufacture of mohair goods.

Angora raising can be carried on by two classes of farmers and stock growers. The first is the small farmer who has some brushy waste lands on his farm which are an utter loss to him, places where grass does not grow. Consequently such lands are of no value for his cows nor his sheep, brush and weeds having taken possession. It is here that the Angora will prove his worth. His natural bent is to browse, while peculiar as it may seem he prefers weeds to grass. Therefore a small farmer can well afford to keep a few Angoras if for no other purpose than to clean up these waste places. Their value in this would be worth their keep, but in addition to this they will yield a clip of mohair worth at least $1.00 per

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head, but more likely worth $1.50.

The second class is the owners of large tracts of waste lands who can utilize Angoras by putting them on the foothills and mountainous country found in nearly every state in the Union. Their natural tendency to browse and their adaptability to mountainous or steep and rocky country opens an avenue for using tracts for which heretofore no use has been found.

At the present time Texas leads in the number of Angora goats in the United States. New Mexico and Arizona come next, with the Northwest closely following, with every indication that the Northwest will in the course of time lead owing to the preponderance of evergreen browse.

While there has been a marked increase in the production of mohair in the United States, American mills annually import approximately 2,500,000 pounds, so there is no danger for many years to come of an overproduction.

The industry is well organized. First is the American Angora Goat Breeders' Association, with headquarters at Kansas City, Missouri, while the resident secretary's office is in Portland, Oregon. Then there is the National Mohair Growers' Association, with headquarters at Paluxy, Texas. This association was organized for the purpose of selling the annual clip and numbers approximately 1,000 members who are mohair growers. Next is the Northwest Angora Goat Association, Portland, Oregon, with practically every mohair grower in the Northwest as a member. Through the last two named associations the price of mohair has been maintained at a satisfactory schedule.

HOG RAISING ON A GRAIN RANCH

By A. M. Henry
President California Swine Breeders' Association.

In our pride of production of fruits, garden truck, etc., we forget that not many years ago we were making a living in California by means that were then equally as sure and are even now fully as sure in some localities as the production of the above named products. I refer to the raising of grain in connection with stock. Probably the most profitable adjunct of the grain ranch is the hog, be he Poland China, Berkshire, O. I. C., or any other breed that develops in such a way as to give good returns for the feed consumed. One person favors one breed, another some other breed, and some a mixture of breeds. Whatever my ideas are in the matter, it is not my object in this article to champion any certain breed, but to encourage the man who is trying to raise hogs in connection with a grain ranch.

Many of the smaller farmers today find it absolutely necessary to do some of the ordinary work connected with the raising of grain because of the impossibility of obtaining the kind of help that is necessary where stock is to be used as the motive power in the cultivation of the land or where gasoline is the power. It is also difficult to find the person who can use the necessary judgment to make it profitable for a man to hire him to care for the stock being raised on the ranch. Here is where the hog steps in and helps out the grain farmer. To the poor grain farmer who is struggling along and being criticized by some of his alfalfa raising neighbors and sympathized with by others, perhaps, I may be able to offer a ray of hope or even encourage him so much that in his exhilaration he will look over the green fields of his neighbors and wonder where they will sell all the hay or where in California stock will be found to eat it.

The grain farmer will soon have his wheat or grain harvested and will then turn the hogs into the stubble field to grow fat and make pork that sells at an average price of about eight cents per pound on foot, while the alfalfa grower will continue to cut hay during all the fall and add to the overproduction already on hand.

The grain farmers' sows, will, during the month of September, hunt se-

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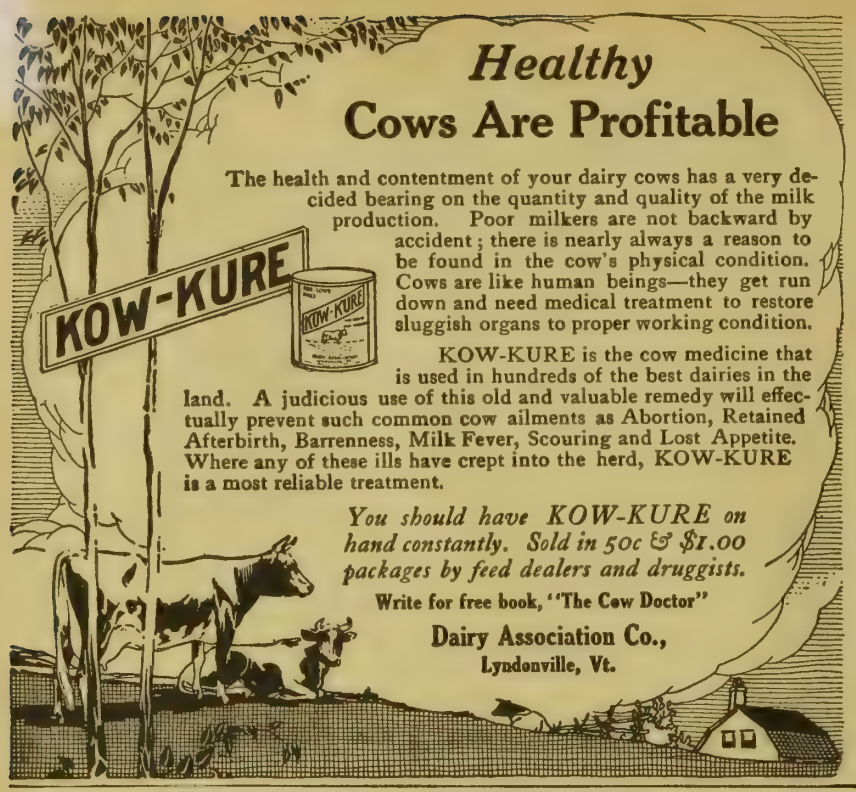

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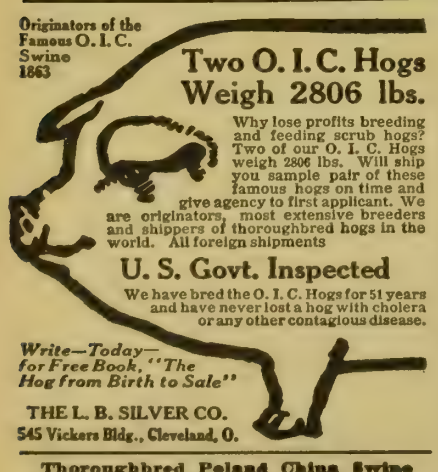

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cluded places near the running stream or the artificial watering place and there gather the necessary straw to make a good bed, farrow, and often raise more pigs to the litter than they will under the most approved methods when closely confined. In fact, it seems that an old sow just naturally abhors close attention and watchful care during this process of nature. These pigs grow up during the fall totally uncared for except such attention as they get from the dam, and by the time the December rains come they are weaned from the mother and weigh from 25 to 40 pounds. This seems small but when we consider that the expense of producing this growth has been only what the stubble would have brought if sold for feed, which would probably not be over 50 cents per acre, and that the pigs are just as strong and healthy as it is possible for pigs to be, it would certainly look good to most people.

The nights are cold now and the pigs are sleeping at a straw stack prepared for the purpose and are getting varieties of feed. The grains that have laid in dusty exposed places have sprouted and are sending up succulent sprouts that the pigs like and for which they rustle, while the single grains and sometimes whole heads that have laid in the protection of clods or bunches of straw are nearly as hard as during the summer. As the season advances and the rains come more abundantly, the grass grows larger and the grains sprout more and more until finally, by this gradual process of nature, the pigs' feed is changed from hard to soft with no sudden shock which might stunt the pigs' growth.

During this time the pig has rustled for his living and as this is necessary to the best development of a pig, he is just as hardy and healthy as it is possible for a pig to be. From now until haying time the pigs live on the growing grain of the cultivated field and also on the natural grass that grows so luxuriantly in California, and which is just as good a feed and probably better than alfalfa, because there are so many varieties of it that the pig gets a better balanced ration than if eating alfalfa alone.

For later feed the farmer should have some very late sown grain which is green and juicy at the time when the early grain and natural grasses are getting too near ripe to be good hog feed. By the time this late grain is getting too ripe, the early grain is getting entirely ripe and the pigs are then turned into a field sown for the purpose and allowed to hog down the grain and grow just as fast as nature provides for them to grow under such favorable conditions. By the time this field is fed off, the regular grain fields are harvested and the pigs are then turned into them and continue to grow rapidly until October or November, when they weigh from 200 to 250 pounds at 13 or 14 months of age.

The only expensive feed they have had during their lives was the grain they hogged down and their growth during this time has been so rapid that the barley or whatever grain it was, brought more per acre than if it had been harvested, sacked and sold on the regular market.

The writer has raised hogs this way himself and has seen it done many times by others and knows whereof he speaks. While I am now raising purebreds, selling all of them for breeding stock, I can see where the man who is raising for the market today on a grain ranch can probably boast as much over his profits as anyone.

The man who raises hogs on the more concentrated foods has to be a man of good judgment and splendid business ability or his feed will be too expensive, his hogs will be overfed, they will often not breed, be subject to disease, and a number of other things that often occur to lessen his profits. The man with the grain farm who has followed something like the system above described may avoid many of the troubles just mentioned and while his hogs may not weigh what those do that are forced to early maturity, the expense of raising has been so slight that his profits are apt to be very satisfactory.

ALL FAIR RECORDS BROKEN

On the opening day at the Panama-Pacific 216,077 people passed through the gates. This breaks the record for first day admissions at any world's fair. At the great Chicago fair in 1893 the opening day saw 137,557 people inside the grounds. On opening day at the St. Louis fair the attendance was 176,453.

Someone has figured out that each one of the visitors to the grounds of the Panama-Pacific spent $2.19 the first day. This also beats all former records, for at St. Louis the amount spent per capita the first day was $1.57 and at Chicago $1.29.

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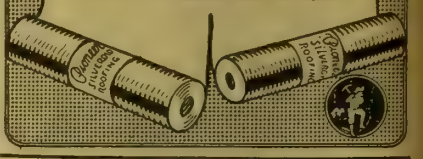

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Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.
Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Statute of Limitations

When notes are given in yearly payments and secured by mortgage upon real estate, does the statute of limitations commence to run against the first note falling due after four years or until four years after the last note has fallen due? Would conditions be the same were the notes given for the purchase price of real estate under contract for delivery of deed when payments were completed? Upon an open account does the statute of limitations commence to run from date of first entry, one item at a time, after two years or after two years from date of last payment? What would be the correct form for a joint note?—Subscriber, Kingsburg.

The first note would be barred by the statute of limitations at the expiration of four years after its date. it would make no difference whether it was upon mortgage or contract; although the contract itself may be so drawn that it would not expire until full payment would be made. Where account is not a mutual one the statute begins to run on each item from date thereof. The statute is now four years instead of two years upon mutual open and current accounts or upon open book accounts. A joint note should read "We jointly and severally promise to pay . . ."

Height of Fence

Is there any state law controlling height or method of building line fence? Also, is there such ordinance in the cities, especially in Los Angeles?—Subscriber, Los Angeles.

The general laws of the state provide that no owner of real property in any city or town shall build a partition or fence exceeding ten feet in height without the consent of his neighbor, except in case of public garden or resort where admission fee is charged and the person violating the act is liable to fine or imprisonment in the county jail.

Suit for Damages

About the year 1879 my father was killed while working for a company. Would like to know if heirs could bring a damage suit now? My mother is living yet and good many of the men that worked with him and know how it happened.—Subscriber, Santa Maria.

The statute of limitations for actions arising out of personal injuries is one year from date of the injury. Therefore nothing could be done.

Contract to Buy

A and B make contract in writing to buy and sell a number of lots upon terms of payment of $100 down and the balance of the purchase price within one year. Contract contains the following provision: "In the event of failure of second party to comply with the terms of this agreement said first party shall be released from all obligations in law or equity to convey said property, and said second party shall forfeit all right thereto." The contract was not acknowledged, nor was it recorded. B has failed to make his payments. Can A sell the lots without legal process to have contract annulled, and can A compel B to complete his purchase?—Subscriber, Riverside.

The contract not being recorded A can sell his property to any third party. B not having fulfilled his contract could not restrain A from so doing, without making tender of the balance due upon the contract. The safest way of course is to bring action to rescind the contract and have the same cancelled. B having agreed in writing to purchase can be held to his agreement.

Line Fence

There is a barb-wire fence between me and my neighbor. Neighbor claims that half of the fence belongs to him and the other half to me. On his fence the wires are down and his stock comes in on my ground and of course does damage. He refuses to fix his fence. I wish to repair it, but he says he will not permit me to do it. Have I not the right to repair it in order to keep his stock off my place, or can he legally prevent me? Or what recourse have I? There is 20 feet between the fence posts. Can I put in some more posts to make it only 10 feet between posts and our whole line fence?—Subscriber, Sonoma.

A fence erected on the line between the lands of adjoining owners generally belongs to them as tenants in common. Either may repair it and may lawfully enter on the lands of the other for that purpose. If either destroys or removes it he is liable to the other. There is no question but that you can put in a fence substantially enabling you to keep out your neighbor's stock.

Property of Wife

A woman owning real estate mortgaged it. Her husband signed the mortgage. She later sued for divorce and got interlocutory decree, but did not apply for final decree, the husband having defaulted. Can she renew or get new mortgage without his signature? He wants entire freedom. What must he do to get it? Can he without an attorney apply to the court by letter to compel plaintiff to complete the divorce or apply for final decree? Plaintiff in one county, defendant in another, residence both established in each place. The charge is desertion.—Subscriber.

If the property is the separate property of the wife she may without his consent convey it and could certainly mortgage it, although invariably people prefer to have the husband join in the instrument.

When one year has expired after the entry of interlocutory judgment the court upon motion of either party or by its own motion may enter the final judgment, and doubtless the court would upon your request see that the final decree is entered, which may be done without cost unless you desire a certified copy, which would cost you 50 cents, payable to the clerk of the court.

Deed of Minor

A widower deeded his farm in Kansas to his son, who was 20 years old when this deed was recorded. Afterwards and before this son became of age he deeded this same land to his sister and this deed was also recorded. Now the question is, who is the legal owner of this land, the son or the sister?—Subscriber, Riverside.

A minor may be a grantee in a conveyance of land and the title vests in him subject to his right to disaffirm the conveyance when of full age. The deed of a minor purporting to convey real property operates to transmit the title, although it is voidable at the election of the infant. Being voidable it would require definite action by the minor within a reasonable time after coming of age to avoid this deed. If he should ratify same by acquiescence in the transaction, or by not taking action within a reasonable time, his right would be lost.

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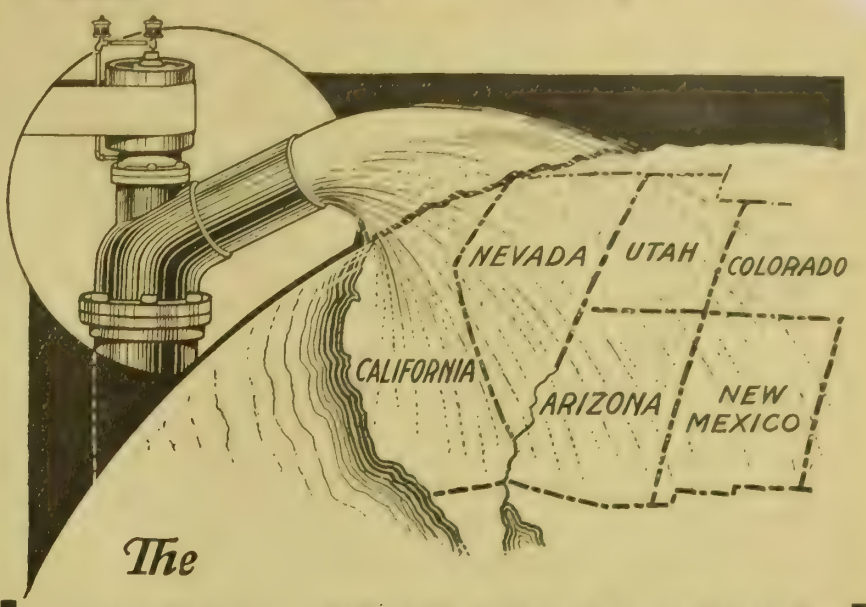

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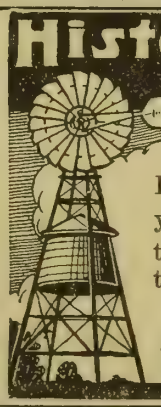

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Poultry for Profit

EARLY HATCHING

Written for California Cultivator
By Jean A. Koethen

To hatch or not to hatch, that is the question;
Whether 'tis better for the purse to daily,
And calmly wait for Mother Biddy's clucking,
Or to rise up in fierce determination
And start the incubator.

I HAD read Hamlet's immortal soliloquy many times, but I never fully understood it till I saw Forbes-Robertson's Hamlet last fall. Forbes-Robertson plays Hamlet with a droop of the shoulders, the attitude of a man who sees exactly what ought to be done but hasn't the backbone to do it. Perhaps it is stretching the point a bit to apply Shakespeare to chicken raising, but I suspect a great many amateur poultry people this spring have been arguing the pros and cons of early hatching with themselves, only to sit still in the end and wait for the right hen to get broody. "After all," they argue, "if the early bird does get the worm, it is the early worm that gets caught."

There never was a spring when so many people were saying, "hatch early." Eastern papers are saying it; Western poultrymen are saying it; everybody interested in the progress of the poultry industry is saying it. Next fall, they say, egg prices will soar. Sooner or later, they declare, there must be a tremendous demand for breeding stock. Keep a stiff backbone and get out your early chicks.

After several years of experimenting with both early and late hatching, the reasons for early hatching have shaped themselves in my mind in this way:

Early hatching means more profit from pullets. January pullets, to be sure, are almost certain to molt after laying a few clutches of eggs. Some February pullets will do the same, but they will all be laying again by January and will make splendid breeders in the spring. I am not sure that I should advise hatching in January unless the pullets were needed for breeding, but I should certainly not fail to get out at least one lot in February. They may not molt if they are carefully handled, and if they do not molt they will be the best of fall layers. My own incubator has been running some weeks now and I take great satisfaction in counting the February pullets I shall have—barring accidents.

But whatever you decide about hatching in February, don't fail to hatch every chick you possibly can in March. March is generally considered the best month in the year in this climate. March pullets rarely molt in the fall unless they are fed a very forcing ration, and the March pullet and the one hatched early in April are the birds that will do the fall laying. A great many Leghorns hatched later than this will begin to lay in November, but the birds that are to be depended on for fall laying are those hatched before the middle of April. Many authorities say pullets of the heavy breeds should be hatched a month earlier than Mediterraneans in order to begin to lay at the same time, but I have not found this to be true. More depends on the strain than on the breed. Only the other day a woman said to me, "I've no use for Orpingtons. They never lay till they are ten months old." As if one could ever say "never" about chickens! My April Orpingtons all began to lay in November last fall, and my experience is that a good proportion will always do it, but March pullets are more sure. The point is that pullets that are not hatched early enough to begin laying in November are hardly profitable enough to be worth raising, and it isn't wise to trust to luck and argue that maybe the May pullets will lay in November, after all, for most of them will not.

Early hatching means more profit from cockerels. Cockerels hatched in February will be just the right age for breeding next January and the best of them may in many cases be sold for this purpose. Broilers and fryers hatched in January and February and marketed in April and the early part of May will bring nearly twice as much as cockerels hatched in May and marketed in August. If these late cockerels can be caponized and held till January they will perhaps be as profitable as the early cockerels, but very few farmers and back-lotters are in a position to caponize.

In this climate, at least, we may expect that early chicks will have stronger vitality and make more rapid growth than those hatched later than April. I have seen this so many times that I feel the assertion cannot be made too strong. One stormy January I remember giving a brood to a hen in a small coop with only the usual wire run. I was fussing over them continually, trying to keep them out of the rain, and yet between showers these chicks were always out, and they did not always run to shelter the moment it began to sprinkle, either, and I never saw chicks grow so fast. Another spring torrents of rain came down our hill, flooding the pen where I had several broods of chicks, one hen with 22, and never a chick was lost. The only chicks I ever lost because of rainy weather were part of a little bunch that got caught away from the coop one day when I was away from home. I found them drenched when I returned and saved most of them by taking them into the house and quickly warming them up. We have all had similar experiences, and it only goes to show that chicks, like the rest of us, are hardier in a cold climate or in cool weather. With artificially reared chicks the case is somewhat different, yet Professor Dryden of the Oregon station after repeated experiments declares that when chicks must be artificially hatched and artificially reared the odds are all in favor of the early ones. In every case where records were made it was found that early chicks were more vigorous than those hatched in warm weather, and the conclusion was that where hens are not available for all hatching it is better to use incubators in the winter and early spring and hens in late spring.

Seasons vary greatly, and we are not always sure of rain in February and March, but I am quite certain that when these months are rainy the incubators do better work than they do later. To put it in another way, the dryness of interior valleys of California is against the best results with incubator hatching, and when we are so fortunate as to have a very wet spring, that should be an additional reason for not letting the early weeks go to waste. The best hatches I have ever had I had in wet weather. I am sorry now that I did not keep records, but I remember that the first year I used an incubator I got a chick from practically every fertile egg, and it was raining most of the time.

The green feed question is one that should not be ignored in deciding when hatching can best be done. Where water is plenty and cheap this is not important, but where every gallon of water must be made to count there is a great advantage in hatching while every vacant lot and unspaded corner of the garden is covered with green. Alfilaria, burr clover, wild mustard, wild radish, and indeed any sort of green gives the growing stock the succulent green they need, and they cannot have too much of it. In June and July, when only the cultivated greens are left, the providing of this most necessary part of the diet becomes something of a problem. Perhaps this is one reason why late

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That care in selecting the grain you are going to feed your baby chicks will save you lots of trouble and loss. The ingredients of

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Special Chick Food

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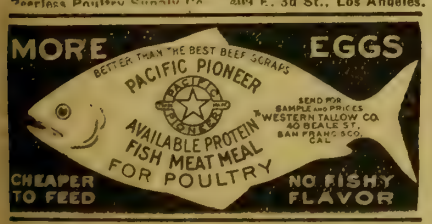

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chicks rarely do well. Any vacant lot or field furnishes green range for the early chicks. Even if they must be kept in wire runs the runs can be moved to fresh ground and the green kept under foot. When only the grain that can be grown in the pens is available, this grows more readily in spring than later.

Important as weather, climate and green feed are, they are perhaps no more important than the disposition of the caretaker. It is easy to say, "Given proper weather and feed conditions, chicks should do as well in July as in March," the fact is they almost never do. If the chick is a little lacking in its enthusiasm for life in warm weather, the caretaker is more so. It is possible that a person who hatches his first brood of chicks in July might give it the same enthusiastic attention that he would give in March, but I doubt if any one who begins hatching in March or April and continues to July gives the last chicks the care the first receive. Somehow, we just peter out when the warm days come, and fortunate indeed are our chicks if they are old enough to be independent.

As I have already suggested, it may be necessary in order to have early chicks to use an incubator. The old hens have laid off in the fall and are not ready to sit. The pullets have their broody spells, but the first broodies are the pullets that have laid most steadily through the fall, and we should be foolish indeed to let them sit. The incubator does not as a rule give as large or vigorous chicks, but an incubator chick is better than no chick at all and these early hatches ought, if the parent stock is what is should be, to give some thrifty birds and a good per cent of early, well matured layers. An incubator of any good standard make, holding from 100 to 200 eggs, makes it possible to get out a hundred or more of these desirable early chicks. The first lot will have to be raised artificially, but there will very likely be broody hens that can be broken in to take care of the second lot, and if the machine is set a third time, hens can be set at the same time and all the chicks mothered by the hens. It is not necessary to have an incubator cellar, though this is of course desirable. A fairly tight barn or feed house, if it is only quiet and has a firm floor, does very well when only a few hatches are run off in a season, and an unoccupied room in the dwelling house is often satisfactory.

However we do it, whether we buy broodies from the neighbors or hatch with incubators or buy our chicks ready hatched, let us not fail to get them early. It is not quite so easy caring for them in wet weather as later, but the greater vigor and earlier maturity of the birds will repay any extra trouble. Possibly this greater vigor of the chick is due to greater vigor of the germ at the beginning of the season while the hens are still fresh from the rest of the molting period. Perhaps it is due to the weather. Whatever the cause, if we want fall layers we must hatch betimes and give every pullet her full time to mature before November.

HOW TO DRAW A CHICKEN

Following are the directions given by the poultry-dressing specialists of the department for drawing a chicken at home:

(1) Hold the chicken by the legs and run it quickly over the flame from a loosely-twisted lighted newspaper which, for safety, may be laid in a coal bucket or ash tray. This will remove the fine hairs. Remove any pin feathers with the aid of a sharp, small knife blade. The charred hair may be washed off later.

(2) Cut the legs off well below the knee joint. If the legs are cut above the knee the flesh on the drumstick will be pulled back from the end.

(3) Cut the head off, leaving as much of the neck as possible, then push the skin of the neck back and cut the neck off quite close to the body. The envelope of the remaining skin gives the dressed bird a neater appearance. The neck bones with the adherent meat make a valuable addition to the giblets. The gullet and windpipe are, of course, on the neck and must be pulled away.

(4) To remove the entrails, make an incision about two and one-half inches in length across the abdomen and as close to the vent as possible. In making this incision, be careful not to penetrate the intestine. Slip the fingers in first, and gradually insert the whole hand through the slit into the body cavity. Work the viscera loose from its attachments by sliding the fingers over the inner surface of the body walls. In this way, after a little practice, the viscera can be removed quickly and easily. The lungs will almost invariably tear, leaving shreds sticking to the back. These, and the kidneys of the chicken, which are two long, dark red bodies lying each side of the backbone and firmly fastened, should be removed in pieces. The rest of the viscera, including the crop which lies far front and just under the skin of the breast, when loosened will come out in a mass through the incision. The intestine is still attached to the bird at the vent. To separate it clearly, the tube should be picked up just as close to the vent as possible and its contents pushed well back from the vent. Then cut closely around the vent, holding the intestine tightly between the fingers to insure cleanliness. Run a stream of water through the slit into the body cavity in such wise that it flows out through the vent and cleans the short piece of intestine still remaining. Then cut both vent and intestine away, leaving a neat, round hole no larger than is necessary.

To prepare the giblets, detach the heart, gizzard, and liver, taking great care not to break the little green gall bladder attached to the liver, which contains a very bitter liquid which, if allowed to escape, will give a bitter flavor to the giblets and gravy. This gall bladder is so close to the liver that some liver tissue must be cut away to be on the safe side. The color of a healthy chicken liver may vary from yellow to dark red. To prepare the gizzard, hold it with the thin edge toward the palm of the hand and make an incision the whole length along the thick side, being careful merely to cut through the muscle, but not into the inner sack. Then open the gizzard as you would a pocketbook and remove the inner sac, which is full of gravel, if possible without breaking it.

Finally, wash the chicken and giblets in clean, cold water, but do not let the chicken soak in the water, because the finest flavors of the meat and much nutritive material are dissolved in the water.

Once the chicken is dressed and washed, put it at once in the coldest place available and keep it there until it is to be put on the fire. The best way is to dress it just in time to go into the stove.

Tells why chicks die

E. J. Reefer, the poultry expert of 405 Main St., Kansas City, Mo., is giving away free a valuable book entitled "White Diarrhoea and How to Cure It." This book contains scientific facts on white diarrhoea and tells how to prepare a simple home solution that cures this terrible disease over night and actually raises 98 per cent of every hatch. All poultry raisers should certainly write Mr. Reefer for one of these valuable FREE books.

QUICK RESULTS

We are sometimes a little slow to adapt ourselves to modern methods of doing things. The following is taken from a daily paper under a New York date line and shows how much swifter returns are secured in that poultry center than in California:

"Bill" figured that if an incubator hatched chickens out in twenty-one days, the some result could be had in one day if the heat was increased by 2100 per cent. So "Bill" set seven eggs in the incubator and twenty-four hours later a healthy looking chick was bursting out of its shell. "Bill" hastened to the barn to get some cornmeal.

On his return "Bill" found the chick had grown into a full-sized rooster, so "Bill" ran again to the barn to get some cracked corn. But when he returned the rooster was roasted to a turn.

Change is essential to mental, moral and physical health; even our spiritual natures derive benefit from hearing old truths in a new way occasionally. Going entirely away from one's daily associations and tasks now and then is the best cure for discontent and weariness.

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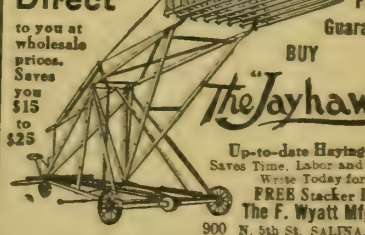

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Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Spavin

My horse, seven years old, has a jack spavin. Would you advise an operation? Would it be a success or could a local treatment be applied to any advantage?—Subscriber, Santa Cruz.

An operation by a veterinarian who knows his business would probably be best. A local application is of very little use unless it be something pretty strong.

Lameness

Have a large mare 13 years old that is at times very lame on both front feet and one hind foot. She seems sensitive to pressure on each foot just above the hoof where there is a small growth on the side. She is more lame sometimes than at others. Have blistered several times with caustic balsam which gave relief but has not overcome the lameness. What is the trouble? What is the cure?—Subscriber, Selma.

The lameness may be ringbone, sidebone or founder. Ringbone is the uniting of the two bones that form the joint just above the foot, causing a bony growth which may appear only at the sides or may extend all the way around the ankle. Sidebone is the hardening of the cartileges that are on the side and just above the heels but do not extend front farther than half way on the side. Founder is inflammation of the soft tissues just inside the hoof and in time will cause contraction of the hoof. In either of the three troubles there will be soreness on pressure just above the hoof and one must know the anatomy of the foot to be able to say which parts are affected. Letting the horse go barefoot for a time will probably help a great deal. Remove the shoes and pare the feet as you would to put on a shoe, only pare the heels more so the frogs will come to the ground. This may increase the lameness for a time. Blister above the hoofs, but not in the hollow at the heels, with an ointment made of cantharides, one ounce; biniodide of mercury, one ounce, and lard, eight ounces. Mix and rub it in well with the fingers and warm it in with a hot iron. Tie the horse so he can not reach it with the nose for 24 hours, then grease it with lard. Repeat the blister every two weeks until three or four blisters have been applied.

To Stop Horns Growing

We have a calf that we wish to raise and have been told there is a method of stopping the horns from growing by applying some acid but have forgotten the name. Will you kindly give us the name as we do not want later to have to dehorn it?—Subscriber, Oceanside.

To prevent the horns growing clip off the hair and wet a spot about the size of a dime, where the horns are about to start, with nitric acid or caustic potash. In handling these caustics be careful no to allow them to touch the hands or clothing.

Abscess

Holstein cow had a swelling appear on chin two months ago. Her nose ran for about ten days and she did not eat for a few days but soon began to chew her cud and appeared healthy. We rubbed swelling with a mixture of turpentine and oil and gave a dose of linseed oil for a cathartic. The lump moved upward to just below the right ear when we poulticed it and

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We Have Made a Specialty of Placentia Perfection Walnuts on native black root for a number of years, and are offering the finest trees we have ever grown this year. 80 per cent of our stock is eight feet and up. The scions used were taken from trees in our large orchard that have made a very high record for the past five years. Good Ancestry Pays. Nursery at Villa Park. Hugh T. Thomson, Orange, Cal., R. F. D. 1.

Walnut Trees—Late blight resisting varieties grafted and budded on California Black and on FIRST GENERATION Royal and Paradox Hybrid roots, which are as much superior to the California Black root, as the California Black Root is to the English root—Eureka, Franquette, Mayette, Neff's Prolific, Concord and Placentia. Dr. W. W. Fitzgerald, Elks' Building, Stockton, Cal.

Home-Grown Fruit Trees—Largest assortment, including thousands of Royal Apricots, Tuscan and Phillips' Cling Peaches, Pears, Apples, Figs, Grapes, etc., etc. Guaranteed true to name; strong, healthy and well rooted. Special low prices on application. Orange County Nursery & Land Co., Fullerton, Cal.

Cheap Reliable Trees—4,000 Phillips' Clings; also Tuscans, Fay Elbertas, French, and Imperial prunes, 10,000 Bartletts, 8,000 Gravensteins, Grafted Walnuts and other stock cheap. Write or wire for just what you want. Will save you money. Table Grove Nurseries, Healdsburg, Cal.

Walnut Trees—Eureka and El Monte varieties a specialty, also Franquette and Placentia. Write for prices and description of stock. Personal inspection invited. Eureka Walnut Nursery, Montebello, Cal.

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Buy Fruit Trees direct from the grower. Finest Apricots and Pears, 12½c, 10c and 8c. Apples, 5c; Oranges, 25c. Let me quote you on everything you need. Julius Mayr, Tree Grower, Hemet, Cal.

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Avocados—Select field grown trees of best Standard Varieties for home and orchard planting. Semitropic Nursery, Monrovia, Cal.

A Bargain in first-class Navel, Valencia and Lemon trees. All strong, healthy, vigorous stock. Get my prices before ordering. A. G. Wright, Fullerton, Cal.

For Sale—Eureka Walnut Trees, budded on Native Black Walnuts. Choice stock. Order immediately. Don't delay. Wm. Holve, Fullerton, Cal.

Grafted Walnut Trees on northern black root. Eurekas and Placentia Perfection. Also Satsuma Plum trees. J. M. Koller, Puente, Cal.

You Future Nurserymen—Write for prices on special stocks of plants to start business with. Ballou's Nursery, Pasadena, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

TREES

Lease Expires Next Spring—Must sell. Have left about 3200 Eureka lemons, three-quarters inch and up, buds selected from trees producing heavy crops of fancy fruits. 2500 Valencia Late ⅝ in. up, 3000 Marsh Seedless grapefruit ⅝ in. up. These are stocky and especially adapted for desert planting. Will sell with loose roots or balled. Prices very reasonable. Small amount down and time on balance, or part trade. Reduction for cash. All information cheerfully given. E. T. Vander Sluis, Glendora, Cal.

Grafted Walnut and Paper-Shell Pecans—Exclusive propagators of Tribble Mayette, Kerr Parisienne, and Improved Franquette. All walnut grafts taken from our bearing trees. Finest trees in the State. Eureka, Wiltz, San Jose Mayette, Concord and other varieties. Bartlett Pear on Blight Proof Root. Olives, fruit trees, etc. Reduced prices. New list ready. Tribble Nurseries, Elk Grove, Cal.

Bartlett Pear Trees—Ten thousand 4 to 6 ft.; clean, vigorous stock, $16.00 per 100. Five thousand Mayflower, Southern Beauty and Red Bird Peaches. The earliest, best and most profitable peaches grown. Ripens sixty days before Elberta. No overstocked fruit market when they ripen. Sure croppers. Write for information. 10 trees, $2.50; $17.50 per 100. W. D. Rose, Fullerton, Cal.

I am Offering All or Any Part of 20,000 choice 2-year-old Washington Navel and Late Valencia orange trees. These will compare with any in the state; buds are from the famous Mulholland grove at Montebello; 20c each in the ground; 30c each balled f.o.b. Montebello. George W. Lyons, Room 15, County Courthouse, Los Angeles.

AVOCADO TREES

The Avocado is the most valuable of all fruits and the most important future industry before the people of California today. Vigorous, field-grown, budded trees of standard frost-resistant variety; from four to seven feet high, $2.00 to $3.00, according to size. Write for literature. W. A. Spinks, Duarte, Cal.

Olives—Mission and Manzanillo. We will save money for you. Large stock, stocky, straight, well grown, thrifty and clean. Come in and see the finest trees in the land growing in the nursery. Get our prices. Kavan Nursery Co., San Bernardino, Cal.

Genuine Franquette Grafting Wood for Sale—Also Wilson's Wonder and Genuine Franquette Walnut Trees, grafted on California Black; splendid roots. Send for illustrated circular. F. C. Willson, Encinal Nurseries, Sunnyvale, Santa Clara Co., Cal.

Citrus Trees—Have fine lot of Marsh Seedless Grapefruit, Eureka, Villa Franca and Lisbon Lemon, Valencia and Washington navel trees. Prices right. Budded on sour stock with carefully selected buds. John Shingler, Uplands, Cal.

Mission Olive Trees—Will be two years old next March. To be absolutely sure of getting Missions I only propagate from my own trees, raised thirty years ago. Also cuttings from same trees for sale. W. A. Hayne, Box 461, Marysville, Cal.

High Class Citrus Trees—50,000 fine stock, three-quarters and up. Guaranteed absolutely clean, for sale or exchange for clear land, automobile or good farm team and wagon. McMillan-Graffen Nurseries, Spadra, Cal.

For Sale—Apple trees. 400 Winter Banana; 100 Yellow Newtown Pippin; 100 Rome Beauties; 100 Wagner. All guaranteed 2 yr. Oregon Stock at 12½c each, F. O. B. Los Angeles. R. Lewis, 631 S. Spring St., Los Angeles.

For Acacias, Avocados, Budded Loquats, Citrus trees, Evergreens, Feijoas, Palms, Roses and all kinds of trees, shrubs, vines, etc. Write for our new catalogue. Robertson Nurseries, Fullerton, Cal.

For Sale—Navel, Valencia and lemon trees, three-quarters inch and up, 20c loose root, 25c balled. Budded Avocados, 4 to 7 feet high. Address Box 54, Glendora, Cal.

For Sale—200 fine two-year-old Valencia Orange Trees. F. E. Petersen, care Southern California Music Co., 332 So. Broadway, Los Angeles, Cal.

Apricot and Olive Trees—Royal and Tilton Apricots. Mission, Ascolano, Chemlaly olives. Choice stock. Correspondence solicited. C. E. Moyer, Hemet, Cal.

For Sale—Fig trees my specialty. Several thousand good size and varieties left, price reduced, C. C. Terbush, San Gabriel, R. D. No. 2, Box 543.

For Sale—Seed-bed and nursery stock. Will trade for city, beach or Covina property. Phone 357 Azusa Ex., S. N. Benton.

Over $500 from one Avocado tree this year. Have trees for ten acres. Want partner with $4000.00. Dan Clower, Monrovia, Cal.

Before Planting Olives, Avocados, Feijoas, Rhubarb or Cactus, get my free booklet. Bishop's Nursery, Highland, Cal.

For Sale—Avocado Seed, home grown; also fine budded "Taft" Avocado trees. C. P. Taft, Orange, Cal.

2500 Grafted Walnut Trees—Still unsold. Whittier Nursery, 803 W. Philadelphia St., Whittier, Cal.

For Sale—The finest Valencia Trees in Tulare County. Threequarters up. C. H. Weed, 907 Mill St., Porterville, Cal.

For Sale—500 Lemon and 500 Valencia 2-year-old extra fine buds. Address L. M. Netzley, Azusa, Cal. Phone 551.

Royal and Tilton Apricots, 4 to 6 ft., $15.00 per 100, $135.00 per 1000. K. B. Utigaard, Hemet, Cal.

For Sale—Best variety Pomegranate trees known. As profitable as oranges or olives. J. W. Irwin, Lindsay, Cal.

POULTRY

Macfarland Strain White Leghorn eggs $5 per 100, chicks, Jan., Feb., $12, afterward $10, order now, any quantity. Cockerels $2. White Rock eggs, chicks, cockerels; write for prices. Big plant, best stock, lowest prices. Newton Poultry Farm, Dept. 3, Los Gatos, Cal. N. B.—See article about us by Prof. Adams, U. C., in October Poultrycraft.

Baby Chicks—White Leghorns (MacFarland strain), $9.50 per 100; $90.00 per 1000. Barred Rocks and Rhode Island Reds, $12.00 per 100. Now booking orders for present and future delivery; 50 per cent cash with order, balance before shipping. Guaranteed strong, healthy chicks. Correspondence solicited. Address Frank Miller Co., 7217 Beach St., Los Angeles, Cal.

At Five California Shows I won 112 firsts, 55 seconds, four times best bird in show and many specials. Utility and show stock. Eggs and chicks of Black, Buff and White Orpingtons, Rose and S. C. Reds, White and Blue Leghorns, Silver Campines, Anconas, Salmon Faverolles, Polish and Cornish Games. Free mating list. Holman Poultry Farm, Stockton, Cal.

S. C. White Leghorn Baby Chicks—From my pure-bred flocks S. C. White Leghorns, carefully selected for laying and Standard qualities, $9.00 per 100, $85.00 per 1000. A first class chick at a reasonable price. Eggs for hatching, $5.00 per 100, $45.00 per 1000. Correspondence solicited. J. R. Heinrich Poultry Yards. Arroyo Grande, Cal.

White Plymouth Rock Incubator Chicks—Also White, Brown and Buff Leghorn and Black Minorca, all from Standard bred Exhibition Stock, and Hoganized. Place your orders now for April delivery. Send for Booklet of prices. Mahajo Farm, P. O. Box 597, Sacramento, Cal. Hatchings from mature stock only—22,000 Incubator capacity.

All the Rhode Island Red baby chicks and hatching eggs you want. Best all-round chicken there is; good winter layers and the only kind for broilers; special rates by the 1000; order now at the only exclusive Rhode Island Red Hatchery, 2162 48th Ave., Oakland, Cal. Phone Fruitvale 1666W.

Richey's New Zealand Red Rabbits—1st at L. A. Show. Barred Rock eggs for hatching $1.50, 15; special cockerel mated, $2.50.

Roselle, the famous jelly plant—equals red currant—annual; 10c per packet. Sow in April. Mrs. C. A. Richey, Route 8, Box 557, Los Angeles, Cal.

Poultry Wanted — We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. National Poultry Co., successors to Allaway & Layton Co., 607 E. Third St., Los Angeles, Cal.

Try Us for first-class chicks. Eggs for hatching. Eight breeds. We ship chicks C. O. D. when 50 per cent deposit accompanies order. We guarantee safe arrival any distance within 72 hrs. Our prices are right. The Hawkeye Hatchery, Turlock, Cal.

Hatching Eggs $5.00 per 100. Baby chicks 10 to 15 cents; White Leghorns (MacFarlane strain), Buff Leghorns and Rhode Islands; all prize winning stock and heavy layers. H. E. Thomas, Box 93, Palms, Cal.

Baby Chicks — Eggs for hatching, pure bred. Booking orders for February and later hatches. R. I. Reds, Buff and White Leghorns, Black and White Minorcas, White Wyandottes. Gem City Yards, Los Gatos, Cal.

S. C. White Leghorns—McFarland 228-egg strain. Bred for years from the best layers and bred to lay large eggs on range. Eggs $4.00 per 100. Plenty of Cocks $5.00 each. S. H. Johnson, Glenwood Ranch, Wasco, Cal.

Rhode Island Reds and S. C. W. Leghorns; greatest laying strains in California. Baby chicks: Reds, $15.00 per hundred; Leghorns, $12.50. Rainescourt Poultry Ranch, Zelza, Cal.

S. C. White Leghorn Baby Chicks and Hatching Eggs that are Top Notch. Write for particulars. Prices reasonable. Ten years in business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

Petaluma Hatchery—The one that's different. We challenge the hen, or anybody else. Don't compare prices, compare quality. Circular free. L. W. Clark, Petaluma, Cal.

Baby Chicks—If looking for the best—get Golden Buff Leghorns or White Minorcas. Sandridge Hatchery, Kerman, Cal.

Official Strain White Rock Roosters for breeding. Eggs for setting. Phone Vermont 4348. Address Yates, Route 4, Los Angeles.

Wilkie Collins R. I. Reds—Hatching eggs, $6.00 per 100; $2.00 for 15. Cockerels, $3.00 and up. A few hens at $2.00 each. R.D. No. 1, Anaheim, Cal.

Hatching Eggs a Specialty—Selected S. C. White Leghorns. Reduced prices March and April. $5.00 per 100; $45.00 per 1000. Pine Tree Poultry Farm, Los Gatos, Cal.

Barred Rock Cockerels—(Hawkins Royal Blue Strain) ready for mating, also Barred Rock, R. I. Red, Buff and White Orpington day-old chicks every week. Enoch Crews, Santa Cruz, Cal.

Baby Chicks (White Leghorns)—Shipped on approval. Examine at your home before remitting. No weak ones charged for. Schellville Hatchery, Sonoma, Cal.

Barred Plymouth Rocks—Winners at New York, Kansas and California shows. Eggs and choice stock for sale. C. H. Vodden, Los Gatos, Cal.

For Sale—A few fine Ancona and White Rock Cockerels. A special bargain at $2.00 each. Fine strains and good individuals. A. E. Nelson, El Monte, Cal.

POULTRY

Just Out—The Cultivator Poultry Book. "Poultry for Profit," by Jean A. Koethen. Published by the Cultivator Publishing Co. Highly endorsed by experts. Over 200 pages, 50 illustrations. Contains simple methods of avoiding and overcoming difficulties. A guide to poultry success under Western conditions—it tells what to do, why to do it, and how to do it. Nicely bound in cloth. Price $1.00 postpaid, or with Cultivator one year, $1.75. Send orders to Cultivator Publishing Co., 115-117 North Broadway, Los Angeles, Cal.

Make Money with our superb White Orpingtons; best breed for every need. Lay most when prices highest; make finest eating. 1000 grand range-raised birds, trapnested and bred for heavy laying. Eggs, chicks, stock. Send for circular. Whitten Ranch, R. 5, Box 646, Los Angeles.

White and Brown Leghorns — Day-old chicks from healthy vigorous breeders. "Chicks well hatched are half raised." We will be pleased to send you circular and prices. San Jose Hatchery, 371 Meridian Road, San Jose, Cal.

Poultry—Rhode Island Red Chicks $15.00 per 100. Settings, thousands, from our 1800 heavy layers. Hatched right in our $60,000 Hatchery. Hatching Eggs. Pebbleside Poultry Farm & Hatchery, Sunnyvale, Cal.

Ancona Eggs—Select stock, $1.50 per 15, $7 per 100. Baby chicks, 15c each. Mammoth Pekin Duck Eggs, $1 per 12, $6 per 100. Baby ducks, 20c each, $17.50 per 100. J. P. Clough, 3980 Peralta Ave., Fruitvale, Cal.

Day-Old Chicks—From healthy, vigorous, heavy-laying, free range stock of S. C. White Leghorns. Price, $7.00 per hundred. H. P. Hansen, R. 4, Box 177, Petaluma, Cal.

White Rock Cockerels for Sale—$2.00 to $15.00. Took first prize on cock and second on cockerel at Riverside Show. White Rock and White Leghorn chicks on order. C. J. Scidmore, Rialto, Cal.

Goodacre Blue Ribbon Strains of heavy layers. Get our new 1915 catalogue and mating list; the price of our eggs is most reasonable. Goodacre Bros., Compton, Cal.

Trapnested White and Buff Leghorns, records 120-279 eggs per year. Eggs, chicks, stock. Arthur R. Schroeder, R. 18, Box 179-D, Mountain View, Cal.

Pit Games—A few choice specimens for sale. Write for prices. Delivered your station. O. L. Crane, R. D. 3, Santa Rosa, Cal.

Petaluma and American Brooder Stoves with new and exclusive features. Write for free catalogue. American Brooder Stove Company, Oakland, Cal.

White Wyandottes—White Rocks, Cockerels, $2.50; eggs, $2-15; $7-100. Ramona Farm, Box 1361, R.D., Sacramento, Cal.

Setting Eggs—Fine White Leghorns, Rhode Island Reds, Barred Rocks, Ducks and Turkeys. Black Bros., 455 Lucas, Los Angeles.

Hatching Eggs—Hoganized S. C. White Leghorns four dollars per hundred. Thirty-five per thousand. D. Clayton, R. D. 2, Modesto, Cal.

Barred Rocks—Only a few fine breeding cockerels for $3.00 each. G. L. Hawley, Madera, Cal.

Eggs for Hatching. R. I. Red $1.50 setting, 15 eggs. Free range. J. F. Mason, Route 1, Box 112, Watsonville, Cal.

White Orpington Hatching Eggs—$2.00 per 15, Yearling cocks $3 to $5, at Becker's, 1435 Hopkins St., Berkeley, Cal.

LIVE STOCK

Ohio Improved Chester White (O. I. C.)—Entire herd immunized against hog cholera. Nothing but immunized stock sent out. Extra fine lot of fall pigs, both sexes, ready for shipment during February and March. Three herd boars used. All stock crated and registered. Make reservations now. C. B. Cunningham, Mills, Sacramento Co., Cal.

Blue Ribbon Herd Duroc-Jersey Hogs—Bred Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 firsts, 13 seconds, 6 thirds, 7 fourths, 1 fifth. Will show 1915. For prices, write Jno. P. Daggs, Modesto, Cal.

Grape Wild Farm Thoroughbreds—Guernsey Bulls of A. R. Breeding. BERKSHIRE HOGS. Finest herd in the state All ages for sale. A. B. Humphrey, proprietor. Mayhews, Sacramento Co., California.

For Sale—A few choice ½ and ¾ grade Toggenburg kids, 10 and 12 months old. First cross by "Prince Bismarck," imp., and second cross by Crown Prince of the Sceni, imported. Address J. T. Gordon, Jr., Azusa, Cal.

For Sale—Registered, Berkshires:. 25 choice pigs of best breeding from the best strains in America. For prices and description address H. L. Murphy, Perkins, Sacramento Co., Cal.

You Can Buy a beautiful hornless, three-months Anglo-Nubian Buck for $60.00. Swiss grade does fresh and due soon to kid by Anglo-Nubian Buck. R. M. Cartwright, Foster, Cal.

For Sale—Young registered Berkshire boars and sows; fine, strong stock. Boars ready for service. Stanislaus Ranch Co., Crows Landing, California.

For Sale—Thoroughbred Duroc Jersey boars and sows. Strong and vigorous stock. Fred Hart, Exeter.

One Holstein Bull—Born January 10, 1915, $25. Riccomi Bros., Mountain View, Cal.

Glenview Poland Chins—Stock for sale. Chas. R. Hanna, R. F. D. No. 3, Riverside, Cal.

For Sale—Full-blooded, French Percheron stallion. L. E. Stockton, Ramona, Cal.

M. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale.

RABBITS

Caldwell's Royal Red New Zealands scored and sold on merit. Catalog free. Caldwell Bros., Box 613R, Los Angeles.

DOGS

Registered Airedales—Young and grown stock, hunting or show type. $20.00 and up. Tunitas Kennels, 959 Phelan Bldg., San Francisco, Cal.

WANTED

Poultryman of many years' experience desires situation as manager or assistant on large ranch. Very successful with large egg production. Understands all branches of poultry business. Temperate habits. I can make good with poultry. Good references. Box H, Cultivator Office.

Wanted—To correspond with owners who have ferrets for sale, and who can demonstrate their utility in catching Gophers and Ground Squirrels. J. E. Law, Hollywood, Cal.

Wanted—To hear from owners of good fruit ranch or irrigated land well adapted for fruit ranch. Send price, terms, legal description. O. O. Mattson, 923 Andrus Bldg., Minneapolis, Minn., Dept. D.

For Sale—One thousand fine stocky San Jose Mayette Walnut trees, four to eight feet. Price reasonable. Address Chas. Story, Rivera, Cal.

Wanted—To hear from owner of good farm or unimproved land for sale. C. C. Buckingham, Houston, Texas.

Wanted—A few pure Duroc Jersey pigs, bred or ready to breed. State price crated. W. R. Faries, Coachella, Cal.

MACHINERY

USED WINDMILLS, TANKS, PUMPS, ENGINES, RANCH MACHINERY.
WHY BUY NEW? SAVE HALF.
MATERIAL GUARANTEED.
TRADE WHAT YOU DON'T WANT WITH A LITTLE CASH FOR WHAT YOU NEED.
NEW AND USED TANKS.

New 1000-gal., galv., $19.50; 2000, $29.50. 2000, redwood, $25.00; 15,000, $65; 25,000, $85.

ENGINES, PUMPS, BOILERS.

Two boilers, 80 and 100 h. p. Boilers, Engine, Compressor, Complete Plant, nearly brand new, 30 per cent original cost. Sold account closing estate.

Smith Valle engine 14x18; Compressor 12x18. Boilers used less than one year. Fine for mine, sawmill, pumping. Be quick. This must be sold; all or any part; sacrifice for cash.

RANCH MACHINERY.

Champion Binder, $75; Header, $95; 3-Gang Disc, $35; 15-in. Mouldboard Riding, $35, nearly new; 6-Gang Tractor Disc, $140, cost $270; Holt 60-h. p. Tractor, cost $4000, $750; Knox Road Tractor and Trailer, 10 tons, cost $6000, for $2000; new Southwick Power Baler; Whitman Empress Baler; 4 Mowers; Mounted Hand Sprayer, tank and pump, $12; harrows, potato and beet machinery. Fan Mill, Corn Sheller, Power Ensilage Chopper; small ranch tools. Absolutely cheapest serviceable material can be produced for. Pioneers in our line. DEMMITT Co., UP-STAIRS. 120 N. Main, Los Angeles.

Gas engines, centrifugal and deep well pumps, motors, and everything pertaining to irrigation, for sale and exchange. If you want a complete plant or any part write us; we are experts in irrigation; advice and estimates cheerfully given. Will buy, sell or exchange. Reliable and responsible, everything guaranteed as represented. Machinery & Motor Exchange, Inc., 733-735 San Fernando St., Los Angeles. Main 6382. F-3483.

For Sale—Used and new gas engines, 2 H.P. up, rebuilt and fitted with modern equipment. 22 years' experience enables us to repair and rebuild gas engines correctly. Get our prices. Lloyd, 306 N. Main, Los Angeles.

MISCELLANEOUS

Free for Six Months—My special offer to introduce my magazine "INVESTING FOR PROFIT." It is worth $10 a copy to anyone who has been getting poorer while the rich, richer. It demonstrates the REAL earning power of money, and shows how anyone, no matter how poor, CAN acquire riches. INVESTING FOR PROFIT is the only progressive financial journal published. It shows how $100 grows to $2200. Write NOW and I'll send it six months free. H. L. Barber, 430, 28 W. Jackson Blvd., Chicago.

Ranchers—Now is the time to act. Get ready for this season canning up your entire crop of fruit and vegetables, getting from two or three times more cash for your entire crop and save it all by using one of our machines. We have the experience and trade on the canned goods. Write or call and see us for full particulars. Demonstrating plant, 223 E. 9th St., Los Angeles. Canners' Supply & Brokerage Co.

OPPORTUNITY FOR DAIRYMAN

Wanted to lease—$75 a month to a Dairyman having cows, a fully equipped stone, dairy building, with large dairy barn, 40 acres of wet pasture and a good residence. Plant located at Victorville, Cal., where there is no dairy and where 1000 pounds of butter are used monthly. For further particulars apply Rancho Verde Co., Victorville, Cal.

For Lease at Floral Park, Ventura, California, eight acres of land and lath house, 100 by 200 ft. Rent $150.00 per year. M. J. Callahan, 1808 Jones St., St. Joseph, Mo.

"Smith's Pay the Freight"—To reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St., San Francisco.

Indian Corn Silage—200 tons for sale. Heavily eared corn. Box 24, Butte City, Cal.

TURKEYS

Mammoth White Holland Turkeys—A few fine toms for sale. Also eggs in season from two very select pens. Orders given prompt attention. Prices on application. Address H. McKusick, Box 733, Calexico, Imperial County, Cal.

For Sale—Bourbon Red turkeys and eggs for hatching. My birds won all the honors in the Alameda County Poultry Exhibition in Oakland, 1914. A. E. Balmer, Alhambra Valley, Martinez, Cal.

Mammoth Bronze Turkeys. Largest and best flock in the world. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

BEES

Beekeeping Pays Big—Price list, bees, instruction books, etc., free. Spencer Apiaries Co., Box 14, Nordhoff, Cal.

HORTICULTURAL PRINTING

Catalogues for the seed and nursery trade. The live stock and poultry industries are a specialty with us. Two thousand illustrations to select from. Write for prices and samples. The Kruckeberg Press, 237 Franklin St., Los Angeles.

SEEDS AND PLANTS

New Varieties of berries originated by Alfred Mitting, New Dewberry White Fawn, the berry is white, large, fine, sweet flavor, $1.00 each. New blackberry Black Prince, a prolific bearer, berry 1½ inches long, quite tart, fine shipper, $1.00 each. New strawberry Santa Cruz, a rich, large, berry, dark red inside and out, fine flavor and shipper, 6 for $1.00. Send orders to Santa Cruz Bulb & Plant Co., 8 New St., Santa Cruz, Cal.

For Sale — Non-irrigated, San Fernando Valley Grown Seeds. Black Seeded Chilean and Angeleno Melon, 80c per lb.; Improved Hybrid, Golden Beauty and Pineapple Casaba, $1.50 per lb. First class seeds direct from the grower. M. C. Sutton, Van Nuys, Cal.

For Sale—11 sacks of Tepary Seed Beans. This is the new bean advertised to stand hot climates. Eight cents pound in 100-pound lots. N. C. Johnson, Chatsworth, Cal.

For Sale—2500 Pierce Isabella rooted grape cuttings, commonly known as California Concords. Fine hardy plants. Address, Barbour Ranch, San Gabriel, Cal.

Berry Plants, Rhubarb, Cacti—It will be worth your while to send me a postal right now if you are interested. Louis F. Scribner, R. 2, Pasadena, Cal.

Rhubarb—Crimson Winter, $3.00 per hundred; Wagner's Giant, $5.00 per hundred. Good, strong, one-year plants. Currier Bulb Co., Seabright, Cal.

For Quick Tropical Effect plant giant bronze canna bulbs, 50c doz., postpaid. Maderia vine bulbs same price. Mrs. E. A. Bennett, Ducor, Tulare, Cal.

Feterita Corn Seed—The corn that puts the Du in Duroc, the Po in Poland, the Ber in Berkshire Hogs. For sale by John P. Daggs, Modesto, Cal.

Sudan Grass—The wonderful new forage for dry soils. Buy your seed now from the California distributors, Black Bros., 455 Lucas Ave., Los Angeles, Cal.

Alfalfa Seed—Pure and fine, $12.00 per hundred by the sack. Enquire of H. S. Garrison, grower, Murrietta, Cal.

Attention Dairymen—Plant Sorghum for green feed or ensilage. Seed for sale in lots to suit. A. L. Sayre, Madera, Cal.

For Sale—Sour orange seed, 75c per quart prepaid, by mail, or $15.00 per bu. F. O. B. J. M. Chaffee, Enterprise, Fla.

Rice Seed for Sale—Free of grass or other seeds. Write Jesse Peter, Pond, Kern County, Cal.

FARM LANDS FOR SALE

For Sale—400 acres near Orosi, Tulare County. I offer tracts of 20 acres or more. If you will make improvements I will give you possession without paying one cent down on the land, and you need pay me nothing for three years, except the interest and taxes. The soil is especially adapted to the growing of figs, olives, peaches, plums, grapes, oranges and many other crops which are in full bearing on all sides of this 400 acres. Price, $150.00 an acre. First payment 1918, balance in annual installments. Investigate now. Planting time soon here. W. C. McKee, 546 Title Insurance Bldg., Los Angeles.

VICTORIA, AUSTRALIA, WANTS SETTLERS

Special inducements; government land, railways, free schools; cheap irrigation; 31 years to pay for farms adapted to alfalfa, corn, grains, fruit, etc.; climate like California; ample markets; reduced passages; special excursion being arranged. Free particulars from F. T. A. Fricke, Government Representative from Victoria, 687 Market St., San Francisco, Cal., Box X.

Apricot Land Bargain—300 acres ideal apricot land near Watsonville in tracts of 20 acres or more, at $100 per acre; easy terms; adjoining lands in full bearing orchards have netted annually $200 an acre for past six years. Get full particulars from Farm & Forest Realty Co., Watsonville, Cal.

C. M. Wooster Co.—25-year experts in land and mortgages; investers will save money and avoid errors by consulting them; land in all counties. 303 Phelan Bldg., San Francisco.

For Sale—10 acre Walnut Ranch close to El Monte. Modern 6-room house. Pumping plant furnishing 100 inches of water. Write for terms and description to owner. R., 1802 Bush St., Santa Ana, Cal.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

For Sale—Orange, olive, peach and rice land. Close in, on good terms. Fred Hart, Exeter.

SCHOOLS AND COLLEGES

Telegraphy — Stenography, bookkeeping, English branches. Positions guaranteed. Mackay Business College, Los Angeles.

GARDEN BOOKS

A few hints on gardening is the title of the latest garden book. Perhaps it should hardly be classed as a book for it is the catalog of seeds, bulbs, plants, etc., of the Morris & Snow Seed Company, Los Angeles, but it contains such a fund of information regarding seeds, bulbs, plants and garden tools that it is very valuable. Much information is given regarding calendar of planting operations, amount of seed per acre, number of plants per acre and cultural instructions covering almost everything in the garden. If the Cultivator is mentioned it may be had on post card request to Morris & Snow, 439 South Main Street, Los Angeles.

MAKING GOLD

George C. Roeding of Fresno is mailing a recipe for making gold. It would have but little interest for the miner, however, for he only brings into use what he finds. This is a for sure "method of making" gold, but it will have interest only for the orchardist, the vineyardist or farmer who has the faculty of growing the gold from a mixture of good soil and a scientifically prepared fertilizer. Those interested along this line might well secure the book from Mr. Roeding.

it opened in two places. The cores were removed with slight pressure. The cow is fresh now about two weeks and the sore does not want to heal. The cow is in a healthy condition and gives plenty of rich milk. We have been feeding hay that has some foxtail in it. Can you tell us what to do for her?—Subscriber, Oceanside.

The trouble may be due to the foxtail working through from the mouth. The tract that they follow probably runs down from the opening. Someone who understands such work should pass a probe into the opening and trace the course to the lowest point and cut an opening there. Then by injecting warm water with a few drops of carbolic acid in it into the upper opening and allowing it to escape by the lower one the wound should soon heal.

Pig's Legs Helpless

I have pigs which seem to be entirely helpless in their hind legs. They crawl around using their fore legs and dragging the remainder of the body. What is the trouble and how may it be cured or prevented?—Subscriber, Tulare.

Get the following from your druggist: Tincture of nux vomica, two ounces; tincture of juniper, four ounces; salicylate of soda, half an ounce; acetate of potash, one ounce, and enough water to make one pint. Mix and give from a teaspoon to a tablespoon, according to the size of the pigs, in the feed twice a day.

Strong Butter

We have a Jersey cow and the butter from her cream gets strong in two or three days after churning. Am feeding her two quarts bran and one quart corn meal twice a day with an armful of green barley morning and evening and nice alfalfa hay at noon. Do you think the green barley would cause the butter to become strong or what would cause it?—Subscriber, Arlington.

There are so many details that must be carefully followed in making first-class butter that it is hard to say where the trouble is. First be sure that everything used in connection with the milking or handling the milk be thoroughly scalded with boiling water, also that the cloths used in washing the buckets, etc., be scalded. It might also help to give the cow the following powders: Powdered gentian, six ounces; powdered nux vomica, three ounces; bicarbonate of soda, eight ounces, and epsom salts three pounds. Mix and give a handful in the feed twice a day.

Horses Eating Wood

We have a team of horses, eight and nine years old, that persist in eating wood. We have to line everything about the stalls with strap iron. They are in fine condition and have plenty of life. They have been that way for five years. We feed good oat hay with a change to alfalfa two or three times a week and rolled barley when at work.—Subscriber, Azusa.

There was probably some good reason for the trouble at first but by continuing so long it has become a habit. Have a veterinarian examine the teeth and put them in good order; also push the gums back on the inside of the front teeth. Cutting the gums is not necessary. Then after each meal put on a muzzle or tie them so they can not reach anything. Medicine would be of little use in this case.

Blood Wart

Have a mare with a blood wart on the udder near one of the teats. It has increased somewhat in size in about six months since I have owned her, and is now larger than an English walnut. It seems either to have been hurt or more likely to have run a little, although it is not running now. What caustic is best to apply if it is not removed by cutting it off?—Subscriber, Beaumont.

The trouble may have been caused by a snag and a small splinter or something may still be in the lump. Get some nitric acid and put it on a spot, in the middle of the lump, about the size of a nickel. When the scab comes off, if pus follows there is something inside, but if it only leaves a red spot it is a wart and you may need to repeat the application of the acid.

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Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Frozen Back Nursery Stock

I own large tract in Fresno County for which I had planned an orchard of orange trees to be set two years ago. Natural conditions are all right but the nursery in which the trees were was badly frozen in the 1913 freeze. I had already bought a large number of trees and had paid for them. They were frozen back below the bud and since that time have been rebudded and are now ready for planting. Is it wise to plant them or should I get new trees that have not passed through such a cold spell, especially in consideration of the lower price at which trees may now be bought?—Subscriber, Cleveland, O.

We answered the subscriber by mail in effect that if the nurseryman understood his business and used precaution to secure buds of highest value perhaps the trees would still be worth the planting. However, a personal inspection of the trees would be necessary before any positive information could be given. The matter was referred to Dr. J. Eliot Coit and he answers:

"It is truly unfortunate to be caught on a falling market with 2200 orange trees which have all been paid for. The question as to whether it would be better to abandon the trees and buy new ones is difficult to answer without examining the trees in question. It would depend also, to some extent, on the quality represented in the 2200 trees. Does the inquirer know anything about the buds from which these trees were propagated? These days planters usually insist on knowing something of the source of bud wood in order to insure the productivity of orchards. If this knowledge is not at hand and the roots are very large and clumsy perhaps it would be a good plan to secure new trees. If, on the other hand, the buds were carefully selected from profitable trees and the roots are not too large the trees might be used to advantage. I rather imagine that if I were able to examine the trees I would pick out from the lot a certain proportion which, in my judgment, were good enough to use and then buy enough to fill out the number, discarding some of the worst ones."

Almonds on Dry Hillsides

I have upland ranch in section where the rainfall averages 10½ inches. It is some six miles southeast of Riverside. The soil is red disintegrated granite, at an elevation of 1500 feet. It is almost frostless, which is proved by the fact that there are now tomato vines on the place over three winters old. Would like to know regarding the planting of almonds on this land. There is little water for irrigation.

The inquirer can raise almonds on soil eight feet deep and also on the three-foot soil, provided he can get through it by blasting and expose open soil below. I, at one time, made soundings south of Perris on rolling soil with a rotten granite subsoil, but there was a solid granite just beneath the decomposed layer. The decomposed portion was simply the shell overlying the genuine foundation rock. Trees on that will fail unless irrigated frequently. I think the inquirer's land is just about the same as the rocky stretch which lies along toward Boxwood canyon, which would take in his place. A little farther east would take him into the hardpan country, which is good, as the hardpan is thin, with plenty of water below.—J. W. M.

Planting Near Large Trees

What may I plant in a small plot shaded by cottonwood trees? The plot lies along the north side of the row of cottonwoods. What fruit or vegetables or shrubbery may I grow there which will do well in shade and where the moisture is not especially liberal? —Subscriber, Artesia.

This was referred to Mr. D. F. Reichard, who answers:

I am afraid your inquirers are up against a hard proposition when they want to get something to grow on the north side of a row of trees such as cottonwoods, as the roots are so near the surface that they sap all the nourishment from the ground for several feet around. The only way they could get anything to grow outside of some short rooted grass would be to fill in with a foot or so of good soil and in this way grow a crop for possibly one year. By the end of that time the roots of the trees would be all over this new soil, robbing it of what nourishment there was in it. Shady lawn grass would be the only thing we could recommend for planting on the first 10 or 15 feet on the north side of the trees. Farther out the roots of the trees would not be so bad and there would be more sun. From that distance out deciduous fruit trees would live, or by taking care one could grow vegetables and flowers of suitable varieties. We have heard of people raising a very good garden close to cottonwoods where they had plenty of water.

Feed for Dairy Cows

I am feeding alfalfa hay and ensilage, bran at $35 and cotton seed meal at $34 per ton. What would be the cheapest feed for dairy cows and how much?—Subscriber, Gardena.

Although you have a well balanced ration with corn silage and alfalfa, as far as the carbohydrate and protein are concerned, if you have heavily producing cows it will pay to feed concentrates in addition. As far as the value of protein is concerned, the oil meal will furnish it at a less cost than bran at prices you quote. We would suggest that some rolled barley be added to the cottonseed. How much grain to feed must be determined by the use the cow makes of the feed, and the added gain she returns for it. The feeder must be the judge of this. You may find that there will be cows well along in the lactation period that will give as good results, as far as milk flow and condition are concerned, without grain in addition to alfalfa and corn silage as with it. Other heavy producers will pay well for several pounds of grain per day. Cottonseed meal contains 34 per cent of digestible protein, wheat bran 12.5 per cent. The protein in cottonseed meal at the prices quoted would cost about four and one-half cents per

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pound, in bran about 13 cents.—W. S. G.

Land Open to Entry

In the issue of the California Cultivator of January 21 I notice announcement that on February 15 there will be 60 sections of land in the Kern national forest opened for settlement. Could you tell me where this land is situated or to whom I should write to make inquiries regarding it?—Subscriber, Corona.

Apply at the United States land office at Visalia, California.

Hampshire Hogs

Would you please tell me the name of the hogs that are black with a white band around them? Where can purebreds of this stock be bought?—Subscriber, Maple Creek.

These are the Hampshire, sometimes good naturedly called "Dutch Belted" swine.

Pine Needle Mulch

We are repeatedly asked as to the value, or otherwise, of pine needles as a mulch. Many have seen lawns under pine trees die out and have wondered if there was anything of a poisonous nature in the needles. The question was submitted to Prof. Charles B. Lipman of the state university and he answers:

"Pine needles may be used to very good advantage as a summer mulch in carrying out the recommendation which I have been making for the last two years, to cover the soil after the middle of May or the first of June with straw, manure or similar covering, and to do away with cultivation for the rest of the summer. I should cover the soil at least one inch thick with the pine needle material, if I were using that, doing it about the first of June, or a little earlier, and then stopping all tillage or interference with the soil in any way, except for irrigation purposes, in which case the pine needles may be moved aside for making the temporary furrows. At the end of the summer, or just before the fall rains, I should advise removing the pine needles, that still remain in a dry condition, to the barnyard and mixing them there with manure for a period of three or four weeks at least, so as to insure their decay. Then they can be used like any other composted material or manure material in midwinter or early spring."

Dattier de Beyrouth

In answering a query as to value of the Dattier de Beyrouth grape, Prof. F. T. Bioletti writes:

From what little I know of the Dattier de Beyrouth grape it appears to be very promising, but as it is a new grape and has been insufficiently tested, I could not advise any one to plant it on a commercial scale. The grape, where it succeeds, is large and of somewhat better flavor than the Malaga, earlier and appears to have good shipping qualities, though this is as yet undetermined. It would certainly ship well to local markets, but how well it would ship East I do not know. Its main defect appears to be its tendency to form shot grapes or very loose bunches. I think it would be a mistake to plant any grapes in a young almond orchard. The almonds will come into bearing almost as soon as the grapes and it is not good practice, as a rule, to grow two fruits on the same land. What one obtains the other misses. If inquirer wishes to grow both almonds and grapes I should advise him to plant them in separate blocks.

Powers of the Governor

Please answer in the Cultivator as to whether Governor Johnson has extended time for suppressing nuisances

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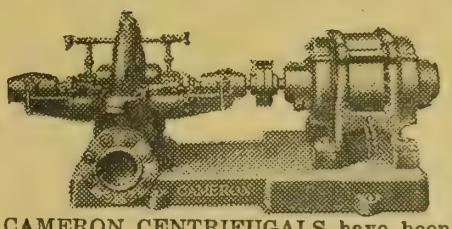

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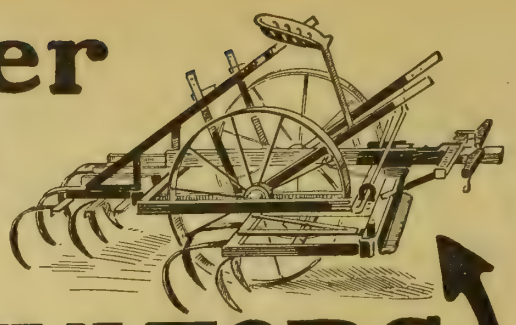

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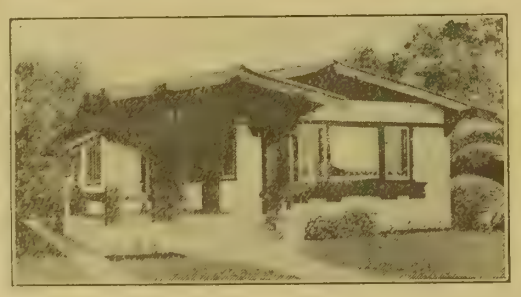

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For home use or for market. Do you know that you can start

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of all kinds in these pots in flats until they have three and four leaves then plant pot and all, have melons two to three weeks earlier for market.

Write for samples and prices of both Pots and Protectors. State which you are interested in.

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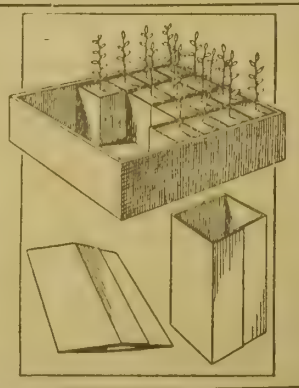

in the city of San Francisco. I refer to enforcement of constitutional amendment passed at the recent election. If he has done so does he have power for such action?—Subscriber, Parlier.

We have heard of no such extension of time and the governor has absolutely no power in the matter. The only power which could revoke the action taken at the last election sustaining the state legislature in the referendum is the people and they must reverse their own action.

Casaba Melons

Please inform me where we get the casaba melon? Is it an original species or a cross derivative?—Subscriber, Kansas City.

The casaba melon is a native of Persia. It has been developed in California as in no other section. Some of the finest hybrids have been sent out by seedsmen of this state. There have been some new introductions direct from Persia during the past year which are said to promise exceptionally well.

Plowing

In plowing with one horse please tell me whether the horse walks on the land or in the furrow?—Subscriber, Crows Landing.

If the one-horse plow is used in orchard work and it is desired to throw the dirt toward the tree the horse would walk on the unplowed land. If desired to throw the dirt away from the tree the horse would walk in the furrow. The draft of the plow is controlled by swinging the clevis to one side, sometimes having a three or four-inch block to hold the clevis away from the beam so as to give direct draft.

Measuring Hay

How many tons of hay in a stack 200 feet long, 27 feet three inches wide and 39½ feet over?—Subscriber, Brawley.

There are many questions to be considered in estimating the weight of hay in a stack or mow; the kind of hay, the length of time in stack, and the condition it was in when cut. Hay fully ripened will usually lie up looser than that which is cut while young and while the stems are soft. Loosely thrown up straw soon after stacking has been found to run nearly 1000 cubic feet per ton while with alfalfa or the heavier hay it has been found that a cube seven feet square, or 343 cubic feet, is sufficient to make a ton, therefore with this immense variation only those knowing the general condition can answer definitely. For alfalfa which has been stacked 30 days we presume 512 cubic feet per ton, which means a cube eight by eight by eight, would be fair. On this basis the stack referred to would contain 108 or, more correctly, nearly 109 tons. If it has been stacked a year and has the above dimensions perhaps a seven and a half foot cube or a total of 422 cubic feet per ton would be fairer. The rule used to determine the weight of hay in a stack where the dimensions are as given by the inquirer is as follows: After throwing the line over and determining the distance from the ground on one side to the ground on the other side add that to the width of the stack. In this case it gives 66¾ feet. Divide this by four, which gives a quotient of 16 11-16. Square this quotient and divide the product by the number of cubic feet allowed for each ton. This matter of determining what is a fair basis can only be had by one who knows something of the circumstances of the stack or condition of the hay, etc.

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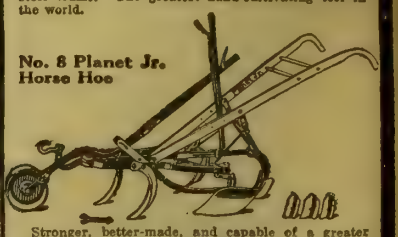

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I know not whence I came,
I know not whither I go;
But the fact stands clear that I am here,
In this world of pleasure and woe.
And out of the mist and murk
Another truth shines plain—
It is my power each day and hour
To add to its joy or its pain.

I know that the earth exists,
It is none of my business why;
I cannot find out what it's all about,
I would but waste time to try.
My life is a brief, brief thing,
I am here for a little space,
And while I stay I would like, if I may,
To brighten and better the place.

The trouble, I think, with us all,
Is the lack of a high conceit.
If each man thought he was sent to this spot
To make it a bit more sweet,
How soon we could gladden the world,
How easily right all wrong,
If nobody shirked, and each one worked
To help his fellows along!

Cease wondering why you came—
Stop looking for faults and flaws;
Rise up today in your pride and say,
"I am part of the First Great Cause!
However full the world,
There is room for an earnest man,
It had need of me, or I would not be—
I am here to strengthen the plan."

—Ella Wheeler Wilcox.

THE HABIT OF VICTORY

By Lawrence Lowell, President of Harvard University

THE philosopher's stone was eagerly sought in the middle ages, because it was believed to turn everything it touched into gold. Many men wore out their lives in seeking it, and doubtless blew themselves up by chemical experiments in trying to produce it. Yet, after all, of what good is gold? People crave it because they can get with it other things they want; but if a man could possess a talisman that would give him the habit of success in everything he tried to do, it would be better than a philosopher's stone, which would simply insure him an indefinite supply of gold—for many kinds of success cannot be bought with gold.

There were two questions to be asked about the famous philosopher's stone—first, could such a thing exist; and second, how could it be acquired? We are now sure that no such stone could exist, and hence it is fruitless to ask how it could be acquired; but is it equally certain that the more valuable habit of success or victory cannot exist? Anyone would naturally answer that if you happen to be stronger than your antagonist you will beat him in lifting weights; that if you happen to be swifter you will win the race; that if you are cleverer you will outrank him; but that if you are weaker, or slower, or more stupid, no habit of success can help you; just as if you are rich you will have gold, if you are poor you will not; no philosopher's stone can give it to you.

To some extent that is true; but it is not the whole truth. In histories of battles we often read that the troops were dispirited by defeat, and this is evidently regarded as making them less likely to win the next day; or we read that they were flushed with victory, and that their charge was well-nigh irresistible. School boys used to read about Caesar's tenth legion, which was almost always victorious, and we have heard in our own day of "Chinese" Gordon's invincible army. The fact that troops have been victorious, and expect to prevail, does undoubtedly add to their fighting quality and chance of success; whereas the fact that they have been beaten, and expect to be beaten, is an element of weakness. In an army, then, there is such a thing as a habit of victory, and it has an effect in battle.

What is true of an army is true also of a man or a boy. We all know by experience that expecting to win, and having usually won, makes a man more likely to win; and that a feeling of despondency—the assumption that you are sure to be beaten—is a bad omen. We tell the boy to cheer up, and try to encourage him by showing him that his chances are good, because we know that, without a strong hope of winning, there is little chance of victory. Even in mere trials of strength this counts for something, and something that is not very small. In such contests the habit of victory is not to be disregarded; and in other contests— those in which grown men engage—in the complex things of the world, where mere strength, physical or mental, is only one element, the habit of victory counts a vast deal more.

Whether the contest is with other men, or with the stubborn forces of nature, the man who is despondent or downhearted, who loses his courage, has no chance compared with the sanguine man who believes in his power to succeed, and who is accustomed to doing what he sets out to do. In short, the qualities that make for success in the struggles of life are moral no less than physical or intellectual. They will not insure success against all odds; but they will add much to the chances where they are at all evenly balanced, and sometimes will wrench victory from conditions that seem heavily adverse. These qualities belong to the man who has them; they do not come and go; they are permanent, and make the man win when he would not otherwise do so; he is marked as a man who is habitually successful.

In short, there is such a thing as a habit of victory, and it is worth more than the philosopher's stone.

To the second question—how can the habit of victory be acquired?—the answer is very simple. It is acquired by constantly winning victories, for one who always wins has the habit of winning. Of course, this does not mean trying only easy things. That is the way to cheap victories, which are worthless. The way to get a habit of victory worth having is to win hard victories.

Many years ago a friend of the writer remarked to some one who said he should like to be a fast walker, that if he always walked as fast as he could, he would discover by and by that he was in the habit of walking fast. The constant effort to put forth all the force of one's body or mind develops the capacity to put forth a great deal more strength than one had been supposed to possess, or would otherwise have had; and after the habit is once acquired it becomes an easy matter to use that strength.

Most people are quite unaware how far they are from doing what they are capable, or would become capable, of doing; and few men exert themselves to the utmost in everything they are called upon to do. Yet that is one of the secrets of success. The other is in being fully prepared.

Caesar's tenth legion did not go into battle with their swords dull. The preparation for a contest is half the victory. Many an inferior lawyer has won his case by knowing the facts better than his more brilliant opponent. The mastery of all that can be known about a question is tedious, and less attractive than trusting to clevernes and luck; but it is the foundation on which success is built. If you prepare yourself for anything you are called upon to do as if you meant to succeed, no matter how strong your antagonist may prove, or how great are the obstacles to be over-

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See Yuba Tractor Advertisement on Page 256

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come; and if, when the decisive moment comes, you put forth every ounce of force that you possess—whether that particular object seems worthy of the effort or not—you will live to hear your friends say that you are a far stronger man than they supposed you to be. You will discover some day that you have acquired the habit of victory.—Youths' Companion.

TO HIS MOTHER

In France the relation between a son and his mother is very sweet and tender. Even the boys of the least cultivated class show an almost invariable courtesy and unselfishness to their mothers.

I was in Paris during the first two months of the present war, writes Mrs. Lillian Hayden Hieston to The Youths' Companion, and a woman who worked for me spoke often of her only child, a boy, who was in one of the very first regiments ordered to the front. I have never seen anything so sweet as the letters he wrote to her to allay her fears. The last of them ran as follows; I borrowed it of her that I might copy it. In translating it literally I have kept much of the charm of the original:

"Little Mother So Dearly Loved: Thy boy is gay and joyous as the birds that sing. Dost thou hear that, little one! Thou must not worry, not in the very least, my mother. Indeed thou canst not imagine how happy we have been nor what delicious things we have to eat. We caught a rabbit to put in our stew and we found potatoes in a field. Thy boy grows fat, my mother! Why shouldst thou worry? Thou must not mourn when we are laughing. Give to all the friends my loving greeting, and thou, dear heart, look not for letters. It is so seldom that we can write. Remember that I am safe and that I love thee.

"I send thee a thousand kisses and I am thy son."

This letter, sent to the mother by a comrade of her son, had been written on a scrap of paper with a pencil while he was in the trenches before the engagement in which he lost his life. He said nothing of the horror of the bloodshed, nothing of his own weariness and dread, nothing of the agony and cruelty and death that he had seen. He wrote only of what he knew would reassure and comfort her.

The letter did strangely comfort the lonely, sorrowing mother. It made her forget the war anl think of her boy as a gay and laughing child again. There had been no funeral. She had not seen him dead. These joyous written words were far more real to her than what she knew of his death. His loving thought had lifted her into that realm of the spirit in which there is no death.

THE LONGEST PRICE OF WAR

There is a fact of life called heredity which plays a dreadful part in determining the longest price of war. According to the laws of heredity we are all largely dependent upon what our ancestors were for what we can be; consequently, the future of any race depends upon the quality of those who become its fathers and mothers. That is true not only of human beings, but of all living things.

Some have found in this theory an argument for war; they maintain that since life advances by struggle and survival, strong nations must crush weak ones if the future of mankind is to be strong. None of the champions of war who declare that peace corrodes and ruins nations have thought about the matter deeply enough to learn that the argument they quote is the most fatal of all to their own horrible creed. For the truth is that war brings about "reversed selection"—in which the best are chosen to be killed and the worst are preserved to become the fathers of the future.

Rome and France furnish illustrations of this awful truth. The greatest empire of the ancient world was Rome. When she had conquered all her enemies she fell. Ever since then thinkers and historians have sought the reason. Today there are many who believe that it has been found. Rome was always fighting. She had far and wide frontiers, which must ever be defended. The defense needed the best men she had, and got them. A great German historian, Professor Seeck, says that in Rome, out of every hundred thousand strong men, eighty thousand were slain, and that out of every hundred thousand weaklings ninety to ninety-five thousand were left to survive. The Roman Empire perished for want of men, says the great English historian, Sir John Seeley; and when the living foundations of empire thus decayed, all the rest came down with a crash. The descendants of the vigorous race that had conquered the known world spent their time in shouting for "bread and games." The laws of heredity were not at fault; the vigorous, in fact, had died, and it was the rejected, those unfit to be Roman soldiers, that stayed at home and became the Roman fathers of a nation whose course was run.—Dr. C. W. Saleeby, in the Youths' Companion.

"SILVER OLD AND SILVER NEW"

Every housekeeper takes pride in keeping her silver bright and shining, whether her choicest collection be great grandmother's treasured teaspoons or the latest achievement of the jeweler's art.

But whether her silver is of this year or of a century ago, the sulphur in eggs, rubber, natural gas, water, white tissue paper, and in the white cloth, so often used in making silver cases, will turn the best polish she can put on it, to a yellowish brown.

To clean by rubbing with whiting or any of the silver polishes is a long and laborious process, and one which must be repeated frequently, but an easier method, which does not injure the silver, may be employed.

Dissolve one teaspoon of common salt and one teaspoon of soda in one quart of water, and place in a galvanized pan. Silver placed in this solution takes on a polish without rubbing. To get results it is necessary to keep the inside of the pan thoroughly clean.

By placing in the solution a small piece of zinc or the lid of a Mason jar the use of the galvanized pan becomes unnecessary and any kind of a pan may be used.—Mary L. Oberlin, Colorado Agricultural College, Fort Collins.

THE THREE P'S

Einstein, wishing to buy a motor car, consulted a friend as to the merits of the different makes of machines. "There are," said his counselor, "three first-class makes. Buy a Peerless, a Packard, or a Pierce Arrow. Any one of them is first-class. Just remember the three p's and you can't go wrong." A few days later Einstein appeared in that exhilarated condition always observable in a man who has bought his first motor car or a woman who has achieved the purchase of a hat. "It's all right," he said. "I took your advice. I remembered the t'ree p's. I got a Puick."

BOOKS

Precious and priceless are the blessings which books scatter around our daily paths. We walk, in imagination, with the noblest spirits through the most enchanting regions—regions which, to all that is lovely in the forms and colors of earth,

"Add the gleam,
The light that never was on sea or land,
The consecration and the poet's dream."

—E. P. Whipple.

IT REMOVES STAINS

"Alcohol," says an exchange, "will remove stains from summer clothes." That is true, but it also removes the summer clothes, also the spring, the autumn and the winter clothes, not only from the one who drinks it, but from the wife and family as well. It removes the household furniture, the eatables from the pantry, the smiles from the face of his wife, the laugh from the innocent lips of his children, and the happiness out of his home. As a remover of things alcohol has no equal.—Boys' World.

If you mix cornstarch or flour with sugar before adding it to your pudding it will not be necessary to mix it with milk or water first as is usually the method.

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The Edison Storage Battery makes electric light easy to install and economical to maintain. A trouble-proof battery and the only one guaranteed to be capable of developing full rated capacity at the end of four years. It will long outlive this guarantee.

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IDEAS FOR THE COOK

Written for the California Cultivator
By Isabel Cottle

Breakfast

Fruit
Cereal with Dates Cream
Baked Eggs Hot Rolls
Coffee

Lunch or Supper

Canned Salmon Reheated Egg Sauce
Mashed Potatoes Beet Greens
Cornbread
Coffee Custard Tea

Dinner

Kornlet Soup
Lamb Chops French Fried Potatoes
Artichokes, Drawn Butter
Apple Fritters
Orange Cake Coffee

Baked Eggs

Butter as many muffin rings as will be needed, break into each an egg, salt slightly, pour over each a spoonful of cream and bake until the whites are set.

Coffee Custard

Two cups milk, two tablespoons ground coffee, three eggs, one-fourth cup sugar, one-eighth salt, one-fourth teaspoon vanilla. Scald milk with coffee and strain. Beat eggs slightly, add sugar, salt, vanilla and milk. Strain into buttered individual moulds, set in pan of hot water and bake until firm. Serve with cream.

Apple Fritters

One cup flour, one-fourth teaspoon salt, two-thirds cup milk, yolks of two eggs, whites of two eggs, one tablespoon melted butter, two medium sized apples. Mix salt and flour, add milk gradually, yolks of eggs beaten until thick, and butter. Stir in two medium sized apples sliced thin and lastly fold in the stiffly beaten whites of eggs.

Orange Cake

One-fourth cup butter, one cup sugar, two eggs, one-half cup milk, one and two-thirds cups flour, two and one-half teaspoons baking powder. Cream the butter, add sugar gradually, yolks of eggs well beaten, and milk. Then add flour mixed and sifted with baking powder. (Do not pack flour in cup or the mixture will be too stiff.) Lastly fold in stiffly beaten whites of eggs. Put together with orange filling and ice with orange frosting.

Orange Filling

One-half cup sugar, two and one-half tablespoons flour, grated rind one-half orange, one-fourth cup orange juice, one-half tablespoon lemon juice, one egg slightly beaten, one teaspoon butter. Mix ingredients in order given. Cook ten minutes in double boiler, stirring constantly. Cool before spreading. If too thick, add more orange juice or a little hot water.

Orange Frosting

Grated rind one orange, four teaspoons orange juice, one-half teaspoon lemon juice, yolk of one egg, confectioners' sugar. Add rind to fruit juices, let stand 15 minutes. Strain and add gradually to yolk of egg slightly beaten. Stir in confectioners' sugar until of right consistency to spread.

Note: The recipes given call for level measurements.

When mother lets us scrape the bowl,
after the cake is done,
We take it out into the yard, and sit
down in the sun,
Where we can see to get it all—because it goes so soon!
She doesn't have to wash it when we
clean it with a spoon.
Sister's a little thing, but my! her
spoon goes awful fast!
I got the first scrape, but I'm scared
she's going to get the last.
Well, anyway, when we're grown up,
all big, and old, and tall,
We are going to make a cake to eat—
and not to cook at all.
—Charlotte Wilson in Today's.

OUTWITTED

He drew a circle and shut me out—
Heretic, rebel, a thing to flout.
But love and I had the wit to win:
We drew a circle that took him in.
—Edwin Markham.

Try this New Blackberry At Our Expense

TO CULTIVATOR SUBSCRIBERS ONLY—To have this New Macatawa Everbearing Blackberry tested in as many localities as possible, claiming it to be the sweetest and best table berry on the Coast, the propagators of this berry have made us a proposition for supplying same in shipments of 6 plants each by parcel post, all charges paid.

Their description of the Macatawa is as follows: "It is a cross between the true Giant Himalaya and the Eldorado. The fruit is very large and sweet, in fact, it is the sweetest blackberry grown. It is coreless and almost seedless; very solid, jet black when ripe and can be shipped 1000 miles without bruising. The shape is oblong, very uniform, averaging three and one-half inches around one way by three and one-fourth inches the other way. The bloom is almost semi-double, about the size of a silver dollar. So far all who have tested this berry say it is the sweetest and best flavored berry they ever tried."

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San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, Feb. 24, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade 4 cents above following quotations:

Creamery Extras 27
Firsts 26
Country 23
Ladle 22

CHEESE

Prices to trade, 1 and 2 cents higher:

California Fresh ....15@15½
Cheddar ....20@21
Domestic Swiss ....20@21
Eastern Daisy ....18½@19
Longhorn ....18½@19
Imported Swiss....32-@34

EGGS AND POULTRY

Prices to trade, 3 cents higher than following quotations:

Fresh Ranch, case counts....22
Candled ....24@26
Northern case counts 24
Petaluma-Santa Rosa ....24@26

Prices to producers:

Hens, lb. ....14@18
Roosters, old ....8@9
Broilers, lb. 26
Fryers 22
Roasters, lb. 17
Turkeys ....17@21
Ducks 19
Geese 18
Squabs, doz. 3.00

LIVE STOCK

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs., per cwt....7.40
Prime Steers ....7¼@7½
Heifers ....6¼@6½
Calves, lb. ....8½@9
Sheep—
Ewes, head 4.50
Wethers ....4.50@5.00
Lambs, head ....4.50@4.75

POTATOES

Wholesale selling price:

Idaho Russet ....1.30@1.40
Early Rose Seed ....2.25@2.50
White Rose Seed ....1.50@1.60
Sweets, lug ....85@90
New Potatoes, lb. ....5@7
Northern Burbanks, cwt....1.40@1.45
Salinas ....1.90@2.00
Shimas ....1.50@1.60
Lompocs ....1.90@2.00

ONIONS

Wholesale selling price:

Australian Brown, cwt. ....1.00@1.25
Oregon Globes ....1.35@1.50
White Globe ....4.50@4.75
Yellow Danvers ....1.00@1.25
Sets—
Yellow 9
White 10
Garlic ....25@28

VEGETABLES

Wholesale selling price:

Artichokes, Northern, doz. ....75@90
Beets, doz. ....30@35
Cabbage ....75@85
Carrots, doz. ....30@35
Cauliflower, doz. ....65@75
Celery—
Northern, crate 3.50
Cucumbers, hothouse ....75@3.00
Egg Plant ....18@22
Escarole, doz. 40
Horseradish, lb. ....10@12
Leeks, doz. ....35@40
Lettuce, crate ....80@1.00
Mint, doz. ....35@40
Mushrooms, Outdoors, lb....25
Onions, Green, doz. bunches....15@20
Oyster Plant ....35@40
Peas, lb. ....17@19
Parsnips, doz. ....30@35
Peppers—
Bell, lb. 30
Chili, lb. 20
Pumpkins, lb. ....1@1½
Rhubarb, box ....75@85
Spinach, doz. ....19@22
Squash—
Crookneck ....50@60
Hubbard, lb. ....1¼@1½
Turnips ....30@35
Tomatoes, lug ....1.65@1.75
Florida, crate ....2.50@2.75

FRESH FRUIT

Wholesale selling price:

Apples—
Bellflowers ....50@85
Rome Beauties....1.25@1.75
Pearmains ....75@1.00
Spitzenbergs ....1.35@1.75
Pippins ....75@95
Avocados, doz. ....4.00@8.00
Bananas ....3½@4
Berries—
Strawberries, basket ....8@15
Cranberries, bbl. ....8.75@9.00
Grapes, lb. ....8@10
Guavas, basket ....4@6
Pears, Winter Nelis, lug....1.50
Persimmons, lb. ....7@10
Pineapples, lb. ....5½@6
Pomegranates, box ....1.75@2.00
Quinces ....65@75

CITRUS FRUIT

Wholesale selling price:

Lemons ....1.00@2.00
Grapefruit, Seedless ....1.85@2.00
Navels ....1.75@2.00
Tangerines ....1.50@1.75
Limes, basket ....1.00@1.10

DRIED FRUITS

Wholesale prices to retailers are:

Evaporated Apples, Fancy, lb. boxes ....6¼@11½
Apricots ....8¾@11½
Nectarines 12½
Peaches ....5¾@6¾
Pears ....10@11
Prunes ....5¾@16
Plums 10

HONEY

Wholesale selling price:

Comb, Fancy, Water White....14
White 12
Light Amber 11
Extr. Water White....7
White 6½
Light Amber 5½
Beeswax 32

NUTS

Prices named by California Walnut Growers' Association are:

No. 1 ....16½
Budded Walnuts 20
Jumbos 19
No. 2 12
Culls 9

Prices fixed by California Almond Growers' Exchange, f. o. b. California.

Almonds—
Nonpareil 21
I X L....20
N P U....19
Drake's Thinshell 15
Pecans 17
Peanuts—
California, Raw 6
Japan 7½
Eastern 7½
Rice Corn ....5.00@5.25

RICE

Wholesale selling price:

California ....4.75@5.00
Broken ....3.75@4.00

BEANS

Wholesale selling price:

Producer's price not far from one dollar under these quotations:

Limas ....6.35@6.50
Bayous 7.00
Lady Washington ....6.00@6.10
Pinks ....5.65@5.75
Black Eyes 7.00
Lentils ....10.00@12.00
Small White 6.00
Garbanzos ....7.00@7.25

HAY

Buying prices f. o. b. cars Los Angeles:

Barley Hay ....10.00@11.00
Wheat Hay ....10.00@11.00
Tame Oat ....11.00@13.00
Alfalfa ....9.00@11.00

GRAIN

Wholesale selling prices f. o. b. Los Angeles:

Corn, Yellow 2.20
Corn, White 2.30
Wheat ....2.75@2.90
California Red Oats 2.10
Cal. Seed Oats 2.10
Texas Seed Oats 2.50
Oats, White 2.20
Oats, Hulled 2.75
Millet 3.75
Popcorn ....4.75@5.00
Egyptian Corn 2.30
Barley Seed 1.85
Barley, Hulled 2.15
Milo Maize 2.10
Rye 2.40
Sunflower Seed 7.00

FEED STUFF

Wholesale selling prices f. o. b. Los Angeles:

Bran, Heavy 1.85
Alfalfa Meal 1.20
Alfalfa Molasses, per cwt. 1.25
Beef Scraps 3.00
Beet Pulp 1.25
Cracked Corn, cwt. 2.25
Cracked Wheat, cwt. 2.90
Cotton Seed Meal....1.80
Bloodmeal ....3.45@3.55
Bone Meal 1.95
Meat Meal 3.00
Bone, Green 1.85
Charcoal 2.00
Oil Cake Meal 2.35
Fish Meal ....3.15@3.25
Rolled Oats ....2.20@2.25
Rolled Barley 1.80
Middlings 2.15
Feed Meal 2.30
Scratch Feed 2.50

San Francisco Market

SAN FRANCISCO, Feb. 23, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade, 4 cents above following quotations:

Extras 29
Prime Firsts 27
Firsts 24
Seconds 22

CHEESE

Wholesaler to retailer.

Oregon Y. Am. 16
Young America ....13½@15
California Flats ....10@14
Cheddar 20
Oregon Twins 14

EGGS AND POULTRY

Prices to trade 3 cents higher than following quotations:

Fancy Ranch 22¼
Pullets 20½

Price to producer:

Hens, lb....16@18
Fryers ....22@23
Roosters, old ....12½@14
Roosters, young ....19@21
Broilers ....25@27
Squabs ....3.00@4.00
Ducks ....15@17
Geese ....2.50@3.00
Belgian Hares, lb. ....8@11
Turkeys, Dressed ....20@22

LIVE STOCK

San Francisco prices, gross weight:

Steers ....4@7¼
Cows and Heifers ....3@6¼
Calves, lb., live weight....6@9½
Hogs ....5@7¼
Wethers ....6½@6¾
Ewes ....5¼@5¾
Yearling Lambs ....7½@7¾

POTATOES

Wholesale selling price:

Delta Burbanks ....90@1.15
Lompoc ....1.65@1.75
Salinas Burbanks ....2.00@2.10
Oregons ....1.40@1.50
Washington ....1.25@1.40
Sweets, cwt. ....1.75@2.00

ONIONS

Wholesale selling price:

Yellow, cwt. ....75@90
Garlic, new ....17½@20

VEGETABLES

Wholesale selling price:

Beans, string ....20@25
Brussels Sprouts ....2.00@2.50
Celery—Delta ....1.50@2.50
Cucumbers, lug, Hothouse ....90@1.10
Egg Plant, lb. ....5@7
Lettuce—
Sacramento ....1.00@1.25
Southern ....85@1.10
Peas, lb. ....15@17½
Peppers—
Bell, lb. ....10@15
Chili, lb. ....5@10
Rhubarb, crate ....1.00@1.50
Squash, sack ....25@35
Tomatoes—
Los Angeles, crate ....1.00@1.25
Imperial Valley ....1.50@2.00

FRESH FRUIT

Wholesale selling price:

Apples—
Newton Pippins ....65@90
White Winter Pearmains ....50@75
Bellflowers ....25@50
Bananas, Hawaiian, bunch ..1.00@1.75
Pineapples, doz. ....1.25@2.00

CITRUS FRUIT

Wholesale selling price:

Grapefruit, Seedless, new crop.1.50@3.50
Lemons ....1.50@2.50
Lemonettes ....1.00@1.50
Navels ....1.25@2.00
Tangerines, halves ....75@1.75

DRIED FRUITS

Wholesale prices are:

PRUNES—1914 crop, bulk basis: 30-40s. 7c; 40-90s, 6½c; 90-100s, 6c. The above are for both Santa Clara prunes and stock from outside sections.

Other Fruits. 50-lb. boxes—	Standard	Choice	Extra Choice	Fncy
Ev'pt'd Apples.	5½c	5¾c	6 c	
Peaches	4 c	4¾c	4½c	5¾c
Apricots	9 c	9½c	10 c	11 c
Pears	7 c	8 c	9 c	10 c

RAISINS

RAISINS—The following prices are f. o. b. Fresno, as given out by the Associated Raisin Company, for immediate shipment, and are guaranteed against a decline till April 1st: Fancy seeded, 16-oz., 7¼c; 12-oz., 5⅞c; bulks, 6c; choice seeded, 16-oz., 6⅞c; 12-oz., 5⅝c; bulk, 5½c; Thompson seedless, No. 1, 16-oz. pkgs., 7⅝c; 12-oz., 6¼c; 50-lb. cs., 6½c; loose, Muscatels, 1-crown, 5½c; 2-crown, 5½c; 3-crown, 5⅞c; 4-crown, 6c; Sultanas, 50-lb. cs., 5¾c; bulk, layers, 50-lb. bxs., $2.75; in 20-lb. bxs., 6-crown, $2.75; 5-crown, $2.25; 4-crown, $160; 3-crown, 5-lb. bxs., $1.50; on all bulk stock, 50c additional. Cartons—Clusters, 20 to cs., No. 1, $1.70; No. 2, $2.10; No. 5, 4 to cs., $2.25. Local representatives of the association are asking about ¼c higher, while several of the largest independent packers are quoting ½c under these figures.

NUTS

ALMONDS — Prices fixed by Almond Growers' Exchange to the trade, f. o. b. California:

Nonpareil 21
I X L....20
Ne Plus Ultra....19
Drakes 16

Wholesale selling price:

Peanuts—
Unpolished ....5@8
Polished ....6@6½
Shelled, Jap ....6¼@6¾
Italian Chestnuts ....6½@7

BEANS

Wholesale selling price:

Limas ....5.85@5.90
Pink ....4.60@4.70
Black Eyes ....6.00@6.50
Cranberry ....5.00@5.25
Small White ....5.60@5.70
Garbanzos ....6.25@6.75
Large White ....5.30@5.40
Bayou ....5.50@5.70
Manchurian Speckled Bayous.4.00@4.50
Manchurian Butters ....4.50@4.75
Red Mexican ....5.60@5.70
Red Kidney ....6.00@6.25
Horse Beans ....4.00@4.50

HONEY

Wholesale selling price:

Comb, Water White ....14@16
Amber ....10@12
Dark ....7@10
Extracted White ....7@9
Light Amber 5½
Dark ....4@5½
Beeswax ....27@32

HOPS
1914

Wholesale selling price:

Sacramento Valley ....7@9½
Sonoma-Mendocino ....9½@11½
Oregon Clusters ....9½@11½

HAY

Under date of February 20, Scott, Magner & Miller say:

Receipts of hay for the past week were 3250 tons, the previous week 2164 tons. The market continues about the same with no change to speak of. Conditions at the present time for large crops are very good. Fancy hay, either wheat or red oat, continues to be the only commodity in demand. Alfalfa offerings are heavy but demand is light.

There is practically no market for straw at present.

Fancy Wheat Hay (light bales) ....11.00@12.00
No. 1 Wheat or Wheat and Oat ....9.00@10.50
No. 2 Wheat or Wheat and Oat ....6.00@8.50
Choice Tame Oat ....10.50@11.50
Other Tame Oat ....6.00@9.00
Barley ....5.00@8.00
Wild Oat ....6.00@8.00
Alfalfa ....6.00@9.00
Stock Hay ....4.50@5.00
Straw, per bale....30@45

GRAIN

Wholesale prices.

Alfalfa Seed ....14@16
Wheat, Cal. Club ....2.45@2.50
Corn, Eastern Yellow, blk..1.78¾@1.80
Corn, Egyptian White....1.85@1.90
Barley, Feed ....1.50@1.52½
Oats, Red, Feed ....1.55@1.65
Millet ....3@3¼
Flax ....6@6½
Rye ....2.10@2.2[illegible]
Sunflower ....5@5½

FEED STUFF

Wholesale prices.

Alfalfa Meal, car lots ....16.00@16.50
Bran, ton ....32.00@33.00
Feed Cornmeal, ton....40.00@41.00
Cracked Corn ....40.00@41.00
Rolled Barley, ton....33.00@34.00
Rolled Oats, ton....37.00@37.50
Middlings ....36.00@37.00
Shorts ....33.00@34.00
Oilcake Meal ....38.00@39.50
Cocoanut Oilcake Meal....24.00@25.00

WEATHER CONDITIONS

For Week Ending February 20, 1915

Report from the various stations of the United States Weather Bureau, by George H. Wilson, director, San Francisco.

	Rainfall Data			Temperature Data —Past Week—	
	Past Week	Seasonal to Date	Normal to Date	Maximum	Minimum
Eureka	2.14	33.90	29.58	58	38
Red Bluff	2.50	25.38	16.57	62	36
Sacramento	.76	11.29	13.19	60	42
San Francisco	1.63	19.35	15.45	62	44
San Jose	1.01	16.29	11.08	64	38
Fresno	.51	7.98	6.13	68	44
Independence	.00	2.26	6.02	56	26
San Luis Obispo	1.93	20.70	12.98	70	44
Los Angeles	.54	13.40	10.34	68	48
San Diego	.40	12.09	6.68	64	44

Citrus Fruit Market

LOS ANGELES, Feb. 24, 1915.

The orange market is in fair condition the only marked feature is the quantity of decayed fruit which is showing up mostly due to wet weather. Good fruit moves off pretty fast.

Not much doing in lemons. Shipment

are very light, as is usual at this time of year. The fruit is being held here until warmer weather in the East brings better demand. Heavy shipments will start as soon as conditions warrant.

Shipments

Shipments of oranges from Southern California to date since November 1, 1914, 6610 cars, lemons 997, total 7607; to same date last season, oranges 6962, lemons 461, total 7423. From Tulare County this season, oranges 5071, lemons 141, total 5212; to same date last season, oranges 4370, lemons 28, total 4398. From Butte County this season, oranges 591, lemons 1, total 592.

NEW YORK, Feb. 23.—Forty-three cars navels, six mixed and two cars lemons sold. Market 10 to 15c lower on navels, market 10c higher on lemons. Fair and warm.

NAVELS—	Avge.
Chess King	$2.10
Bishop	2.00
East Highland Improvement Co.	2.15
Red Raven, P. & Lett	2.15
Squaw, P. & Lett	2.05
Orange Dale, Blue Orangedale G.	2.15
Half Moon, C. M. Brown	2.10
Native Son, imp., King F. Co.	2.25
Salt Lake, imp., King F. Co.	2.10
Half Moon, C. M. Brown	2.10
Half Moon, C. M. Brown	2.10
Redlands Best, Bryn Mawr, F. G. A.	2.30
Sweet Marie, Upland Foothill G.	2.25
Tri Color, Upland Foothill G.	2.20
Plain Ends, Upland Foothill G.	1.95
Perfection, Highgrove O. G. A.	2.35
Golden Rod, Highgrove O. G. A.	2.35
Plain Ends, Highgrove O. G. A.	1.90
Dos Palmas, San Marino G.	2.20
Carnation, Speich & Co.	2.15
Rosemont, Growers F. Co.	2.00
Rosemont, imp., Growers F. Co.	2.00
Old Mission, Chapman	2.15
Independent, Growers F. Co.	2.10
Prospector, Growers F. Co.	2.00
Bouquet, Randolph F. Co.	2.20
Oval	2.00
Silver Oval	1.90
Orchard, National O. Co.	2.45
Standard, National O. Co.	2.05
Aurora, xf., American F. Dis.	3.10
Aurora, fy., American F. Dis.	2.55
Sapho, American F. Dis.	1.90
Pine Cone, S. B., Highlands	2.75
Arrowhead, S. B., Highlands	2.25
Golden Cross, imp., O. K. Ex.	2.55
Golden Star, imp., O. K. Ex.	2.20
Monogram, O. K. Ex.	2.35
Diamond, S. O. K. Ex.	2.00
Red Globe, Riverside Ex.	2.35
Glendora Heights, xf., A. C. G. Ex.	2.60
Foothill, A. C. G. Ex.	2.35
Robusta, imp., R. H. Ex.	2.40
Bobo, R. H. Ex.	2.20
Royal Knight, R. H. Ex.	2.25
Parrot, S. A. Ex.	1.90
Pinnacle, O. K. Ex.	2.35
Kenilworth, A. H., Riverside	2.55
Peasant, A. H., Riverside	2.25
Dandy, A. H., Riverside	1.95
Blue Crusader	2.40
Pointer, A. C. G. Ex.	2.05
Stork, S. A. Ex.	2.20
Royal Knight, R. H. Ex.	2.20
Cornell, S. A. Ex.	2.00
Blue Hussar, O. K. Ex.	2.25
Red Hussar, O. K. Ex.	2.05
El Camino, imp., S. A. Ex.	2.20
El Camino, S. A. Ex.	2.05
Carmencita, imp., S. T. Ex.	2.35
Colombo, imp., S. T. Ex.	2.10
Carmencita, S. T. Ex.	2.40
Colombo, S. T. Ex.	1.90
True Blue, Q. C. Ex.	1.90
Stork, S. A. Ex.	1.90
Majesty, O. K. Ex.	1.65
Owl, O. K. Ex.	1.55
Fuchsia, S. A. Ex.	1.70
NAVELENCIAS—	
Mahala, L. V. W., Brown	$2.40
Swastika, L. V. W. Brown	2.25
Rialto Brownie, Rialto F. Co.	2.35
Geyser, O. K. Ex.	2.45
Flyer, O. K. Ex.	2.20
NAVELS—HALVES—	
Perfection	$1.30
NAVELENCIAS—HALVES—	
Mahala	$1.30
BLOODS—HALVES—	
Redlands Best	$1.50
Pride	1.40
TANGERINES—HALVES—	
Mahala	$1.55
Salt Lake	1.50
Sweet Marie	1.30
Perfection	1.60
Euclid	1.50
Uplanders	1.30
Pinnacle	1.45
LEMONS—	
Pet	$2.45
Greyhound	2.15
Southland Beauties	2.50
Justrite	2.20

BOSTON, Feb. 23.—Market strong.

NAVELS—	Avge.
Paul Neyron, San Antonio Ex.	$2.25
Daisy, Covina Ex.	2.10
Rooster, Orange Co. Ex.	2.30
Warrior, San Antonio Ex.	2.10
Quail, O. K. Ex.	2.30
Daisy, Covina Ex.	2.15
Green Crown, A. C. G. Ex.	2.05
Gold Buckle, Redlands High Ex.	2.85
Homer, Queen Colony Ex.	2.85

PHILADELPHIA, Feb. 23.—Market strong. Two cars sold.

NAVELS—	Avge.
Oval	$2.25
Silver Oval	2.05
San Antonio, fy.	2.15
San Antonio, ch.	2.00
NAVELS—	
Sutter, Superior Co. Ex.	$2.05
Special Coyote, O. K. Ex.	2.20
Special Quail, O. K. Ex.	2.35
Parrot, San Antonio Ex.	2.25
LEMONS—	
Moose, O. K. Ex.	$2.20
Red Ensign	1.90

LOS ANGELES, Feb. 20.—Six cars sold.

NAVELS—	Avge.
Pansy, M. O. D., Colton	$1.37½
Royalty, ch., Or. and Imperial	1.20
Success, x ch., and Popular, ch.	1.12½
Royalty ch. Or. and Imperial sd.	1.20
Gold Medal, fy, Medal, ch., M.O.D.	1.10
Gypsy Queen, Speich & Co.	1.32½
Silver Foam, M. O. D., Colton	1.20

Los Angeles sale averages are f. o. b. shipping point.

THE PANAMA-PACIFIC

(Continued from Page 227)

use some of those superlatives, so I pass on to talk about hogs.

There aren't any hogs on the grounds, excepting a few used in demonstrating a feeding appliance. Cows, horses and all other stock are yet to come. The live stock buildings are ready.

Many of the exhibits are incomplete. Many are not yet received. The United States government exhibits—they are in almost every building, and very extended—are practically all complete. Japan is in almost every building and nearly all complete. France has signs in all her spaces that exhibits are on the way. Machinery Palace is perhaps most nearly complete and Education the least so.

There are twelve of these great exhibit palaces: Machinery, Varied Industry, Manufactures, Liberal Arts, Education, Fine Arts, Food Products, Agriculture Transportation, Mines, Horticulture and California. Then the Great Festival Hall with scores, almost hundreds of other great buildings of nations and states.

The street railways are wonderfully fitted to handle the crowds. Ferries take a very few. Jitneys by hundreds aid, but some of them charge 10 cents and some, when crowd was thickest, charged 25 cents.

A few of the hotels here violated their agreement and raised rates. A visitor should know what he is to pay before he takes a room. Restaurants are giving good service and as far as I have observed, at no material advance. The hotel men say that with the awful crowd one should be content to get a room at any price and refer to the fact that from Southern California alone over 10,000 people came to the opening. I still do not see where increased charges made it possible to entertain any more. When San Francisco agreed to entertain the world she agreed to do it in the true California spirit and on the square. She needs to call some of her hotel keepers. But bar the few petty things which are not as we wish.

It's a great exposition. It's an education. It's a wonder. All California is proud of it. It is a great honor to San Francisco, to the state and to the nation.

A new catalog of silos that ought to be in the hands of every reader of the Cultivaor, if he has a silo or is at all interested in one, has been received at this office. The catalog is issued by the Redwood Manufacturing Company of San Francisco and gives descriptions of their Remco silos, also instructions to users of the silo. The most important feature of the catalog is the instructions for erecting silos, with illustrations showing them in various stages of completion. We understand that the catalog will be sent free to readers who will write to the Redwood Manufacturing Company, San Francisco, mentioning the Cultivator.

Referring to a query sent from Florida some time ago regarding control of the common field rat, we asked for experience in California and a subscriber refers to Chubuck's Ideal Gopher trap as being exceptionally fine for controlling this particular pest.

"PIONEER" Patented Incubator

540 Egg Size $15.00

down and balance payable monthly.

We pay the freight and ship for your approval before you pay ONE CENT. Our prices are much lower than other factories. We claim and guarantee the Pioneer to be the highest class hot water Incubator on the American market. All sizes.

Send today. Free 32-page catalog.

You Be the Judge

THE PIONEER HATCHERY CO.
112 E. 8th St. Los Angeles

Don't Buy Scrub Chicks from Tom! Dick! and Harry!

We can supply right now absolutely high class Black Minorcas, R. I. Reds, Barred Rocks, Brown Leghorns, White Leghorns, Buff Leghorns, and in a few days many other varieties. Shipped in new special made carriers, insuring safe arrival anywhere within 50 hours. FREE 66-Page Hatchery Catalog. Chicks! HENS! COCKS! EGGS! INCUBATORS, BROODERS, ETC.

PIONEER HATCHERY CO. ***Los Angeles***

"Jackson MADE"

The greatest test of any pump is its ability to raise the maximum amount at lowest cost per gallon, day in and day out, year after year.

True pumping economy is one of the great features of "Jackson Made" pumps; they work economically and their freedom from repairs and power saving pays their original cost in a few months.

If your pumping puzzles you, tell us—our expert engineers are at your service free of charge.

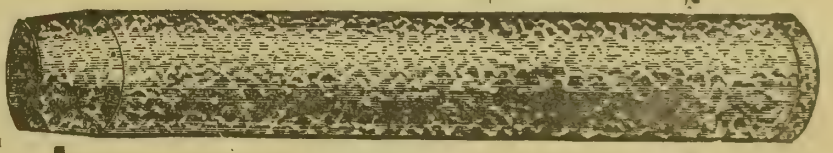
Write for Catalog No. 48A

A Better Make Not Made

"Jackson Made" pumps are manufactured in various styles to do your particular work at lowest possible cost.

Byron-Jackson Iron Works, Inc.
357-361 Market St., San Francisco, Cal.
212 N. Los Angeles St., Los Angeles, Cal.
WORKS: WEST BERKELEY, CAL.

Bigger
than the work it will be put to
AMERICAN
Surface Irrigation Pipe



PROVES

its worth by the fact that it is outlasting NOW on fields everywhere throughout the West other makes of surface irrigation pipe. Non-riveted. Our double-locked and soldered seam, which cannot leak, takes the place of rivets. You can increase your crops enormously by using a surface irrigation system. Write for catalog and irrigation circular.

American Steel Pipe & Tank Co.
354-55-56 PACIFIC ELECTRIC BLDG., LOS ANGELES, CALIF.
Branch 1228 "H" Street, Fresno.

PLANT BERRIES

Alfred Mitting has had 47 years experience with berries from all over the world. His new berry, Macatawa, is the wonder, to all that see it in fruit. It is 3½ inches one way by 3¾ inches the other way. Send a postal card today for his 1915 catalogue with colored plate, including the cream of all berries from a commercial standpoint or for home requirements.

ALFRED MITTING
8 New Street, SANTA CRUZ, CALIFORNIA

Orange Trees

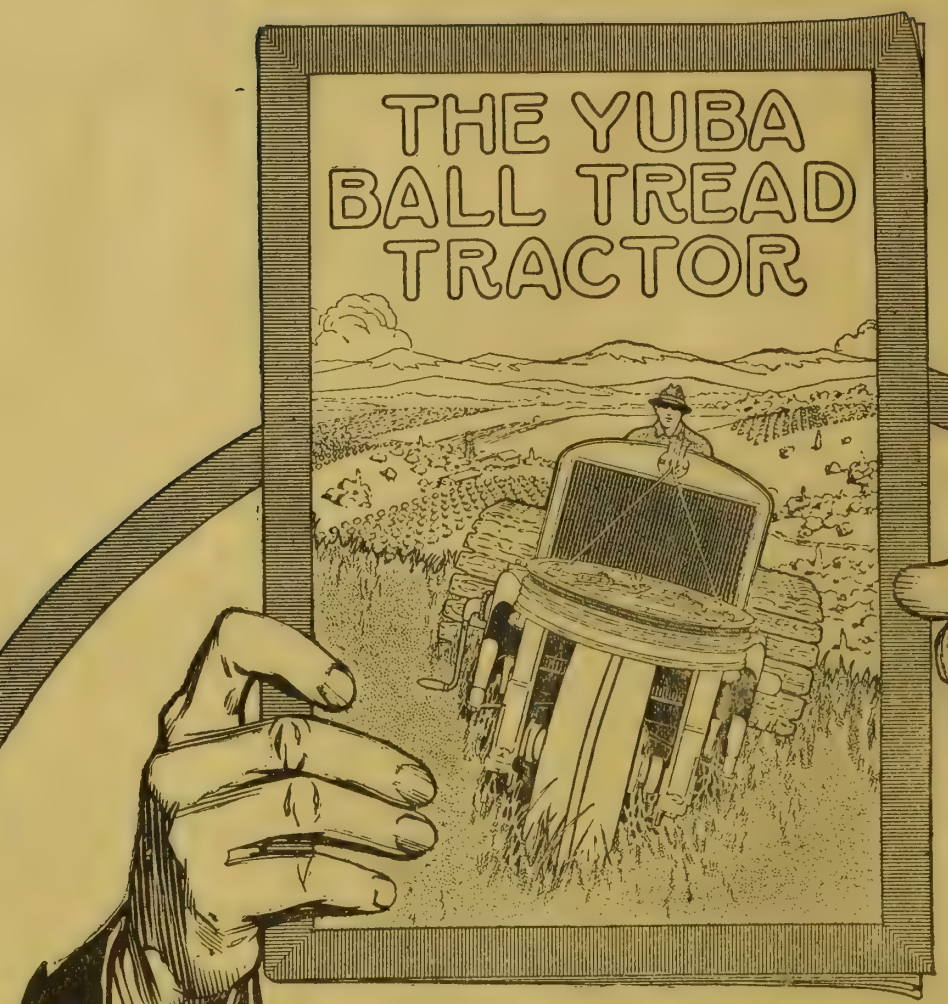
Now is the time to plant your Orange grove while the trees are cheap. I have a large stock of extra fine trees for sale at low prices. Write for quotations stating how many acres you expect to plant.

Olive Trees

A large stock of Mission and Manzanillo in various sizes; prices on application.

THEODORE PAYNE 345 S. Main St. Los Angeles

HAY and GRAIN
Largest Shippers in California
THERE IS A REASON FOR IT
Nicholls-Loomis Co.
Bdwy. 4011; Home 10969 1128-1140 So. San Pedro, Los Angeles



how much will plowing cost?

Let's do a little arithmetic.

With a piece of paper and a pencil, figure out what it costs to pull your plows each season.

Make a list of the following items and put your own figures opposite:—number of horses used; their cost; cost of feed; cost of harness; number of men required to care for and drive them; their wages; horses disabled and cost of veterinary services.

So much for maintenance.

THE YUBA BALL TREAD TRACTOR

For production from the horses, figuring their actual time spent in hauling the plows, list:—number of hours in working day; number of working days in week. Deduct from that the number of minutes in an hour it is necessary to rest each team. The cost of the horses' time and that of the driver, who must also rest, even if he isn't tired, is a dead loss.

Pretty expensive, isn't it?

This booklet, entitled "The Yuba Ball Tread Tractor," shows a way to haul plows at only a fraction of that cost.

For the sake of convenience, use the coupon.

Cut Here

THE YUBA CONSTRUCTION CO.
433 California St., San Francisco

Dept. D14

Gentlemen: Kindly send me a copy of your booklet "The Yuba Ball Tread Tractor.'

Name..... *P. O. Box*.....

Town..... *State*.....

Size of Farm.....*Acres.* *(Check main crop raised.)*

Fruit	*Rice* .....
Grapes.....	*Alfalfa* .....
Grain	*Hops* .....
Hay	.....

CALIFORNIA CULTIVATOR

Rural Californian combined with California Cultivator

An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES March 4, 1915 SAN FRANCISCO

Waiting for His Turn at the Auction

At the Recent Sale of the California Draft Horse Breeders Association

GARDEN COLLECTIONS MADE TO ORDER

Economize. Produce is high and every vegetable you buy is money lost. You can grow clean, fresh, crisp vegetables, flowers and fruits in your back yard or on that little ranch, with profitable pleasure. School children make it a success. So can you. To help you we offer our latest and best innovation, "Made to Order Garden Collections" of insecticides, trees, plants, flower and vegetable seeds; all

SEASONABLE IN MARCH

Our offer allows you to make your own selection from a large variety of seasonable vegetable and flower seeds, trees, plants, insecticides, etc., at one-third less than regular price. Every Collection includes our new and beautifully illustrated catalogue which is so complete in descriptive matter and cultural directions as to earn the title of

GARDEN ENCYCLOPEDIA—FREE

We issue a special pamphlet explaining our "Made to order collection" offer. Write NOW for PAMPHLET L

Germain SEED & PLANT CO. Established 1871
326-328-330 SO. MAIN ST.
LOS ANGELES, CALIFORNIA

Forkner Light Draft CULTIVATORS

— cut cultivating costs in two.

For Orchard, field and alfalfa work there is no other cultivator that will give such splendid satisfaction as the Forkner. It has many special features, chief of which is the light draft; it works close up to trees, cultivates perfectly, is easy to operate. Construction is strong but simple. Driver may walk or ride at will.

CALL OR WRITE FOR CATALOG

and full information about our complete line of Light Draft Cultivators

Newell Mathews Company

Established 1886

Implements, Wagons, Dairy Supplies, Road and Grading Machinery

LOS ANGELES AND MARKET STS. - LOS ANGELES

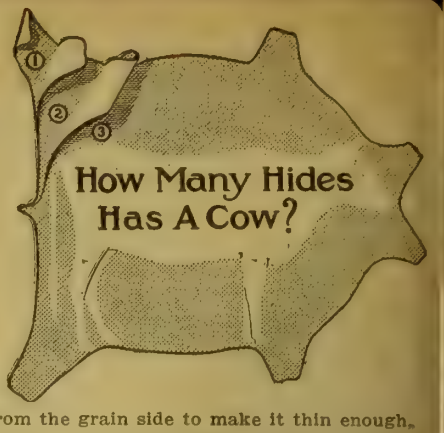
Bigger
than the work it will be put to
AMERICAN
Surface Irrigation Pipe

PROVES

its worth by the fact that it is outlasting NOW on fields everywhere throughout the West other makes of surface irrigation pipe. Non-riveted. Our double-locked and soldered seam, which cannot leak, takes the place of rivets. You can increase your crops enormously by using a surface irrigation system. Write for catalog and irrigation circular.

American Steel Pipe & Tank Co.
354-55-56 PACIFIC ELECTRIC BLDG., LOS ANGELES, CALIF.
Branch 1228 "H" Street, Fresno.

The Truth ABOUT Leather



IN a recent defensive circular to the auto trade, leather manufacturers define leather as "the skin or hide of an animal, or any part of such skin or hide, tanned or otherwise prepared for use."

But since whole hides are too thick for upholstery and the under fleshy portion must be split away from the grain side to make it thin enough, why should the two or three sheets into which the wastage is split, be called leather? Although artificially coated and embossed to look like real grain leather, they are weak, spongy, and soft, crack, peel and rot.

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is frankly artificial leather, guaranteed superior to coated splits. Its base is cotton fabric, twice as strong as the fleshy split. It is coated much heavier and embossed in the same way.

America's largest auto makers adopted it for upholstery because it outwears coated splits.

That foremost furniture maker, S. Karpen, says: "The cheap split leathers should be entirely eliminated in furniture upholstering."
Two-thirds of all "leather upholstery" is coated splits. Demand superior Fabrikoid on your car, buggy or furniture, and Fabrikoid Rayntite tops, guaranteed one year against leaking.

Small Sample Craftsman Quality Free
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It is on sale by John Wanamaker, Philadelphia; McCreery & Co., Pittsburgh; J. & H. Phillips, Pittsburgh; John Shillito Co., Cincinnati; Stix-Baer-Fuller Co., St. Louis; The Palais Royal, Washington, D. C.; Stewart & Co., Baltimore, Md.; T. Eaton & Co., Ltd., Toronto and Winnipeg; Du Pont Fabrikoid Co., 90 West St., New York; Davison-Paxon-Stokes Co., Atlanta, Ga.; D. N. & E. Walter & Co., San Francisco, Los Angeles, Seattle and Portland, and upholstery dealers generally.

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No pit required. Does not get oil into the water. Consumes less power per unit volume of water pumped.

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Los Angeles Office, 930 Investment Bldg., Eighth and Broadwa
Our "made right" irrigation valves are good, and not costly

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See Announcement at Head of Editorial Page

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California Cultivator

Rural Californian combined with California Cultivator

Vol. XLIV No. 9 LOS ANGELES: THURSDAY, MARCH 4, 1915 One Dollar Yearly

California Draft Horse Breeders Sale

Large Attendance Given to First Sale Which Was Held at University Farm at Davis on Wednesday, February 24. Bidding Rather Slow but Enough Sales Made to Encourage Industry. Prices Moderate.

THE California Draft Horse Breeders' Association's first sale was a success. The prices were not big, all the horses were not sold, but taken all in all we believe attention has been called to the draft horse industry in a way which will prove beneficial.

The day opened with a heavy rainfall but before time for the sale the clouds cleared away and the sun was shining. The crowd filled the big stock judging pavilion at the university farm at Davis and it really looked as if there would be spirited bidding. The highest price reached was by Salvador Forest King, a magnificent Shire, which commanded an even thousand dollars. One colt sold as low as $100, but the sales usually ran from $300 to $600. Considering the depressed financial condition the country over perhaps these prices are as high as could be expected, yet the draft made upon American horses by European war conditions is stimulating the horse industry to such an extent as to naturally encourage keen bidding when such an opportunity is offered. The association issued a beautifully printed catalog, giving some illustrations and a list with full pedigree of all horses offered at the sale. The auctioneer was Mr. Higginbottom. From a statement made by the association in the introduction of the catalog we quote:

"While California is not producing enough high class draft horses to supply the demand of its cities for such stock, there still seems to be a feeling of uncertainty in some quarters as to the future of draft horse breeding as a business in the state. The advent of the mechanical tractor as a competitor of the horse for certain kinds of draft and the question of the probable extent to which this machine may be used in the place of the horse is responsible in part for this attitude.

"Be this as it may, the demand will never be less imperative that heavy horses offered for sale be sound and of the big handsome, free-moving type that has always commanded high prices in our cities, even when the cheaper sorts found no market.

"In order to breed such heavy market horses with a degree of certainty the best pure bred draft stallions must be used. It is important, especially at times like this, not only that the best breeding animals be used but that stallion owners be able to buy their horses at reasonable prices. The breeders of pure bred draft horses in California have every confidence in the future. They feel, however, that they and those who should be their customers, should get closer together, that their dealings should be direct. They are, therefore, offering at public sale the horses and mares listed in this catalog in the hope and with confidence that this first consignment sale will mark the beginning of a new epoch, not only in the marketing but in the breeding of draft horses in California."

Sales were as follows:

Imported Belgian stallion Noirhat Docteur, consigned by Mrs. Virginia Gibson, bought by Elmo Montgomery, Davis, $300.

Belgian stallion Hamilton C., consigned by H. L. West, bought by M. and J. Williams, Concord, $685.

SOME ATTENDANTS AT THE DRAFT HORSE SHOW

Top picture, left to right: D. Gibson, Williams; H. R. Timm of Timm's Certified Dairy, Dixon, and H. C. Stovall, Willows. Center: Henry Wheatley, Napa, president of the Association; Wm. Higginbottom, auctioneer, and Prof. J. I. Thompson, secretary of the association. Bottom, left to right: H. S. and A. L. Landis, Sacramento; G. W. Watson, Napa Junction; H. L. West, Hamilton City, and G. A. Waugh, Chico.

Belgian stallion California Chief, consigned by H. L. West, bought by C. Harris, San Francisco, $600.

Belgian stallion Nebraska Chief, consigned by Frank S. West, bought by W. Fine, Millville, $300.

Belgian stallion West's California Chief, consigned by Frank S. West, bought by Del Grieves, Davis, $100.

Belgian mare Christine, consigned by Frank S. West, bought by Del Grieves, Davis, $155.

Belgian mare Chrystabel, consigned by Frank S. West, bought by Dion Gibson, Williams, $250.

Shire stallion Salvador Forest King, consigned by Henry Wheatley, bought by E. W. Westgate, Rio Vista, $1000.

Shire mare Salvador Rose, consigned by Henry Wheatley, bought by John McCormack, Rio Vista, $475.

Shire mare Salvadore Rose, consigned by Henry Wheatley, bought by Dr. C. M. Faris, Sacramento, $195.

Percheron mare Adalaide, consigned by Oliver P. Jenkins, bought by Wm. McLaughlin, Emeryville, $290.

Percheron mare Phoebe, consigned by Oliver P. Jenkins, bought by Wm. McLaughlin, Emeryville, $290.

Percheron stallion Pago, consigned by Winters Breeders' Association, bought by C. Harris, San Francisco, $500.

Imported Percheron stallion Gallipali, consigned by Parrott Investment Company, bought by Dr. C. M. Faris, Sacramento, $550.

Percheron stallion Chico, consigned by Parrott Investment Company, bought by A. Oure, R. R. 5, Sacramento, $600.

Four fine stallions, three Percherons and one imported Shire, were not sold.

California Federated Agricultural Associations

Enthusiastic Meeting at Exposition Grounds, San Francisco, on Washington's Birthday, Takes Steps to Form an Organization Which Should be a Great Factor in Agricultural Welfare

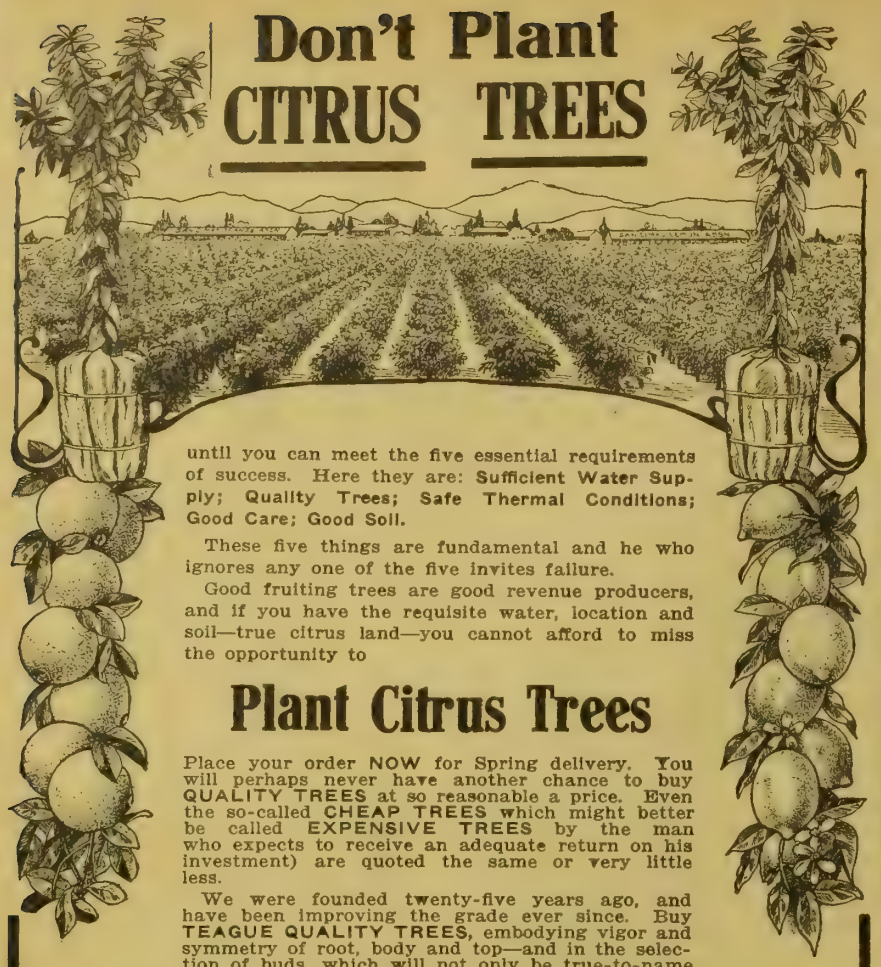
A movement which originally contemplated working only in the interests of fruit growers has progressed until the question is now asked—and we believe being answered in the affirmative—"May not its scope be enlarged to include agriculture in all its phases?" This movement is the result of a motion made at the State Fruit Growers' convention, held in Los Angeles in November. At that time a committee was appointed to report as to the advisability of forming a State Fruit Growers' Association to work with the state horticultural commissioner. The committee went somewhat farther than the motion contemplated and reported two separate types of organization back to the original convention for its approval. The convention adopted the report entire, though it expressed belief in the desirability of the larger and more inclusive organization; that is, an organization which should federate all the agricultural interests of the state. A committee was appointed which later met in Sacramento and unanimously favored the larger convention. This committee created by the State Fruit Growers' convention felt it did not have power to proceed in the formation of a larger organization without consulting other interests. To that end an invitation was extended to various state organizations to send representatives to a meeting which was held at Inside Inn, Exposition Grounds, San Francisco, on Washington's birthday. At that meeting there were representatives of some fifteen state associations. There were several representatives of the State Beekeepers' Association, California Wool Producers' Association, Live Stock Breeders' Association, Agricultural Exhibitors' Association, Farmers' Union, Marketing Committee of the Outlook Association, Farmers' Protective League, State Dairy Association, State Creamerymens' Association, San Joaquin Valley Water Problem Association, and others.

There was a feeling on the part of some that an association now existing might answer the purpose, instead of organizing a new one. This was particularly true of friends of the Farmers' Protective League, organized during the campaign when the eight-hour bill was before the people. The work of this league was well done at that time. We believe, however, the majority of those attending the meeting at Sacramento are in favor of forming an entirely new federation, one in which there shall be no salaried officers and in which the administration expenses shall be as low as possible, this for the sake of making its memberhip general.

Some growers have felt that possibly the ambition of the association was to take the place of existing organizations. We do not think this has been contemplated by anyone, and if it should be it would certainly be a great error. The idea is rather that it shall be an inspiration to greater membership of all the existing organizations of the state which have for their object the bettering of cultural and marketing conditions. In fact, that is the reason which inspires the work for this federation. There are today many organizations which feel the need of more general support.

(Continued on Page 287)

Don't Plant CITRUS TREES



until you can meet the five essential requirements of success. Here they are: **Sufficient Water Supply; Quality Trees; Safe Thermal Conditions; Good Care; Good Soil.**

These five things are fundamental and he who ignores any one of the five invites failure.

Good fruiting trees are good revenue producers, and if you have the requisite water, location and soil—true citrus land—you cannot afford to miss the opportunity to

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We were founded twenty-five years ago, and have been improving the grade ever since. Buy **TEAGUE QUALITY TREES,** embodying vigor and symmetry of root, body and top—and in the selection of buds, which will not only be true-to-name in the general acceptance of the terms, but true to the best type of the varieties to which they belong as well.

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These trees are excelled by none, for the reason that our stock of one-year-old buds are grown on new soil, and the greatest of care has been taken in the selection of buds which were taken from our own groves.

Lemons, Oranges and Grapefruit ⅝ and up, guaranteed to be true to name.

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Citrus and Tropical Fruits

RESULTS OF EXPERIMENTS WITH CITRUS STOCKS

By Prof. W. W. Bonns Before State Fruit Growers

A SHORT time ago members of the citrus experiment station staff had occasion to visit a nursery in Southern California where sweet and sour orange stock was being grown. An examination of about 1000 trees of the sweet stock showed 29 per cent by actual count affected to some degree with gum disease. Not one case of gum disease was found among the sour stock in a similar examination.

Last spring we set out a seed-bed of many thousand seeds of sweet orange, sour orange, trifoliate orange, pomelo, and rough lemon for the purpose of growing stock for a more extensive stock experiment on the proposed new station site. Shortly after the time of planting and continuing up to the time that the seedlings were attaining their first growth, the seed-bed was attacked by a soil fungus, rhizoctonia. As a result of this fungus invasion we lost about 70 per cent of the sweet seedlings, 60 per cent of the trifoliate, 40 per cent of the sour, 30 per cent of the pomelo and probably not more than 1 or 2 per cent of the rough lemon.

Professor Fawcett has shown beyond any reasonable doubt that sour stock, when directly inoculated with certain fungi by artificial means, has an inherent constitutional resistance to the spread of the disease, when compared with the severity of the attack which sweet stock experiences under similar conditions.

Now this question of resistance to disease is only one of several factors that enter into the question of the stock to use in propagating citrus fruits. We have dwelt upon this because it shows in a striking manner the differences in behavior to be expected of various stocks. But this is only one aspect of the problem. As we pointed out at the first horticultural assembly a year ago, the question of resistance to drouth, hardiness in respect to cold and to unfavorable soil and water conditions, are also of prime importance. In addition there should be determined the type of soil best adapted for the root development of the respective stocks.

In considering these points with respect to the roots there must also be taken into consideration the effect of the development of the variety grown upon them for commercial purposes What will be the effect of the stock upon the size and vigor of the trees produced, upon the age in which they come into bearing, the yield, and their period of maximum efficiency? Again, will there be any difference in respect to the points just mentioned when the same variety is budded to the same stock in a different soil type?

An attempt to answer some of these questions was begun at the citrus experiment station about eight years ago, and it was my purpose in the brief time allotted me today to summarize for you the results obtained to date.

The experiment is divided into three plots, the main difference being that of soil conditions. Plot A has at present 49 trees, consisting of Washington navel on sweet and trifoliate, Valencia on sweet, sour, pomelo, and trifoliate, and Eureka lemon, the same as Valencia. The soil on this plot is a light, deep, granite loam or uniform character.

Plot B comprises in all 164 trees. The navels here are on sweet, sour, and trifoliate, and the Valencias and Eurekas in addition to these roots are also on pomelo. This plot, although set in one piece, has been divided into two sections, in determining the data which is to follow, because of the differences in soil conditions obtaining in the two areas. The top soil is similar in both. It is of a somewhat heavier type than that in Plot A, being on the clay loam order. That portion of Plot B which we have characterized as deep is underlaid by a pervious, sandy loam. The other portion of B is very shallow and is underlain by hardpan of the most decided character. The top soil of this latter area has been mapped and the depth has been found to vary from 15 inches to a little over three feet. Manifestly we might expect different results from these differences in the subsoil conditions, nor would it be fair to take an average of the different varieties on the different plots from the sum of the two. We have therefore designated Plot B as B Deep and B Shallow, and have determined the data for each separately.

The trees in both Plots A and B were set out in April, 1907, as two-year-old buds of about one inch caliper and were obtained from one nursery. They have received uniform treatment in respect to fertilization, cultivation, irrigation, and covercropping. The trees are set in variety blocks, the respective stocks forming separate rows.

The results which we submit are two-fold in nature. They indicate the productiveness of the trees on the respective stocks to date and the vigor of the same as indicated by their size. The production is given in terms of the average number of pounds of fruit per tree for an average of five years for the navels and Valencias, and three years for the Eureka lemons, inasmuch as the injury effected by the winters of 1911 and 1913 precluded the possibility of lemon crops for the succeeding seasons.

It will be readily seen that the yield per tree is exceedingly small, but we must bear in mind that these five and three-year averages embrace the years when the trees began to bear their first fruits and that the present data is in no way a criterion of the performance of the trees at the present time or of their possibilities in the future. In does however furnish comparative data for discussing the different varieties upon the different stocks under similar conditions, and the yields have been arranged for this purpose.

TABLE I

Five-Year Average Production per Tree in Pounds. (For Lemons, Three-Year Average.)

	Sweet	Sour	Po-melo	Tri-foliata
Plot A				
Navel 35				22
Valencia 57	41		54	51
Eureka 11	17		28	15
Plot B Deep				
Navel 22	30			24
Valencia 28	33		34	49
Eureka 7	8		6	7
Plot B Shallow				
Navel 12	18			14
Valencia 25	22		13	16
Eureka 7	5		5	6

In Plot A the navel yield on sweet is considerably larger than on trifoliate. For Valencia sweet ranks first, with pomelo and trifoliate a close second and third, respectively. Sour has been the least productive. For Eureka lemon pomelo has given the greatest yield, sour second, trifoliate almost as good as sour, and sweet is last.

In Plot B Deep, navel on sour is first, trifoliate not far behind, and sweet a close third. On the other hand Valencia on trifoliate leads in this plot by a considerable margin, producing almost twice as much fruit as sweet, almost one-third more than the variety on sour or pomelo. For the lemons sour leads, with sweet and trifoliate tied for second place and pomelo last.

In Plot B Shallow, the yields are naturally much reduced. Sweet stock again holds first place for navel, sour second, and trifoliate third, but with little difference between the last two. Valencia in this case has done best on sour, almost as well on sweet, and

trifoliate has given better yields than pomelo which is last. Eureka lemon on trifoliate ranks first, sweet second, sour third, and pomelo fourth.

So much for fruit production. Let us consider briefly the comparative vigor of the trees as indicated by their size. The most uniform method of determining this seemed to be with the fumigation tent. Each tree in the experiment was covered, and the usual dimensions for determining cyanide dosage taken. These figures substituted in a formula, originally deducted by Prof. C. W. Woodworth of the University of California, and later amended by Mr. R. S. Woglum of the United States department of agriculture, have given us the volume of the trees under the tent in cubic feet.

TABLE II

Average Volume of Tree in Cubic Feet. Planted 1907, Measured, 1914

	Sweet	Sour	Pomelo	Trifoliata
Plot A				
Navel	1061			695
Valencia	1128	788	1112	819
Eureka	1434	1032	1270	199
Plot B Deep				
Navel	583	551		525
Valencia	790	592	730	786
Eureka	998	698	693	164
Plot B Shallow				
Navel	420	440		341
Valencia	676	499	577	335
Eureka	807	713	378	167

In Plot A navel on trifoliate is about 30 per cent smaller than the variety on sweet. In the case of Valencia the average size of the trees on sweet and pomelo is practically equal, and trifoliate exceeds sour by a small margin. Eureka lemon on sweet is somewhat larger than on pomelo, sour ranks third, being about 200 cubic feet smaller, and the trifoliate root has dwarfed the tree tremendously.

In Plot B Deep, there is very little difference in the size of the three stocks on which navel is budded. In the case of Valencia it is interesting to note that the size of trees on sweet and trifoliate are for practical purposes equal; while trees on sour are the smallest of all. In Eureka we again see the characteristic marked dwarfing of the trees on trifoliate. Those on sweet stock are again the largest, and in this case sour ranks second and pomelo practically equal to the latter.

In Plot B Shallow, navel on sweet and sour run very nearly equal, with trifoliate third. For Valencia the order of size is sweet, pomelo, sour and trifoliate, and for Eureka lemons, sweet, sour, pomelo, and trifoliate.

One of the most striking facts of this experiment is the very decided increase of the size of the stock about the ground wherever trifoliate root has been used. The result of growing a large tree upon a root system which is naturally small, like the trifoliate, and which in its normal conditions is not accustomed to developing a large tree, seems to result in a stimulus which increases the size of the stock markedly.

This account is intended to be a progress report, pure and simple. Definite conclusions at this stage of the work would be unwarranted and unsafe. We must remember that these results represent only the first half of the first decade of this experiment. The trees have only begun to indicate what they may produce in the future. The points to which we would call attention, however, are, that the reputation of the trifoliate stock for dwarfing the tree does not hold good for all soils or all varieties. We have seen here Valencias on trifoliata producing as well and growing a tree as large as, or larger than, those on other stocks. Also we may note that the behavior of the same stock and variety varies on the light and the heavy soils. One thing seems unmistakable, and that is that trifoliata root dwarfs the lemon to a very great and undesirable degree.

CITRUS CANKER

Bulletin 124 of the University of Florida agricultural experiment station is probably the most complete statement of the fearful results of this disease yet made. In it we note several illustrations, one of which shows the burning of infected nursery trees, another of an infected orchard. An appliance similar to an ordinary spray pump is used to spray a flaming mixture of kerosene and crude oil upon the tree, upon the grass and the soil underneath, until there is no possibility of infection left. It has been found that practically the only safe method of treating this dread disease is absolutely burning up leaf, tree and even the soil. California may well continue its rigid quarantine against any such a pest. Florida is making a brave fight and we trust will succeed in wiping it out.

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EVER GROWN
Will deliver nothing under 18 inches high in the seedbed.
Samples on Application
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Late Valencias — Eureka Lemons
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Deciduous Fruits

FOUNDATION STONES FOR SUCCESS IN AGRICULTURE

CONTINUING the series published in the Cultivator of February 4. In these brief summaries different experts of the college of agriculture of the University of California have set forth the basic principles of their various specialties.

PRODUCTION OF FRUITS AND NUTS

By A. V. Stubenrauch, Professor of Pomology

The commercial orchard is a long time investment; careful attention to important details of management is therefore cumulative in its effects.

The factors underlying successful orcharding are proper soil conditions, favorable climate, and accessible markets.

Accessible markets mean efficient transportation service. Efficient refrigerator transportation service renders distant markets relatively more accessible than less distant markets without efficient service for carrying fruits in sound condition.

Temperature, rainfall, and winds are the governing climatic features in the production of fruits and nuts.

The occurrence of late spring frosts is frequently the limiting factor in the successful production of a particular fruit.

Almonds and apricots bloom early, hence sites which are free from late spring frosts must be selected for these fruits.

Direct sunshine is necessary for successful fruitfulness.

Some unfavorable conditions preventing successful growth of trees are: Shallow soil, hardpan near the surface, lack of drainage, presence of coarse gravel strata near the surface, presence of excessive alkali salts.

Thorough preparation of the soil is one of the elements of success in planting trees.

Thorough and deep tillage of orchard soils is an urgent necessity under California conditions of rainless summers.

Cover crops improve the physical condition of both light and heavy soils.

A leguminous cover crop has the advantage of both improving the physical texture of the orchard soil and adding a valuable plantfood—nitrogen—which it obtains from the atmosphere.

Early fall sowing of cover crops insures early growth and a maximum production of green stuff for plowing under in spring.

Cover crops can be profitably grown only during the winter rainy season in California; hence a crop which will thrive and grow during cool weather must be selected for this purpose.

Pruning is too important to be left to the caprices of ordinary farm labor.

The principles underlying the proper pruning of young trees are different from those governing the handling of bearing trees; in the one the training of the tree is paramount while in the other the control or regulation of fruiting habits is the governing factor.

OLIVE GROWING IN CALIFORNIA

By W. F. Oglesby, Assistant in Viticulture in the University of California

Olive varieties should bear good crops of large fruit, easy to pickle and ripening before heavy frosts.

Winter temperatures below 15 degrees Fahrenheit, spring frosts after April 15, and fall frosts before December 1 are dangerous.

Very hot or cold weather during blossoming, especially with wind, may reduce or prevent bearing.

Mean temperature from blossoming to ripening should average at least 66 degrees Fahrenheit.

The best soils require at least two acre feet of water; shallow or less retentive soils more.

Localities subject to frequent summer fogs are unsuitable for olives owing to the difficulty of controlling black scale.

Deep preparation of the soil is necessary for vigor and early bearing and promotes deep rooting.

Deep annual plowing in winter aerates and improves the soil.

Frequent cultivation during the growing season conserves moisture.

Irrigation must supply deficiency of rain or of retentiveness of soil. Except in the best soils it should be frequent toward the end of summer.

Cover crops or stable manure, or both, are essential for building up and maintaining the humus of the soil.

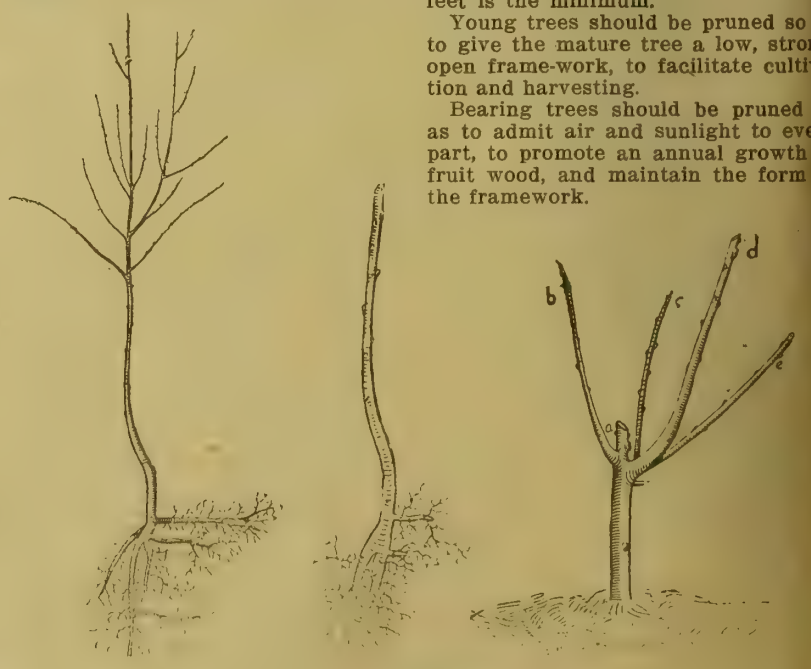
Suitable commercial fertilizers increase the productiveness of deficient soils.

Material for propagation should be selected from trees known to be good, regular bearers of choice fruit.

The richer the soil and the more vigorous the variety, the larger space needed by each tree; about 900 square feet is the minimum.

Young trees should be pruned so as to give the mature tree a low, strong, open frame-work, to facilitate cultivation and harvesting.

Bearing trees should be pruned so as to admit air and sunlight to every part, to promote an annual growth of fruit wood, and maintain the form of the framework.



Prune the Roots.

The tree as it comes from the nursery and as it should be headed at planting time. The tree to the right, however, shows by the stub at "a" that at planting time it was not cut "to a bud," or, if so, cut so close that it died back and started at next bud below. This stub should be removed and the cut wazed so that it will heal over. To use this tree would be nearer ideal if lower branch to the right were removed entirely and if the other three cut waxed so that it will heal over. To use this tree would be nearer ideal had at least one-half of their length removed. The roots should also be reduced and left with clean trimmed tips, as indicated in center illustration.

The only serious diseases and pests of the olive tree in California are the olive knot and scale insects. Where the former exists the more susceptible varieties should be avoided. Against the later, regular, open pruning is usually sufficient protection.

PLANT PATHOLOGY

By Ralph E. Smith, Professor of Plant Pathology

All plants are subject, in a varying degree, to what is called disease.

Disease is brought about by unfavorable soil or climatic conditions, by gross injuries, by parasites, and by some unknown influence.

The effects of such influences may be obscured, increased, or complicated by responses on the part of the plant itself of the nature of abnormalities in structure.

The species and variety of the plant affect its susceptibility to various diseases.

The condition of the plant has a similar, though less pronounced, effect.

Climatic, seasonal, or local conditions have a decided influence upon the prevalence of many plant diseases.

Disease may be prevented by destroying or avoiding its specific cause. Also in a measure by increasing the resistance of the plant by cultural means.

Also by choosing or creating varieties of plants which possess resistance to specific diseases.

IRRIGATION

By Frank Adams, Irrigation Manager, Office Experiment Stations U. S. D. A.

The application of more water than the soil will retain or than the crop irrigated requires is injurious to the soil and wasteful for both the individual and the state.

The purpose of irrigation is to get adequate moisture into the rooting zone of the crop irrigated and not merely to apply water to the soil surface. (Buy and use a six-foot soil auger and know what becomes of the water applied.)

Long irrigation furrows and long checks make even application of water impossible.

In orchard irrigation it is as important to irrigate directly in the tree rows as to irrigate between them.

Basin and flooding irrigation of orchards result in unnecessary puddling and excessive evaporation and may double the cost of cultivation after irrigation.

Orchards should be irrigated by means of furrows if you can get the water where you want it with furrows. (Use your soil auger to find out.)

The principal wastes in irrigation come through leaky farm ditches, run-off at the lower ends of furrows and checks, excessive application, resulting in too deep percolation, and surface evaporation due to too little or too shallow cultivation. (Look out for them!)

Plants require most water when they are making the most rapid growth.

Crops should be irrigated before they begin to suffer for lack of moisture.

The ideal in irrigation is, in general, to maintain uniform moisture content of the soil for lack of moisture.

Beyond a certain point the application of additional water does not increase yields and may decrease them.

WALNUTS IN SANTA BARBARA COUNTY

In the report of Horticultural Commissioner Beers of Santa Barbara County we note the following regarding walnut conditions in that county:

"The older walnut trees are being removed year by year to make way for new trees or to be supplemented by other plantings that offer greater attractions than walnuts. Where they are replanted to young walnuts we notice a very general practice is to plant trees budded to native black walnut, and this is encouraged, because we believe our native Southern black walnut offers a root stock superior in many respects to the natural English walnut. In addition the grafted trees give a more uniform nut and one that has already secured a higher market price.

"In the progress made with the disease Melazuma, that has become such a factor in the walnut industry, the experts have determined the genus of the fungus causing the disease. It is a well known fact with plant pathologists that a number of fungi have two stages of development, one of which is known as the imperfect stage, the other the perfect stage. In the laboratory work on Melazuma there has been determined an imperfect stage, as well as a perfect stage, of the causal agent of this disease. Research through the literature covering fungus studies in Italy discloses the interesting fact that the students in that country have discovered a fungus similar to the one under discussion, in that it is found on both walnut and willow, and this foreign fungus has both the perfect and imperfect stages of development. Our experts are not yet prepared to say that the fungus working in our walnut orchards is the same as that reported from Italy, but it is probably a related fungus. It is rather well established that the fungus with us is working on both walnut and willow.

"If it has its origin in our willows, then a safeguard would be to remove and burn all willow growth on the ranches, supplementing them with some more desirable tree or shrub. I would suggest planting the forage tree, the carob. Eucalyptus would surely be a great improvement over the willow."

GRAFTING WAX FOR DRESSING WOUNDS

There is an endless variation in the composition of dressings used from among the large number of substances available. Caution must be exercised in the use of gas tar, or coal tar, which contains certain chemicals injurious to the tissues of the tree. Pine tar is less objectionable, but much more expensive. Among the materials commonly used are the following: Resin, which gives the mixture body and hardness; beeswax, or tallow, which renders the resin less brittle and gives the mixture pliability; linseed oil, which makes the mixture softer and imparts drying and setting qualities. These three substances are the basis of the best dressings. If it is to be used hot, being kept melted over a fire, the following is suggested:

Resin	6 pounds
Beeswax	1 pound
Linseed oil	1 pint

By increasing or decreasing the proportion of resin to beeswax, we make the compound stiffer and more brittle, or softer and more pliable. By increasing the amount of linseed oil and adding a little alcohol and turpentine, at the same time reducing the amount of resin, the mixture remains fairly liquid when cold and can be used without the portable stove. Beeswax is expensive and may be displaced wholly or in part by tallow, but the resulting compound is not quite so good. The dressing can be prepared in large quantities in a kettle and reserved for future use. Too large a proportion of beeswax will make the mixture liable to melt and run down the trunks in hot summer weather.

Some injury was done by strong winds in El Dorado County last week.

QUASSIIN A CHEAP INSECTICIDE

Attention is called in a recent bulletin of the United States department of agriculture to the possibilites of quassiin as a contact insecticide. There is reason to believe, says this bulletin, that quassiin can be cheaply prepared and possibly sold at a lower price than some of the materials now used in commercial insecticides. The only experiments, however, that have been made up to the present were conducted at Sacramento and it is possible that in a more humid climate quassiin would not be so satisfactory.

Quassiin is the active principle in quassia wood which is found in considerable quantities in Jamaica. Quassia chips have been employed for many years in the preparation of spray solutions for the control of the hop aphis. The percentage of quassiin in these chips varies somewhat but it has been stated to be 75 per cent by one author. If this is correct, the bulletin says, it would take only one and one-half pounds of the chips to 100 gallons of spray to make an effective insecticide; three pounds or double this quantity would certainly be sufficient; and with three pounds of whale-oil soap at four cents a pound would make the total cost of materials for 100 gallons of spray only 24 cents.

In investigating the efficiency of the quassiin spray, the author of the bulletin compared it with a standard insecticide known as nicotine sulphate, a tobacco product. The quassiin he believes to be equally effective.

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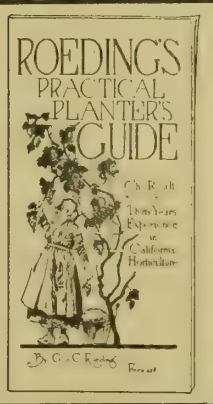

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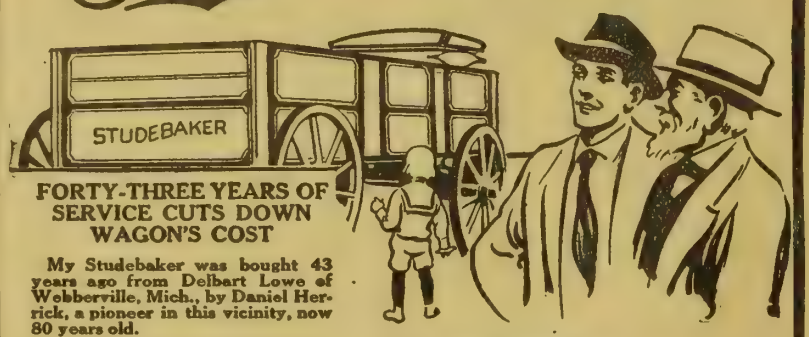

FORTY-THREE YEARS OF SERVICE CUTS DOWN WAGON'S COST

My Studebaker was bought 43 years ago from Delbart Lowe of Webberville, Mich., by Daniel Herrick, a pioneer in this vicinity, now 80 years old.

In 1887, S. E. Dean bought the wagon from A. B. Herrick, Daniel's son.

Eight years ago L. C. Dean, son of S. E. Dean, bought the wagon from his father and still uses the wagon on his farm.

The wagon has stood out of doors for 26 years; a yard and a quarter of gravel can be drawn in it now.

Levi C. Dean,
R.F.D., Webberville, Mich.

A Studebaker that has served three generations—

FORTY-THREE years ago Daniel Herrick bought a Studebaker wagon. Mr. Herrick's son sold the wagon to S. E. Dean and Mr. Dean's son is using the same wagon on his farm today.

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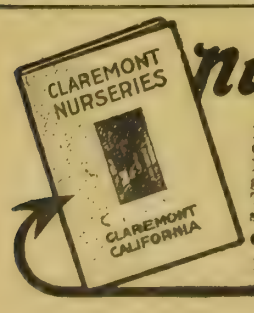

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General Agriculture

PLANTING ONIONS

I WISH to plant about five acres of onions on land near the foothills. The soil is very heavy and retains moisture to such an extent that it will probably not be dry enough to work before the middle of May. Could a crop of onions be raised successfully planted that late, with plenty of water for irrigation? Where can I get some information on onion culture in California?—Subscriber, Exeter.

The best answer we can give to this question is to reprint an article written by S. J. Murdock for the California Cultivator. Mr. Murdock has had many years of experience in California onion growing and the information he gives is thoroughly reliable.

Culture of the Onion

There is one thing of paramount importance which conduces to the satisfactory results of the successful onion crop, and that is good seed, for on good seed more than any one thing, the careful grower relies, and possibly to a greater extent than that of any other vegetable, unless it be the cauliflower.

Onion seed should be of the best possible strain of the variety intended to be grown and strictly fresh, as it soon loses its vitality. An experienced person ought to be able to judge onion seed as to age and vitality by inspection—bright color indicates new seed, while heavy, plump seed gives evidence of vitality—but for pure strains of unmixed varieties the purchaser will have to rely upon the grower and dealer. High priced seed or new-named novelties it would be best to test sparingly before planting extensively. It is our experience that the novelties of the catalogues are introduced more for the benefit of the originator and dealer than the producer. Nevertheless, once in a great while the producers do get hold of something new that is a source of profit.

Cheap Seed Inferior

Cheapness in seed of any kind carries with it the stamp of inferiority. The value attached to good seed by old growers is often a source of wonder to the inexperienced and is frequently overlooked by the beginner. Poor seed has caused many a novice to quit the business in disgust, with a loss of time, patience and money.

The onion top grows 15 to 24 inches high, according to the variety and the fertility of the soil. As the onion develops and the crop begins to mature the stock or top dries or shrivels up near the bulb and falls over; this forms a ripe onion; but a portion of them, according to the purity of the seed used, will remain large and stiff just above the bulb. This constitutes a scallion or stiff neck. The scallion, although good to eat, does not keep well and is unmarketable; it is an inferior product. Most all vegetables are susceptible of being bred up to a high degree of perfection and the onion is no exception to this rule. If we should grow and select seed from scallions for a few years we would soon have a strain of seed that would grow scallions to a certainty. While on the other hand, if we would select the earliest and best shaped bulbs, with small necks (the word neck is used to designate that portion of the onion top close to and just above the bulb) to propagate our seed from and continue this careful selection from year to year, we would soon produce a strain of seed which would, with proper cultivation, grow a fine crop of well matured bulbs with a small per cent of scallions. The unscrupulous grower will sell all of his marketable product, reset his scallions, and grow a crop of more than worthless seed, whereby the purchaser not only loses the cost of same but invariably his time and labor. Experience with poor seed all goes to show the importance of selling only the very best.

Another disreputable practice among some seedmen is to buy up the seed still on the market at the close of the season, hold it over along with what they may have unsold, till another year. Seed two years old is generally very unsatisfactory to the producer planting it. Yet a crop of very plump, heavy seed may be better at two years than that of a poorly matured crop of new seed.

Good, reliable seed is the keynote to success in onion culture; if we go wrong here all may be lost. Many may think that I am over particular on this point, but my past experience tells me to the contrary.

SEEDING ONIONS WITH PLANET JR.

Preparing the Seed Bed

In the preparation of the seed bed, the work should be done thoroughly, but not too deeply, especially for an early crop. The closer we keep the roots to the surface the earlier the crop may mature. The plot should be brought to the finest state of cultivation, as smooth and level as possible and free from rubbish. The onion will succeed in a greater diversity of soil than is generally believed, but the more humus the better, as fertility is a natural adjunct to a satisfactory crop. I prefer, for a large crop of solid bulbs, a rather heavy soil, well drained, yet, for an early extra crop, would plant on rich, sandy loam. The plot should be protected from heavy winds, and avoid all shade as the onion is a lover of sunshine in all stages of growth. Well subdued and thoroughly drained muck land offers every condition of success.

Planting

Planting is generally done with a seed drill, of which there are several patterns. I find the Planet, Jr., a reliable tool, and prefer the seed drill and wheel hoe as separate machines

to the combined. I can do better work, especially with the wheel hoe, as it is lighter and more open in construction, which gives the operator a better view of his work, and besides you are not wearing out your seed drill, while you are only using the wheel hoe.

Care should be taken to start the first row straight, as following rows are gauged by it. Not only are regular rows the pride of the practical gardener, but a great help in after cultivation—the straighter and the more equidistant the rows the closer the operator can work with the wheel hoe. The closer the work is done the less hand wheeling will be necessary. The rows should be from 12 to 16 inches apart, according to the variety grown, the larger the variety, the greater the distance.

On moist, heavy land the seed should be drilled just deep enough to fairly cover. The lighter and looser the soil the deeper the seed should be planted to prevent drying out before striking root. If the soil is in proper condition to work, the firmer it is rolled the better. The right time to sow the seed varies with different varieties. To cover the entire year I have sown onion seed every month and have been very successful in maturing my crops. However, the crop is not harvested at regular periods as it requires warm, dry weather to mature an onion crop.

Fall Crop

Sow the seed in September or October, quite thick, on a well prepared seed bed, and when the plants are from six to eight inches high, pull up and transplant on well cultivated and thoroughly cleaned plot of ground in rows 12 inches apart and plants three inches apart in the rows. I always cut off the tops so as to leave a stub about three inches long, and think it better to trim the fine roots some also as it makes the transplanting easier and lets the soil pack closer around the plant. For the early varieties plant sets or sow seeds from the 10th of September to October 20.

Late Crops

For late crops sow seed February 15, or as soon as possible after that date. If sown much earlier there will be likely to be a larger percentage of scallions, also more hand weeding. On the other hand, if delayed too long the yield will be perceptibly smaller. Put the rows 12 to 15 inches apart and sow from four to five pounds per acre. After seeding, thorough, shallow cultivation is essential. Do not wait until the plants are up before beginning; from four to eight days will be proper, or when the seed begins to show signs of germinating, which can be ascertained by carefully brushing the soil from the drill row. I put the curved hoes on my wheel hoe, with the straight ends of the hoes pointing inwards and lapping about two inches, and hoe right over the rows, but not deep enough to disturb the seed. Right here, and in the after cultivation, will be seen the necessity of bringing the ground to the finest condition possible.

I find that it saves a great amount of hand weeding by killing the weeds just starting to grow in the rows. When the onions are up sufficiently to follow the rows, I reverse hoes, with the curved ends next to the rows, and just far enough apart so as to hoe as close as possible without cutting the young plants, by running the hoes astride the rows. This operation hoes both sides of the rows at one trip of the machine. Follow this by hand weeding; this operation is best performed by the crawling process—that is, getting down on hands and knees astride of the row and pulling every weed in sight and loosening the soil around and between the plants; repeat this as often as any weeds are to be found, and under no circumstances allow the weeds to grow above the onions; at the same time keep the wheel hoe at work between the rows and as close as possible.

Harvesting

When the tops have turned yellow and dried or shriveled up near the bulbs, and the majority have fallen over, the crop is ripe and ready to harvest. If on moist land they should be harvested at once, for if left long in the ground the moisture from below and heavy fogs will soon cause them to start new roots. On dry land, however, the summer crop can remain quite awhile without injury.

Harvesting a mature crop is done by pulling two or more rows. Lay the onions next to the standing rows, and when across the plot turn round and pull a number of like rows and lay with the ones previously pulled. This leaves them in a continuous pile across the field, when they are in a convenient shape to top, which is generally done with a sharp knife, after having lain a few days to more fully mature. While topping, the bulbs are usually thrown in heaps ready for market or to store away, as the grower may determine. It is best to sack and haul from the field while the sun shines, as the onions should be perfectly dry in either case.

The yield per acre differs with different varieties, under different circumstances and on varied soils. Two hundred centals is a fair yield of the smaller varieties, yet it is not uncomcom to raise 300 to 400 centals per acre, and I know of one instance (which is certified to by witnesses), of one single acre yielding 660 centals, and that, I am proud to say, was done on California soil.

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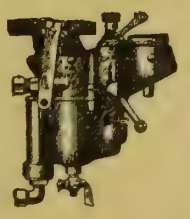

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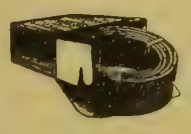

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Farm Bureaus and Institutes

CALIFORNIA now has 11 county farm advisers. Glenn and Solano are the newest counties to receive appointments. In regard to them B. H. Crocheron, state leader for California, writes:

B. H. Crocheron, State Leader

The newly appointed farm advisers for Glenn and Solano Counties took up their work March 1.

On that date I met with the board of directors of the farm bureau of Solano County and with Mr. Mills, the newly appointed farm adviser of that county, to outline the beginnings of the work of the organization. On Wednesday, March 3, I met with the directors of the farm bureau of Glenn County at Willows and the newly appointed farm adviser, Mr. W. H. Heileman, for a similar purpose.

The conference of farm advisers held at Berkeley the third week in February had no public interest, but was really an experience meeting, or exchange of opinions between the farm advisers employed through the state, in order that each might get the best ideas of the others in regard to methods of work. In order to keep the farm adviser thoroughly conversant with the latest agricultural science, the heads of the various divisions of the college of agriculture gave the farm advisers hourly addresses on new developments in their branch of agriculture, much of which included scientific results that have not yet been published. By this method we hope to keep the farm advisers in the forefront of modern knowledge. The conference disclosed an array of activities which the advisers are undertaking and sent them all home feeling even more optimistic than ever regarding the future of the work. We are convinced furthermore that these conferences are of exceeding value and that they will be held from time to time in the future.

Alameda County, W. H. Nixon, Adviser, Hayward

Hayward, Monday, March 1.
Castro Valley, Friday, March 5.
Murray Township, Monday, March 8.
Pleasanton, Wednesday, March 10.
Oakland Day, Friday, March 12.
Irvington, Tuesday, March 16.
Centerville, Friday, March 19.
Newark, Monday, March 22.
Niles, Wednesday, March 24.

Napa County, H. J. Baade, Adviser, Napa

Coombsville, March 2.
Browns Valley, March 3.
Salvador, March 6.
Carneros, March 8.
Fly District, March 10.
Howell Mt., March 11.
Soscol, Mardh 12.
Mt. George, March 13.
Rutherford, March 15.
St. Helena, March 17.
Calistoga, March 19.
Wooden Valley, March 22.
Berryessa, March 24.
Pope Valley, March 26.

During the month of March poultry management and spraying will be discussed at the center meetings. These meetings are for all people interested in agriculture. Every one is welcome.

Napa County has just had an extended visit from Dr. Cady, of the United States department of agriculture. Dr. Cady has been giving hog cholera vaccination demonstrations in this county, in 12 different places. Following each demonstration he has given an illustrated lecture in the evening.

We feel that a campaign to prevent hog cholera is far more essential than one to cure it, or control it, after it has once gotten a foothold. We are, therefore, very much elated over the services that we have received and hope that other counties will be as fortunate as we have been in getting Dr. Cady's services.

Yolo County, Niles P. Searls, Adviser, Woodland

Guinda, March 2.
Esparto, March 3.
Rumsey, March 4.
Winters, March 8.
West Sacramento, March 12.
Clarksburg, March 20.
Esparto, March 22, special hog cholera meeting with demonstration.
Knights Landing, March 23, special hog cholera meeting with demonstration.
Yolo, March 24, special hog cholera meeting with demonstration.
Woodland, March 25, special hog cholera meeting with demonstration.
Davis, March 26, special hog cholera meeting with demonstration.

The hog cholera meetings will begin a county campaign against this trouble, Dr. Cady, of the United States department of agriculture, having been secured as a lecturer. Dr. Cady will do demonstration vaccination in the afternoon and at night will show a series of lantern slides dealing with the topic. A Swine Raiser's Association may be formed to deal with the control of the disease.

The two cow testing associations that have been organized by the farm bureau are doing excellent work, something like 1700 animals being under test. By intelligent culling out one dairyman has doubled his average production, while another has increased from an average of 20 pounds to one of 30 pounds per month.

San Joaquin County, Frank F. Lyons, Adviser, Stockton

Thornton, Monday, March 1, G. L. Barber, director.
Lodi, Thursday, March 4, H. T. Bailey, director.
Acampo, Friday, March 5, George Ashley, director.
Stockton, Saturday, March 6, W. N. Harrison, director.
Lockeford, Monday, March 8. N. H. Locke, director.
Linden, Wednesday, March 10, E. L. Davis, director.
Escalon, Monday, March 15, E A. Clough, director.
Ripon, Thursday, March 18, J. P. Watkins, director.
Manteca, Friday, March 19, J. W. Graves, director.
Tracy, Monday, March 22, H. A. Frerichs, director.
Holt, Wednesday, March 24, Ralph Cople, director.
Waterloo, Friday, March 26, W. H. Daniels, director.

We intend to form one large San Joaquin County cow testing association with two testers. The organization is in the hands of a committee of five dairymen, appointed by the president, Mr. Ed Powers, of the San Joaquin County farm bureau. We have about 1000 cows signed up now and within another week expect to have enough to require the services of two testers. During the second week of March we expect to hold a dairymen's meeting in Stockton and complete our organization. At this meeting the officers for the year of 1915 will be elected and a representative from the animal husbandry department of the University will speak.

Ventura County, William B. Parker, Adviser, Ventura

Fillmore, to be arranged.
Nordhoff, March 8.
Oxnard, March 10.
Ventura Avenue, March 11 (joint meeting with Avenue Ladies' Club).
Camarillo, March 12.
Somis, March 15.
Saticoy, March 17.

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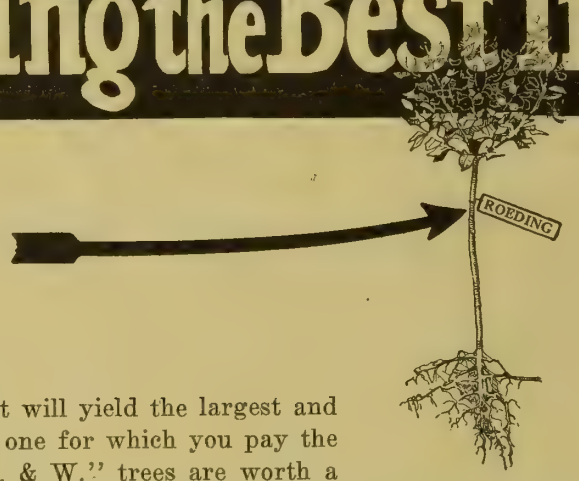

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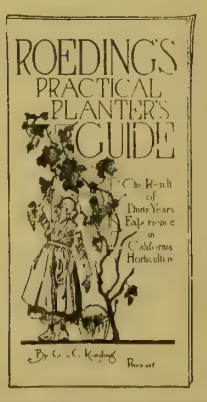

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Moorpark, March 18.
Simi-Santa Susana, March 24.
Santa Paula, March 30, or field meet to be called.

Kern County, R. R. Mack, Adviser, Bakersfield

Wasco, March 1, 7:30 p. m., director, W. T. Fowler.
Delano, March 3, 7:30 p. m., director, R. H. Hiett.
McFarland, March 5, 7:30 p. m., director, P. M. Peterson.
Panama, March 8, 7:30 p. m., director, A. B. Robinson.
Rosedale, March 10, 7:30 p. m., director, J. Waters.
Rio Bravo, March 13, 7:30 p. m., director, F. W. Haag.
Tehachapi, March 16, 7:30 p. m., director, L. T. Jenkins.
Muroc, March 17, 7:30 p. m., director, C. E. Clark.
Willow Springs, March 18, 2 p. m., director, H. W. Mongold.
Arvin, March 22, 7:30 p. m., director, R. Haven.
Shafter, March 24, 7:30 p. m., director, E. U. Combs.
Bakersfield, March 27, 2 p. m., director, M. J. Adams.

San Diego County, H. A. Weinland, Adviser, San Diego

Del Mar, March 1.
San Luis Rey, March 3.
Bonsall, March 5. Poultry will be discussed. Lantern slides.
Director's meeting, March 6.
San Marcos, March 8.
Ramona, March 10.
Alpine, March 12.
Office, March 13.
Spring Valley, March 15.
La Mesa Heights, March 17.
Jamacha, March 19.
Annual meeting, Saturday, March 20, San Diego Exposition Grounds.
National City, March 22.
Nestor, March 24.
Mission Valley, March 26.
Office, March 27.
Petrero, March 29.

Among the speakers at the annual meeting, March 20, are: G. Harold Powell, manager of the California Fruit Growers' Association; Dean Hunt of the University of California and Prof. B. H. Crocheron, state leader of the farm advisers of California.

Madera County, Thos. C. Mayhew, Adviser, Madera

Chowchilla, March 3.
Madera, March 6.
Dixie Land, March 9.
Fairmead, March 12.
Eastin, March 15.
Raymond, March 18.
Nipinnawassee, March 20.
Oakhurst, March 23.
Coarse Gold, March 25.
North Fork, March 29.

I have my hog contests well under way and expect same to be very satisfactory in every respect. A large number of the farmers are getting into it. It is hoped that it will bring out some important facts especially on the economic question. (The rules governing contests will be given in a later issue of the Cultivator.)

FARMERS MEETINGS IN ARIZONA

The agricultural extension service of the University of Arizona college of agriculture under direction of Prof. S. F. Morse has arranged for a series of special farmers' meetings all over the state. The speakers in each instance will endeavor to spend as much time as possible before the meetings, which will be held either in the afternoon or the evening, in some cases occupying two sessions, visiting various farms in each locality and acquainting themselves with the farmers' problems so that their talks may deal entirely with local conditions. If the speaker is to talk on livestock, it is desired that the meeting be held, if possible, on somebody's ranch where livestock may serve as the object lesson of the talk.

It is suggested that any farmers desiring special assistance from the experts of the agricultural extension service hand their names to the local leader in charge of the farmers' meetings.

Following is a list of the meetings and local leaders:

Casa Grande, March 2, J. F. Brown, local leader.
Summerland (near Maricopa), March 3, F. H. Swensen, local leader.
Crane (Yuma), March 4, C. J. Wood, local leader.
Somerton, March 5, M. A. Gilmer, local leader.
Wellton, March 6, J. D. Andrews, Jr., local leader.
Phoenix (Roosevelt District), March 3, K. S. Townsend, local leader.
Lehi, March 4, Elijah Allen, local leader.
Gilbert, March 5, I. R. Burke, local leader.
Wickenburg, March 8, F. B. Jacobs, local leader.
Cornville, March 10, C. B. Coulson, local leader.
Oak Creek, March 11, J. O. Hurst.
Camp Verde, March 12, C. C. Calloway, local leader.
St. Joseph, March 15, Bishop John Bushman, local leader.
Woodruff, March 16, Bishop L. M. Savage.
Snowflake, March 17, President Samuel F. Smith, local leader.
Show Low, March 18, Chas. T. Savage, local leader.
Lakeside, March 19, Bishop A. P. Larson, local leader.
St. Johns, March 22, Levi Udall, local leader.
Flagstaff, March 24, W. E. Berg, local leader.

The speakers at these meetings will be as follows:

G. W. Barnes, farm adviser on live stock of the agricultural extension service, University of Arizona college of agriculture, will talk on various

(Continued on Page 287)

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The Macatawa is 3½ inches one way by 3¼ inches the other

It begins blooming in the southern and coast States about February 15. One month later you can begin to pick. It is a continual cropper from Spring until the frosts, in fact, is the only berry in my 46 years' experience that is an everbearing variety.

Its habit is similar to that of the Eldorado, upright grower, needs no support, self-branching, and the bloom is almost semi-double, about the size of a silver dollar. The young plants come from suckers and not from tips, but it is a shy sucker maker, so we propagate by digging up the roots between the rows and cutting same into one, and one and one-half-inch pieces.

These piece roots are sown in rows four inches deep, the rows two feet apart. They should be sown in the southern and coast States from December 1st to March 1st, in the center states from March 1st to May 1st. By the next fall you will have nice plants full of fiber roots, and the plants will be 18 inches high and ready to plant in the field for fruit. Our price for these piece roots, $10 per thousand; one year old plants, $1.50 per dozen, $10 per hundred, $100 per 1000. 50 plants go at 100 rates, 500 at thousand rates.

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Small Fruits Vegetables

THIS MONTH IN SOUTHERN CALIFORNIA

Written for the California Cultivator By O. M. Morris

THE longer days of later spring afford splendid opportunity for garden work and operations may proceed with greater rapidity. The list of vegetables which may be planted covers practically all varieties though it is possibly a little early still for melons, cucumbers and squash.

The most important feature of this month's garden work is thorough preparation of the soil. Ground for vegetables should be worked deeply and thoroughly and made as mellow as possible by continual harrowing or raking. It is not difficult to get a good stand of seed from light, loamy soil but on heavy clay or adobe the soil must not be allowed to pack too deeply over the seed. Most of the failures with the smaller seeds such as lettuce, carrot and parsley are caused by planting too deep and failing to keep the surface soil broken up to avoid crusting on the surface. If rains should follow shortly after planting it is advisable to use a rake to break up the surface as soon as the soil is sufficiently dry to work up mellow, but under no circumstances should it be worked when sodden or over wet.

Early planted tomatoes, egg plant and peppers should be covered with paper, or some protection given during cold nights or from beating rains, but they should have the full sun during the day. Other vegetables will not need any protection.

Early summer squash is being planted now but the hills should be covered during the night. This is one of the most hardy of the squashes and will start much earlier than any of the others.

JAPANESE KUDZU VINE

I was much interested in a contribution from Mr. Joseph Meehan in the January 14th issue of the Cultivator regarding Japanese kudzu vine, I am well acquainted with this vine, having been born in the sunrise country, and would like to say something more about it.

The real name of this plant is "kuzu" and not kudzu. Kuzu vine is a perennial plant of a decumbent growth. In one season it will make a growth of from ten to 60 feet, and it is not uncommon to find a vine 100 feet long. The average size of the stem is from one-fourth to one-half an inch in diameter. Its form is cylindrical. The arrangement of the leaf is alternate; it is large, unipalmate and the venation is radiate. The margin of the leaf is palmately cleft, the surface is pubescent, while the texture is coriaceous, with a long petiole. The young kuzu vine rarely flowers. When old it produces flowers of a purplish hue, resembling those of the wistaria. It is monoecious. The fruit is somewhat similar to the lima bean.

Throughout the southern part of Japan, especially on the island of Kiushu, we find the kuzu vine growing abundantly on hillsides and along river banks. The natives gather the vines in the summer when they are tender and feed stem, leaves and all to horses, cattle, hogs and sheep. In the fall the farmers strip off the leaves and cure them for winter feed for domestic animals. Stripped of its leaves the vine is used for tying fences, making rope, etc. The root of the kuzu is fascicular of a white or creamy shade. It weighs from two to 20 pounds, according to the age of the vine. The root is the most valuable part of this plant, being high in carbohydrates, especially starch, and from it is manufactured "kuzu," an article of food closely resembling corn starch which is used for the making of cakes, etc.

The propagation of the vine if from young rooted plants.—G. S. Ura, Salem, Oregon.

SUGGESTIONS ON VACANT LOT UTILITY

Written for the California Cultivator By D. F. Reichard

(We have request from a public-spirited citizen who wishes to improve the outskirts of towns, and especially to secure some useful production from overgrown town lots. He has asked as to crops which might be secured from dry farming operations. The matter was referred to Mr. D. F. Reichard and he gives the following valuable suggestions:)

The copious and well distributed rains of this winter make it possible to harvest a profitable crop from the usually untidy, weed-growing, litter catching, pest-breeding vacant lot.

This week is an ideal time to start operations. The weeds and grass have made enough growth so that they will make fine fertilizer when plowed under. The first thing to do is to have the lot plowed—plowed well, at least ten inches deep. If you are hiring the work done have it expressly understood that you want the lot plowed that deep and then if possible be on the ground to see that it is done. Stress is put on this deep plowing because it is hard to impress on people that to have good crops there must first be a good seed bed, and the foundation of the seed bed is to have the soil worked deeply. As soon as the plowing is done have the ground thoroughly harrowed, going over the piece at least twice. This is to make a fine mulch on top and settle the ground so as to reduce to a minimum the evaporation of moisture from the soil.

The plowing and harrowing of a lot 50 feet by 150 can be well done in three or four hours at a cost of from $2.00 to $4.00, according to the nature of the soil and location of lot.

If possible it is a good plan to let the ground lie for at least two weeks before working on it, to give the grass and weeds time to decay. If it rains in the meantime, so much the better, the ground is in shape to take on more moisture and the weeds will rot faster. At the end of two or three weeks either plow and harrow the piece again or thoroughly work it up with a cultivator. This will reduce your weed problem to a minimum and put your soil in fine condition to receive the seed. After each rain storm the ground should be cultivated so as to keep a good mulch of fine dirt on the surface to retain moisture.

Now comes the question of what to plant. In the beginning remember only one crop can be grown without irrigation unless the land is naturally damp soil. If you just want something to look nice and green during the spring, but brown during the summer, sow grain, barley, wheat or oats. This, however, is only practical where there are several lots together. This could be beautified by scattering a few seeds of wild sunflowers with the grain. These would make their growth after the hay was cut and bloom through the late summer and fall.

The most practical crop would be potatoes. These planted any time in March will mature and should be dug before the middle of July. The tops dry down to almost nothing, thus leaving the ground fairly clean for the rest of the season. If there is moisture still in the ground after the potatoes are dug, pumpkins or Hubbard squash might be planted, spacing them at least 12 feet apart.

Corn is a good crop but really should have some late rains to make it profitable. Neither sweet or field corn is safe to plant before the first of April.

Peas require considerable moisture and if put in as soon as the ground can be put in shape should give a good crop.

For either muskmelons or watermelons the ground should be thoroughly cultivated after each rain until the vines begin to send out runners. It is not safe to plant these until the middle of April.

Continued on Page 287

THIS MONTH IN SOUTHERN CALIFORNIA

Written for the California Cultivator
By O. M. Morris

THE same care should be used in the preparation of the soil for flowers as for vegetables.

Roses and other hardy bush plants which are handled while dormant should be put in at once. The growth will soon start and it is then much more difficult to secure best results. However, roses are now grown largely in pots and these may be transplanted at any season of the year.

Sweet peas should also be planted at once, as well as asters. Hollyhocks will come into bloom from March planting during July and August.

If one has a shady location, either under a tree or on the north side of the house, there is nothing finer than the tuberous begonias. These bloom continually throughout the summer. Another pretty plant requiring shade is the primula, either abconica or malacoides. These are quite hardy and bloom for a long period, practically all summer if planted early. They should be planted in a protected bed or box and transplanted as soon as large enough.

Some of the new snapdragons in delicate shades have become very popular for cut flowers. These are easily grown and will bloom throughout the summer. Centaurias, scabiosa and zinnias give a great quantity of good cut flowers and are very satisfactory.

A new aster that is very attractive is the Crimson Ray. This resembles a large single chrysanthemum in appearance and makes a beautiful flower for cutting. The color is splendid. It is upright in growth and very hardy.

The Margaret carnation or hybrid carnation has become very popular for midsummer blooming. This comes in nearly all shades that the true carnation comes in and blooms from seed in about four months, blooming profusely during midsummer when other carnations are practically resting.

For yellow flowers there is probably nothing finer in the hardy class than coreopsis drummondi. It is a large branching yellow flower with a deep maroon eye, very attractive and lasting as a cut flower. Other good yellow flowers are gaillardia and calendula, both quite hardy. Planted now they will bloom in from three to four months and will continue throughout the summer.

Do not forget to include salpiglossis in the list of flowers for summer bloomers. Practically every color of the rainbow is represented in its veined and mottled petals. The schyzanthus or butterfly flower should not be omitted. These are two of our practically new flowers which are unsurpassed for their beauty.

MANY SHIPMENTS OF ORNAMENTAL PLANTS FROM BELGIUM

Shipments from Belgium of ornamental plants containing from two or three plants to 1000 plants in each shipments have been coming into the United States at the rate of about 50 a day, according to the federal horticultural board. While France sends us more nursery stock during the year than all the other European countries combined, during October and November more ornamental plants came from Belgium than from all the others combined.

The Belgian shipments come via Holland, the territory where they originate being on the Dutch border. The shipments come largely to brokers in New York City who distribute them to individuals.

France, which sends us much of our imported stock as well as ornamental trees, also continues to ship, the territory where these stocks originate being west of the war zone. The federal horticultural board has cabled the French government regarding the maintenance of the inspection service and has received through the French ambassador information that the service is being maintained. Large importers of French stock have since confirmed this advice.

Under the existing European conditions there may naturally be expected some irregularity in compliance with our own regulations, and certain leniency may occasionally be necessary, especially where safety can be fully insured by adequate inspection on this side. Among the plants that need especial attention in this line are azaleas which come in great numbers from Belgium. Gipsy-moth egg-masses are occasionally found in these plants, but in all cases the plants are rigidly inspected and affected plants are destroyed. Azaleas and similar plants are often set out in gardens after their house use is over or they are thrown out in yards or vacant lots. If such azaleas harbor eggs of the gipsy moth, the hatching larvae may easily gain access to surrounding vegetation.

ANOTHER APPARENT CHANGE

In "Plant Life," by J. Bretland Farmer, M. A. D. Sc., F. R. S., Professor of Botany in the Imperial College of Science and Technology, London, on page 174, occurs an interesting account of changes in plant sex, due to a smut that sometimes infests the Red Campion, a close relative of the carnation. This parasite apparently changed female flowers to males in two different and distinct ways.

There remains, however, some doubt as to actual accomplishment of such change. The result is very startling, to say the least, and we quote herewith the precise statements of Prof. Farmer:

"The fungus only reaches maturity and produces its spores in the stamens. So far as the male plants are concerned there is no difficulty, but with the female flowers it is otherwise. What the fhngus does when it attacks the latter is to stimulate the plant to produce stamens exactly like those of a male flower. * * * Nor

Continued on Page 287

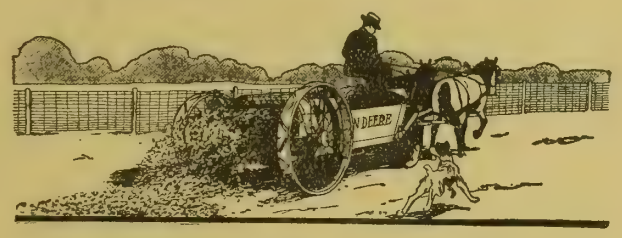
John Deere Implements

John Deere Syracuse Hillside or Swivel Plows

Nos. 821, 822, 823, 824 and 825

The plows with ample throat room and close fitting joints to prevent clogging. Do equally good work on hillsides or level land. Moldboards of new design, turning furrows smoothly up or down on hillside land. Long moldboard—a clean furrow slice. Option of white iron or tempered steel moldboards.

Write us for information on the Syracuse Hillside or Swivel Plows Nos. 821, 822, 823, 824 and 825. We will send it to you free.



John Deere Spreader

The Spreader with the Beater on the Axle

The beater—the business part of a spreader—and all its driving parts, is mounted on the rear axle. This is a patented feature. You cannot get it on any other spreader. Here is what the beater on the axle means to you:

It means: No clutches to give trouble—all taken off.

It means: No chains to break or get out of line—all thrown away.

It means: Less than half the parts heretofore used on the simplest spreader—some two hundred parts are done away with.

It means: Manure is not thrown on the axle—straw and trash cannot wind around it.

It means: You get big drive wheels and a low down spreader, without stub axles—that means traction and strength.

It means: Drive wheels back out of way when loading—you see where you place each forkful.

The John Deere Only Hip High

The top of the box is only as high as your hips. The John Deere Spreader is easy to load. You see where you place each forkful.

To start spreading, you pull back the lever at the driver's right—that's all. A boy can operate it.

Call on nearest John Deere dealer and see the spreader with the beater on the axle. Write for "Farm Manures and Fertilizers", a valuable text book free.

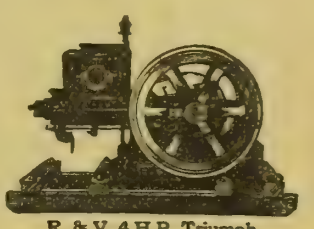
R. & V. Gasolene Engines

New Triumph One Horse Engine. Just the engine for light work about house and barn, such as running washing machine, pumping water and operating other small machines. Saves every member of the family work and worry.

A reliable, efficient, low priced but high grade engine. Easy to start, smooth running, requires no attention when in operation, economical in use of fuel and perfectly safe in and around buildings. All working parts are back of the fly wheel out of the way—a neat outfit in every respect.

R. & V. Triumph Engines for All Farm Machinery

The R. & V. Triumph line of engines is also made in 2, 4, 6, 8, 10, 12 and 16 H.P. sizes, stationary and portable. Every farm can use one or more of these engines to advantage.

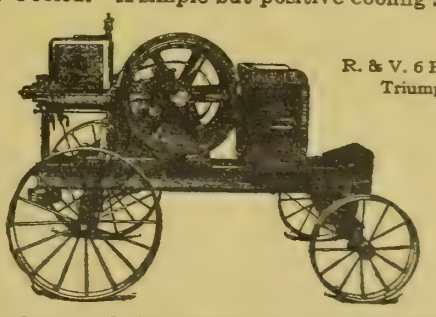


R. & V. 4 H.P. Triumph

They are dependable gasolene engines—always develop rated horse power.

An extra ring over the piston pin prevents scoring and ruining cylinder. This is an unusual precaution for lengthening the life of a gasolene engine. This careful attention to details is followed in constructing every part of the R. & V. Triumph.

Hopper Cooled. A simple but positive cooling system.



R. & V. 6 H. P. Triumph

The gasolene tank for every R. & V. Triumph Engine is most conveniently and safely located—on practically all of the stationary engines it is in the sub-base.

Write for free booklet "Letting Gasolene Do It." This book tells how you can save time every day in the week by using an R. & V. Triumph Engine.

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FREE BOOK Illustrates and describes the most complete line of farm implements. Tells how to adjust and use farm tools under varying conditions. It is a practical encyclopedia of farm implements worth dollars to you—a 168 page text book.

It tells about John Deere Implements: Steel plows, cultivators and harrows; corn planters, discs harrows and beet tools; farm and mountain wagons; manure spreaders; portable and stationary grain elevators and corn shellers; hay loaders, stackers, sweep rakes, mowers and side-delivery rakes, motor hay presses; grain drills and seeders; full line of chilled plows; grain binders and corn binders; hit-and-miss and volume-governing gasolene engines.

To get this book, free, state what special implements you are interested in and ask for the book as Package No. X-111.

John Deere, Publicity Department, Moline, Illinois

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Established 1888. Twenty-seventh Year.

The California Cultivator

Rural California Combined with the California Cultivator

A Journal of Horticulture and Agriculture

By
THE CULTIVATOR PUBLISHING CO., Inc.
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Thursday, March 4, 1915

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

SILOING WHEAT

A subscriber at Pixley informs a representative of the Cultivator that this year, with the heavy rains and early planting of his crop of wheat, he fears it will be so heavy it will lodge, and to reduce the chances in this particular and to secure some additional profit, he will cut the wheat before stooling and place in silos. This lush growing wheat will certainly make finest ensilage and materially increase profits, and will be certainly insured against lodging. Perhaps this gives suggestion for some other of our wheat growers. Along this same line we call attention to Dr. Leroy Anderson's article in this issue, in which he refers to siloing foxtail and other native growth.

ORANGE DAY

Complaint has been made that we are having a good many special days for fruit and farm products. We have had apple days, rice days, raisin days, and now come olive and orange day. We do not agree with the objectors, for the reason that these days call attention to the healthfulness of these foods, and to how their use may well be increased in every home. We will always be a nation of meat eaters; for, try as much as they please, the vegetarians will never convince the majority of us that meats should be tabooed entirely. But their campaign has a beneficial effect in inducing us to give more consideration to fruits and vegetables. As to ways of cooking or serving the delicious orange, there is but little improvement over the good old way of going at it with the two hands, yet from salads to marmalades and pies there are most attractive ways of serving it. Some of these will be given in the Cultivator of the issue preceding March 20, which has been fixed as Orange Day.

OLIVE DAY

March 31 has been declared California Ripe Olive Day. Mr. George C. Mansfield of Oroville, who is chairman of the publicity committee, writes:

"I need not call to your attention the growing importance of the California ripe olive industry, nor need I tell you that not one person in one hundred in the United States is acquainted with the delicious flavor, the food values, and the healthful qualities of the California ripe olive. A great national campaign has been inaugurated to spread abroad the gospel of the California ripe olive.

"We desire to enlist your assistance in this movement. In particular, we ask that you feature California Ripe Olive Day in the editorial and news columns of your interesting magazine. Your wide circulation through the various interior communities will do much toward making this movement a big success.

"We believe that by all standing together and by working shoulder to shoulder, the olive industry of California can be advanced a generation in a single day."

Surely, there is no more healthful food than California ripe olives, and the observing of this day should not only add to the profit which should come to the grower, but will increase the use of this excellent food the country over.

BUY IT NOW!

Prosperity seems to be taking its own pace in returning, but the prevailing opinion is that it is heading in the right direction—it is coming our way. Certain it is that European nations have been pouring in orders for many productions with which to build up—perhaps more with which to destroy—the latter of which we all regret. As a special aid to prosperity's return there has been promoted a campaign of "Buy It Now," this on the presumption that the producers especially of the country will soon be ready to buy more extensively than they have been doing for the past few months. If orders for goods which are known to be needed may be placed at once, it certainly will help to give confidence to dealer and manufacturer. Prosperity is largely in the hands of the producing classes. It has been said that large moneyed interests often cause panics for their own advantage. We do not believe that has been charged in the present general depression. The change in national policies, combined with the greatest war the world has seen, has been sufficient to completely upset all financial calculations, and perhaps the greatest suffering falls on the laborers connected with the industries. Farmers, of course, have felt the depression, but they have not been ground down by abject poverty, as have many in the manufacturing centers. We have occasion to be thankful; let us pass on the prosperity, or at least encourage its return as soon as possible.

POULTRY FOR PROFIT

The reception given to the first of the Cultivator's dollar series, "Poultry for Profit," is gratifying; it has been complimented not only for its practical instruction in egg and poultry production, but for its clear type and substantial binding. For the small edition, which such a special subject demands, it is surprising that such a book could be put out for the sum of one dollar. As we have stated before, there are 250 pages within the two covers, and the clear illustrations give great value to the text. Within the twelve chapters almost every feature of the poultry industry, from the making of a beginning to diseases and some of the discouraging features, are fully discussed. Mrs. Koethen has written from her own experience, and knows from her own successes and failures wherein instruction is needed, especially by the beginner in poultry. She disclaims any effort at educating old and experienced poultrymen. Notwithstanding that, we have found some poultrymen of years of experience who consider this a most admirable presentation and a book helpful to everyone engaged in poultry work. Notwithstanding the extremely low price which has been placed upon this book, it may be secured at a still lower one in combination with the California Cultivator—with the Cultivator one year for the sum of $1.75.

COOPERATION IN MINNESOTA

The University of Minnesota has issued a bulletin giving statistics of cooperation among farmers of Minnesota during 1913. It makes the statement that Minnesota leads all other states in the Union in volume of business conducted by cooperative organizations. We had rather supposed that California had this distinction, but possibly we are mistaken for we note that in Minnesota there are 2013 cooperative organizations which had a combined business in 1913 of $60,760,000.

California has one cooperative organization which does annually more than one-third of all the business of the entire state of Minnesota. It also has a very great number of other successful canneries, creameries and fruit growers' associations, but so far as we know there are no available statistics, and until we have them we may be compelled to grant Minnesota's claim.

Of her 2013 associations, 614 are cooperative creameries. These do a combined business of $21,000,000. There are 270 elevators, doing a combined business of $24,000,000. Of stock shipping associations there are 115, stores 120, fire insurance companies 154, telephone companies 600, these latter doing practically $1,000,000 worth of business. There are 34 cooperative cheese factories, 20 potato warehouses, and 86 other associations classed as miscellaneous. Amongst these are cow testing and fruit shipping associations, lumber yards, laundries, corn marketing concerns, and many others. The cooperative associations made a total of almost 75,000,000 pounds of butter in 1913, or an average of 122,000 pounds per creamery. The expense of making butter was 2.2 cents per pound; the total number of patrons, 65,000.

The insurance companies are joined under the plan known as township units. These companies have been doing cooperative insurance since 1867. The total amount of insurance in force is $322,000,000, to which it has increased from less than $1,000,000 in 1878. The cost of insurance in these companies has been very low, in 1913 being 18 cents per $100, while the stock companies doing business in the same state have charged 46 cents. On this basis the cooperative insurance companies saved the farmer a million dollars during the year 1913. In fact the actual saving is much greater than this for the reason that these mutual companies have year by year forced down the old companies' rates so that all insurance in the state has benefited. The publication estimates that the total saving to the farmers of the state because of these mutual companies during a period of 35 years is in excess of $20,000,000.

Agricultural Notes

The government built more than 2000 miles of trail and 3000 miles of telephone line on the national forests in 1914.

The United States department of agriculture announces that a peach which bears an edible fruit containing a smooth stone has been brought from China and may be used to improve our commercial peach.

Fire on the national forests of the West in 1914 caused a loss to the government of not quite 340,000,000 board feet of merchantable timber, valued at $307,303, and of reproduction, or young growth of trees, valued at $192,408, according to statistics just compiled by the forest service. There were 6,605 fires, of which 1,545 burned over an area of ten acres or more.

According to the report of the joint congressional committee on federal aid to good roads, the annual expenditures for road improvement in the United States amount to about $204,000,000. Automobile license fees amount to about $8,000,000 annually. County, township and district road bonds were voted in 1913 to the amount of $50,635,000.

The use of fish as cattle food has a novel sound, but it appears to be a common practice in various parts of the world. In Shetland and Iceland dry salt fish is fed to cattle, sheep and even to horses. So long ago as 1853, Sir John Lawes carried out experiments at Rothamsted, England, on the feeding of pigs with dry Newfoundland cod fish. He found that the fish-fed pigs were fat and well grown, and there was a very good proportionate increase to food consumed.

For the first time in many years information collected by the department of agriculture shows that all classes of live stock in the United States are increasing in numbers. Thus the real facts contradict, absolutely, sensational reports that prices for meat and shoes would rise to unprecedented figures in the immediate future. On January 1, for example, the number of beef cattle showed an increase of 3.4 per cent over the number a year ago, and an actual increase of 1,212,000 head. Hitherto the number of beef cattle in the United States has declined steadily since 1910. There are also more milch cows in the country than last year, the increase being 2.5 per cent, or in numbers 525,000. Swine showed the greatest increase of all classes—9.6 per cent.

D. O. Lively, chief of the live stock department of the Panama-Pacific sends out word that as the cattle competitions at the exposition do not begin until October 18, sheep and swine November 3, it is hoped that long before these dates the foot and mouth disease will be effectually stamped out. Dr. Chas. Keane, California state veterinarian, has made the following rule: "No cattle, sheep, or other ruminants, or swine, will be permitted to be shipped for exhibition purposes at the Panama-Pacific International Exposition from any area in which foot and mouth disease has been found, or from areas contiguous thereto until a reasonable length of time has elapsed since such territory has been declared clean by the United States department of agriculture and state live stock sanitary officials." Any negative action by individuals, associations, clubs or states at this time would be premature. There will be a truly great live stock show at San Francisco and the wise breeder will get ready for it.

Agricultural News Notes of the Pacific Coast

Northern California

The Humboldt County Dairymen's Association recently met at Ferndale.

A 20,000-acre irrigation project is nearing completion in Siskiyou County.

Many orange and lemon trees will be planted this spring near Marysville.

Forty thousand deciduous trees have been planted in Nevada County this season.

A purchaser of beans secured over $200,000 worth in one district of Sutter County.

A syndicate of San Francisco capitalists is financing a large dairy at Alturas, Modoc County.

Chico's development committee is planning to have a tree planting week in the very near future.

One tract of land comprising about 2000 acres will be planted to rice near Yuba City, Sutter County.

The Farmers' Union of Gridley reports a membership of 75 and a most successful year of business.

The Napa County farm bureau recently held an interesting meeting of the board of directors at Napa.

At the March meeting of the Rio Linda Improvement Club Judge Peter J. Shields will talk on rural education.

Plans are making for the spring picnic at the university farm at Davis. Some date late in April will probably be chosen.

It is reported that a deal is practically completed which will bring 1000 colonies of bees to Los Molinos, Tehama County.

Dr. Cady of the United States department of agriculture met with several farm centers in the Sacramento Valley recently.

The fish hatchery near the junction of Battle Creek and the Sacramento River is feeding at present over 5,000,000 young salmon.

A new town to be known as Mission is to be established in Yuba County. It is in the center of a large olive producing district.

Professor Bioletti gave some interesting addresses, demonstrating with practical field work on pruning of vineyards, near Cloverdale, Sonoma County.

Many ranchers and sheepmen of Yolo County have been in attendance daily at the series of lectures and demonstrations given at the university farm at Davis by W. T. Ritch, Australian wool expert.

At the last meeting of the El Dorado Stockmen's Association at Placerville, a committee was appointed to revise by-laws. The committee now has finished its work and will report to the association at its next meeting, to be held in Jackson April 3.

In his annual report to the governor State Forester Homans states that the fire season of 1913 was exceptionally severe, the money loss being over $500,000. During the past two years three forest protective associations have been organized, making six in the state, which are now doing effective work.

Central California

Raisin growers of Stanislaus County are organizing.

Several farmers' unions are to be established in Tulare County.

High school boys of Ceres, Stanislaus County, are planning a hog raising contest.

The heavy rains have prevented much of the tree planting which was contemplated.

The Associated Raisin Company is engaged in making a shipment of 200 tons of raisins.

The Tulare Cooperative Poultry Association handled over 5000 dozen eggs in January.

Reedley raisin growers are adding new members to the Associated Raisin Company.

The California Green Fruit Association held its annual meeting at Fresno last week.

Tulare County olive packers have received high commendation for canned olives marketed.

The Associated Raisin Company has taken over the Kings County Packing Company's plant at Armona.

Citrus growers of Lindsay, Tulare County, are justly proud of their winnings at the National Orange Show.

The state dairy inspector recently caused arrests of dairymen at Kerman because of unsanitary conditions.

Manager Ellis of the Cured Fruit Association announces that practically all dried peaches have been sold.

The Lincoln Grange held a most interesting session at Cupertino, Santa Clara County, on Washington's birthday.

Tulare County now claims 42,000 acres of citrus fruits in her county, about 27 per cent of which is in full bearing.

It is announced that a 20 per cent dividend was paid for the year by the San Joaquin County Table Grape Growers' Association.

San Joaquin County assemblymen are working to secure the passage of a bill which will standardize all fruits shipped from California.

The Associated Raisin Company has purchased the Fresno Home Packing Company. This is the firm which has been putting out the Blue Ribbon brand of raisins.

The Madera County farm bureau has arranged for two contests, prizes to be awarded at the county fair in the fall. One is for hay and legume growing, the other for hog raising.

Water was turned into all the irrigation canals of Kerman, Fresno County, the second week in February. Deep snows in the mountains assure ample water supply for the summer.

A peach cannery is assured for Kingsburg. A committee of five has been appointed to secure a site. The committee consists of Henry Brandvig, A. J. Anderson, J. T. Norby, A. L. Cross and J. L. Norman.

Farmers of California have been made preferred customers for the purchase of grain bags till April 1. Up to that date they will be able to get all the bags they will need from San Quentin prison at six cents.

Southern California

The first asparagus out of Imperial Valley commanded $19.20 per crate.

Orange men are wishing for rather better prices than have prevailed this season.

The first asparagus of the season was shipped from Imperial Valley February 16.

During 1914 the California highway commission let 153 contracts for approximately 1200 miles of road.

The tuna fish pack of the Calfornia coast this year reached 300,000 cases, more than double the pack of 1913.

Heber, Imperial County, made a record early shipment of green peas, nearly six weeks earlier than former seasons.

The Cotton Growers' Association of Calexico is protesting against the assessment of two dollars per bale on stored cotton.

The Imperial irrigation district has resolved to employ its own people to do as much of the levee and canal work as possible.

Dairymen of Southern California are to meet in Los Angeles this week and discuss the matter of threatened reduction in prices.

The irrigation district formed in the Palo Verde Valley has agreed on a price of $123,710 to be paid the water company for a protection system.

Francis Cuttle of Riverside, and one of the stand-bys of the Tri-counties Reforestation Committee, has been endorsed for a place on the State Water Commission.

The little Santa Clara River in Ventura County has been returned within its proper banks. Since the recent storms it has been overflowing and in one section made a new channel.

Coalinga, Fresno County, now wants to be known as an agricultural center as well as an oil town. Nearly 40,000 acres of grain have been planted this season in the district about the town.

A corporation has been formed in Lordsburg, Los Angeles County, to manufacture culls and low grade lemons into lemon oil and citrate of lime. The United States now imports annually $1,500,000 worth of these two products from Italy.

Judges at the National Orange Show at San Bernardino were State Horticultural Commissioner A. J. Cook, B. A. Woodford, formerly manager of the California Fruit Growers' Exchange, and W. L. Moulton, who was judge at the first show held in 1911.

According to United States government statistics the annual yield of cotton per acre in the Imperial Valley is 500 pounds. This is the record for the whole United States. The state making the next best showing is Missouri, where long staple runs 325 and shorts 295 pounds per acre.

On the afternoon of Washington's birthday, at the National Orange Show at San Bernardino, Dr. Webber, head of the citrus experiment station at Riverside, delivered the address on the 40th anniversary of the planting of the first Washington naval orange trees in California.

The Coast

About 2000 acres of sugar cane will be planted near Chandler, Arizona, this spring.

Markets generally in the Northwest report potato marketing conditions in bad shape.

North Yakima, Washington, is to have a new $10,000 cannery erected within a few weeks.

A carload of 40 burros was shipped from Tucson, Arizona, to the Panama-Pacific, San Francisco.

One citrus ranch at Yuma is shipping 50 boxes of oranges and grape fruit to Los Angeles every week.

The Idaho legislature has appropriated $10,000 for the Northwest Live Stock Show to be held at Lewiston.

A Chicago mail order house has just purchased 10 tons of dried loganberries from a firm in Salem, Oregon.

The Washington state board of control has fixed seven cents as the price to be charged for grain sacks this year.

The reclamation service is doing some magnificent work in the encouraging of argicultural education in Arizona.

Jersey cattle owners of Lane County, Oregon, have organized a Jersey cattle club for the purchase of pure bred sires.

Car lot shippers of poultry, eggs and butter in Texas met at Wasco last week to form an organization to aid in marketing their products.

Roosevelt Lake now contains over 800,000 acre feet. The engineers predict that before the season's rains are over it will contain nearly 1,000,000 acre feet.

Montana wool growers are being urged to hold on to this year's wool clip to secure advantage of the good prices which war conditions are expected to bring.

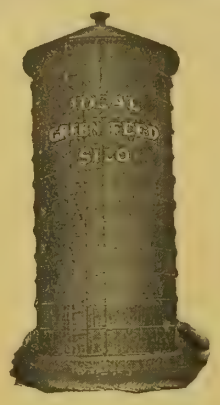
The business men of Arizona have formed a state association for the purpose of furthering cooperation among the merchants of the state and for the maintenance of a state bureau of credits.

The Oregon Cattle and Horse Raisers' Association has just closed its annual session at Prineville. Three hundred and twenty-nine members were present, representing over 100,000 head of stock.

Fruit growers of the Pacific Northwest met recently at Tacoma, Washington, and elected a Growers' Board of Control consisting of John F. Davis, Opportunity; Clifford E. Chase, Wenatchee; Harry Jones, Wapato, Washington; A. D. Moe, Hood River; A. W. Simmons, Freewater; J. A. Westerlund, Medford, Oregon; E. C. S. Brainard, Payette, Idaho; W. M. Sackett, Corvallis, Montana.

The central body of the Wenatchee-North Central Washington Growers' League has been formally organized by delegates from each north central Washington precinct. A governing board of nine was selected. This is the final step in the growers' movement which has for its object tying up the fruit tonnage of the entire district to the one organization and the regulation of the selling agencies.

WHAT DOES A SILO COST?



AN IDEAL GREEN FEED SILO will pay for itself the first year. That being the case it will cost you nothing.

AS A MATTER OF FACT, THE COST of a silo is really a secondary consideration, because if you are keeping dairy cows or raising stock for the market, there is no investment which you can make which will pay you better returns than an IDEAL GREEN FEED SILO.

A GOOD SILO IS A NECESSARY PART of the dairy equipment of every cow owner or stock raiser who wants to realize a reasonable profit from his herd, and if the matter of cost has been standing in your way, please remember that it is really not a question of whether you can afford to erect a silo, but whether you can afford to do without one.

IF YOU HAVE NO SILO a little investigation will be sure to convince you that you ought to purchase an IDEAL GREEN FEED SILO right away, and be prepared to save your first cutting of alfalfa. Then plant corn to fill it again this fall.

Write for new Silo Catalog for full information.

ENSILAGE CUTTERS ALPHA GASOLINE ENGINES

De Laval Dairy Supply Co.

SAN FRANCISCO SEATTLE

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Live Stock and Dairy

THE FEEDING PROBLEM

Written for California Cultivator
By Leroy Anderson

WHY should there be a feeding problem? When the state is having one of the biggest and most timely rainfalls in its history and when barns, warehouses and stacks are bursting with the biggest holdover crop of hay that California has known, why should anyone worry about stock feed in 1915? Troublous times in Europe have much to do with it. There are many dairymen who depend upon grain as a staple food for their cows and then there are the pigs to be fattened. Europe's demand upon our supply of wheat has sent the market value of that cereal soaring, and along with it, wheat bran, middlings, etc. Barley, which was begging buyers last July, has been caught in the basket of the wheat balloon. The situation puts a twofold aspect upon 1915 operations, to so plan feeding arrangements as to purchase as little grain as possible and, if one is raising any grain, to sell as much as possible without injury to the stock.

The plenteous rains that have been falling with slight intermission since the first of December assure a rank growth of all kinds of volunteer feed. The spring promises as much of this kind of feed as we had in 1914. Is it to be handled in the same way as last year? Some dairymen have learned the lesson and are prepared to profit by it, but the majority are probably unprepared. Last May I enjoyed a trip through the Sacramento Valley and had an opportunity to see the state's biggest hay crop in the harvesting. I scarcely imagined that even fertile California could yield such a whopping crop. But it surely lacked in quality even though abundant in quantity. Every kind of seed in the soil had grown luxuriantly, and the hay was truly mixed barley, wild oats, tame oats, burr clover, foxtail, alfilaria, and if it happened to be an alfalfa field, there was some alfalfa present with all the rest. To cap the climax, comparatively heavy showers came along in late May and early June with the result that this coarse hay was stained and darkened and ruined for any first class market.

What local market there was for the hay would scarcely pay for cutting, curing and hauling. Some alfalfa mills offered $4.25 a ton and that for fairly good alfalfa. Yolo County ranchers sold what they could in the cock at $3.00 a ton. Near Gridley a baling outfit was baling some coarse volunteer hay and one of the attendants said he could buy all he wanted of that kind at $3.00. The picture was not all as dark as that. A Gridley dairyman said he had delivered first cutting alfalfa in town at $8.00 a ton. Another had sold his in the stack at $5.50 to a neighbor for feeding beef cattle. A Gridley liveryman was paying $5.00 in the cock for barley hay. But these fair prices were for good hay and clean—really the kind that the name implied.

Silo Salvation

It is not too late to prepare for that big crop of mixed stuff that is surely coming on many a stock ranch this spring, and by stock I mean dairy as well as beef cattle and sheep. The best way, and I guess the only way, to get the most value out of the crop is to put it into a silo. It was a decided pleasure to hear Mr. J. S. Glide of Yolo County tell his experience with the silo. It had then (June, 1914), been filled with the first cutting of alfalfa and some volunteer stuff similar to that described above. This would be fed out during the summer to young beef stock and to sheep and lambs. The silo would doubtless be empty in time for the corn crop to go in. Mr. Glide is not a dairyman and he believes the silo more than worth while for the strictly stock man. He said the stuff he put into the silo in the spring would have been worthless as hay, especially with the rains coming as they did. In fact, a neighbor wanted him to take some hay of that spring cutting but Mr. Glide did not consider it even worth the hauling.

It must be about a decade ago that Mr. Henry of the Atascadero ranch in San Luis Obispo County became interested in the silo. He was also a beef cattleman with a ranch of 20,000 or more acres. Nearly every spring he was faced with a rich growth of wild oats, alfilaria, foxtail, burr clover and the like, which seemed to him would be of more feeding value if it could be preserved in its succulent state rather than if it were allowed to dry up or be trampled down by the stock. So he erected silos, several of them, and became a convert to silage for beef cattle. I have cited these two instances because the silo is usually thought of as a dairyman's property, and if progressive men who are raising beef find it of value, how much more will the dairyman be benefited by it.

I know how difficult it is on a ranch to do all the things one wants to do and to make needed improvements that require money. My present ranch life gives me a warm fellow feeling for all similarly situated. But what are we going to do with this first spring hay crop? We want to make the best feed possible out of it, and we want to spare the market that much poor hay. We also want to spare our cows that poor hay. If the ranch is paid for or nearly paid for, one can afford to borrow money enough to pay for a silo. In fact, so urgent is the matter that in the face of much debt one could afford to still borrow for the silo if credit could be secured. Each dairyman must have a silo of his own, but for engine and cutter he can, in this day of farmers' organizations, join several of his neighbors and thus save individual expense. The fact is that the silo itself is only about half the layout for engine and cutter cost as much as a good sized silo, and the machinery ought to be made to serve several silos.

Harrow the Alfalfa

But if the silo cannot be built this spring be sure to make the first cutting of alfalfa as good in quality as any later cutting, barring rains. Now is the time when the ground is moist to give the alfalfa a thorough harrowing. A strong spring-tooth is the best tool, and set it to go three or four inches deep. Harrow and cross-harrow until you think there is no alfalfa, for none can be seen because of the looseness of the soil. This will kill all foxtail and all weeds that grow faster than alfalfa in the cool weather and insure a clean crop of hay. If the stand of alfalfa is not thick it will be a good plan to sow barley before or during the harrowing. Thirty or 40 pounds to the acre will give a good yield of hay with the first cutting of alfalfa and make a fine feed for the horses as well as cows. Moreover if soiling is practiced one is thereby assured of a good yield of green feed early in the season. Oats are now not much higher than barley and will do to sow. They are of slower growth and may not be sufficiently mature for hay when the alfalfa is ready, but they will probably give as much green feed as barley.

Soiling

Speaking of soiling reminds one that this practice is one of the means of making a given area of land feed more cows and also a means of affording that variety in feed that progressive dairymen are feeling is of prime importance. If the variety can be provided in crops grown on the ranch the necessity of buying grain and mill feeds is greatly lessened. The plant that yields the greatest tonnage per acre of the best ration is doubtless alfalfa. Dairymen who practice soiling use this as the basis for summer feed as well as for hay for winter. A

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notable example is Mr. H. R. Timm of Dixon, who by his admirable management cuts green alfalfa from March to December. His 200 to 300 cows do no pasturing whatever, but fresh alfalfa is brought to their racks daily. Alfalfa by this practice is longed lived because the crowns are not injured by animal hoofs and too close cropping is prevented.

Alfalfa grows so easily after once established that one is prone to depend entirely upon it, and not provide the needed variety. Now is a good time to be looking out that the summer finds a few other things growing. Oats and peas form one of the best combinations for winter planting. If the region is one of cool springs the Canadian field pea is good, but if the warm weather comes soon probably one of the cow peas would be better. They are best sown mixed and drilled in, though broadcasting and harrowing in will do if followed by showers to insure sprouting. One bushel of each per acre should give a good stand, which means 35 pounds of oats and 60 pounds of peas. Begin cutting when the oats are heading and feed green. This combination is an excellent forage for hogs. If all cannot be fed green make the balance into hay which is good for cattle, horses and sheep. Better than to have much hay of this sort would be to sow at intervals in smaller quantities up to possibly the last of March.

Another combination which I found used by a Butte County dairyman was sorghum and barley. Since this was ready for the first cutting in early June it must have been sowed in April. By irrigation the sorghum produced two more crops of forage that year. Early Amber sorghum is a favorite variety and may be sown as soon as frost danger is past up to July where irrigation is possible. This is a common crop in Imperial Valley. Where the seed is drilled from three to six pounds is used per acre and where broadcasted from six to 15 pounds. In that section it is sown in warm weather and after being pastured is irrigated and another crop comes on quickly. If cut for soiling the same continued growth might be expected. If water be not so plentiful as in Imperial Valley it would be better to plant in drill 30 to 36 inches apart and cultivate. Then moisture would be conserved and a better feeding stalk secured. In April, 1913 the writer planted in Riverside County several acres of milo maize, one of the non-saccharin sorghums. It was planted for the grain but as warm weather approached Johnson grass appeared in such quantity as to make grain production too expensive as to cultivation. When the milo maze was about 18 inches high the cows were turned in. They soon ate maize, Johnson grass and all. The land was then irrigated and in three weeks a second crop was ready for pasture. Still a third crop was available in the season.

This is wandering a bit from soiling. Maize, or Indian corn, is a common soiling crop in the East, but I believe for irrigated California it is not equal to the sorghum because it does not grow up after cutting as do the surghums. For siloing it beats them all, but for summer soiling it is not so good. Therefore I have referred to summer crops and soiling where irrigation is possible. In a later contribution non-irrigated or single annual crops will be discussed together with feeding of various grains and grain products.

We have letter from Mr. H. L. Murphy of Perkins, Sacramento County, in which he refers to a trip he is about to take to Nebraska to secure a bunch of Shorthorns and Hereford bulls. He has opportunity to get some of the finest stock in the United States and is going to bring a number of youngsters and mature animals which will add to the worth of California's ranches.

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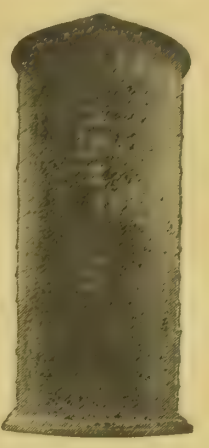

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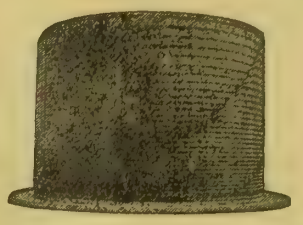

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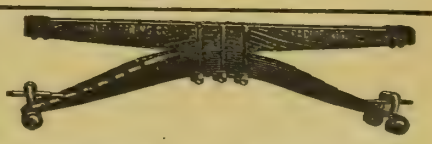

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We do know this, the yield of milk and its percentage of fat are apt to vary from day to day most strangely. The first half of the milk drawn may not contain more than half as much fat as the latter half; the cow may have some slight sickness; some of her delicate nervous functions may be deranged temporarily; extremes of weather, undue exposure, excitement, may all influence the yield of milk and the test. Hence it is clear that the sensible way to judge a cow's performance is not by any one test or weight, but rather on her total yield for the season. A cold, matter-of-fact "average" does not give necessary information, cows have individuality, which is worth studying so that they may repay their owners for intelligent handling.—C. F. W.

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The spreading of rabies by infected coyotes among cattle grazing in the national forests has assumed a grave aspect, according to a report received by the forest service from the district forester in charge of the forests in Washington and Oregon. Numerous townships in eastern Oregon, it is reported, have ordered that all dogs be muzzled lest those that have been bitten by rabid coyotes develop hydrophobia and attack humans or domestic animals.

Efforts are being made by the state authorities of Oregon to stop the spread of hydrophobia by this means, and officers of the forest service are cooperating in attempts to kill off the coyotes. In one county alone a loss of 300 head of cattle is charged to rabid coyotes.

The good milker must have a natural disposition to convert her food into milk and then her ration must be a milk-producing one—not one for growth nor to fatten, but one which will make her produce rich milk.

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Injury to Foot

I have a three-year-old colt that cut his hind foot six weeks ago. It was a flesh wound on the back of the foot but did not cut the hoof. It is partly healed but leaves a large lump, and the hoof seems to be growing out directly under the lump. The sore looks like proud flesh. He is not lame but rests the foot a great deal. A blacksmith tells me that the hoof is sound. What can I do to cure him?—Subscriber, El Centro.

The hoof is probably all right. The trouble is with the cartilage inside the hoof. Get two ounces of nitric acid and apply some of it to the spot that looks like proud flesh. This will form a scab. When the scab comes off repeat the application of acid. Two or three treatments should be enough. Apply the acid with a swab and be careful not to let it touch the hands or clothing.

Bad Blood.

I have a four-year-old colt that about six months ago had a large lump or boil form on the end of his shoulder. Thinking it was a fistula I put medicine on it and it went away without pus forming. Then about two months ago he had a large swollen ankle and was very lame but got all right in a few days. Now he has a large swelling on the inside of his thigh, one in his flank and one under his belly. They are not very hard but sore and he walks stiff. He is fat and seems healthy every other way. Please give cause and remedy.—Subscriber, Encinitas.

Thin his blood by giving the following: Epsom salts, three pounds; common salt, one pound; powdered gentian, six ounces, and powdered nux vomica, three ounces. Mix and divide into 24 powders. Give one powder every night.

Barley Beards

I have a horse that is not a very good eater. When I give him barley hay he does not even look at it for a while. Sometimes he stands and chews and licks until a white foam comes around his mouth. Do you think there is anything wrong with his teeth or internal organs?—Subscriber, Ripon.

The trouble is all in his mouth. Probably there are some barley beards under his tongue that he can not get out and others may be sticking in his gums and side of his mouth. Have a good veterinarian clean out his mouth and fix his teeth.

Dyspepsia

I have two Jersey heifers, bred about two months, in good condition. They are fed on good alfalfa hay but lately have taken to eating the wood from their manger and even clipping the hair from each other and eating it. I give them salt occasionally. Will you kindly advise what to do for them?—Old Subscriber, Ontario.

Change the feed. Give oat hay for a time or corn fodder if you can get it. Have your druggist prepare this medicine: Aloin, three ounces; turpentine, one pint, and raw linseed oil enough to make two quarts. Mix, shake well and divide into ten doses. Give each one a dose every other day. After giving that have this medicine prepared: Powdered gentian, eight ounces; powdered nux vomica, four ounces; bicarbonate of soda, eight ounces, and calcium phosphate, one pound. Mix and give each one a large tablespoon once a day mixed with bran.

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Barn Over Line

A's barn is three and one-half inches over on B's lot and B wants A to move it. B says when he gets ready to build his barn he will saw off A's barn. Would B be liable to A for damage? B tried to buy A out, but could not, so would like to know the law on this point.—Subscriber, Caruthers.

If the barn was willfully built upon the property of B it is a nuisance which B may remove by destroying it, if he may so do without committing a breach of peace or doing injury otherwise than as to the part projecting. Probably the safest way would be to bring action to compel the removal, for where the encroachment is slight and made in good faith under mutual mistake as to the boundary line, it has been held there is no right of removal, but in such case B would probably be entitled to damages for value of the land.

Collecting Note

In March, 1914, I bought lumber for a house and made a cash payment with the understanding that I would pay the balance out of crops I was raising. My crops were a success, but owing to a very low market I could not meet the balance of the money due. I went to the lumber company and stated my case and offered to make a note settlement for four months. They accepted the note. My interest in home is less than $5000. When the note is due, if I cannot pay it, can the lumber company put a lien on the house or land and collect? —Subscriber, Yucaipa.

In the above case the material man lost his rights to a lien, because not filed within 90 days, and in the second case has waived his claim thereto by accepting note. If you do not place a homestead upon the property, the material man can nevertheless attach same under the note.

Witnessing Will and Deed

Does the California law require a deed or a will to be witnessed in order to be valid? If so, how can a deed already recorded (not witnessed) be corrected?—Subscriber, San Diego.

A deed does not have to be witnessed, but to entitle it to be recorded it must be executed before a notary public. A will entirely written, signed and dated in the writing of the testator does not require to be witnessed. The common form of will requires two witnesses.

Settling Estate

What is the best way for a man and wife without children to settle their estate so one may have it all in case of death of the other, and so there may not be heavy expense and interference of relatives? The estate in question has all been acquired since marriage.—Subscriber, Imperial.

The estate having been acquired since marriage, upon death of the wife the husband takes without administration. To secure the wife's interest a will made by the husband to her will in the end be the least expensive.

Collecting for Service

A owns a stallion, B breeds his mare, signing the following form of note. "April 5, 1914. For services rendered, I promise to pay A or his assigns $20 when above mare proves to be in foal or before mare changes ownership, is mortgaged, or leaves the county. (Signed) 'B.' "

When does this note become due? Can A attach mare for debt if mortgaged or is taken out of the county without permission? Can A take the colt, and when? Is the above form of note O. K. or is it faulty?—Subscriber.

The note set forth is faulty in that the time specified as to when it shall become due might never arrive. It is in fact no more than an I. O. U. A could bring his attachment suit, but the suit would be subsequent to any mortgage lien. A should have insisted upon the lien to which he was entitled for the service of his stallion, but this right of lien he has lost, as to enforce such lien he must within 90 days after service file his verified claim with the county recorder, containing a description of the mare, the date and place of service, the name of the owner and description of the stallion, the name of the owner or person in charge thereof and the amount of lien claimed. Now he will probably meet with the difficulty on attachment suit that the mare is exempt from execution.

Road Right of Way

A and B have places adjoining. A has to cross B's place to get to county road. Twenty years or more ago the former owner of A's place fenced off a 60-foot roadway along line of B's place to get to county road. That road has been opened since with no objection from owners of B's place so far as A can learn. Both of these places have changed hands since road was opened. A has used the road without objection for the last three years. There is a gate on line fence between A's and B's places that is used only by A when he wants to keep stock out of his place from road. Can B close this road? C A go ahead and grade, etc., and be assured that road will not be closed in future?

It is probably true that you, together with your predecessors in interest, have acquired a prescriptive right to the use of this road in the condition in which it at present is; such right, however, would not permit you to grade the road or in anywise change it.

Self Defense

Does a man have a right to shoot a robber in a house or making an entrance to the house? What will be the result if a man meets with a "holdup" and he shoots the thief?—Subscriber, Oregon.

Homicide is justifiable when committed in resisting an attempt to murder any person, commit a felony, do some great bodily injury or in defense of the habitation, property or person against one who endeavors to enter the habitation for the purpose of offering violence or committing a felony. The circumstances must be sufficient to excite the fears of a reasonable person and the party killing must have acted under the influence of such fears alone.

Trees on Line

A recently bought a ranch improved some years ago, on a little used crossroad with a row of large eucalyptus trees bordering the road. B owns 10 acres of the new land on opposite side of road. A cut down and hauled away eucalyptus. Now comes a letter from a lawyer demanding payment for B's share, she claiming they were on the line. How should A proceed? Must B prove claim by survey and is A obliged to share expense of survey?—F. D., Kingriver.

It is always necessary for the plaintiff to prove his claim before the defendant is put upon his proof; so that A in this case would not be obliged to share any expense of this survey.

(Continued on Page 287)

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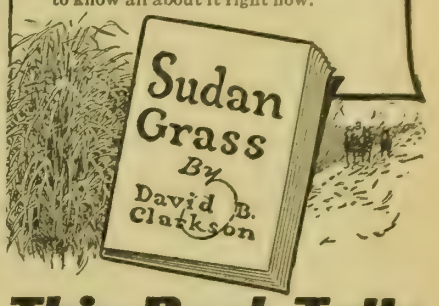

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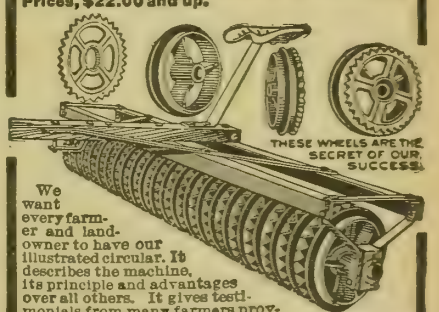

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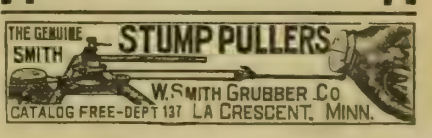

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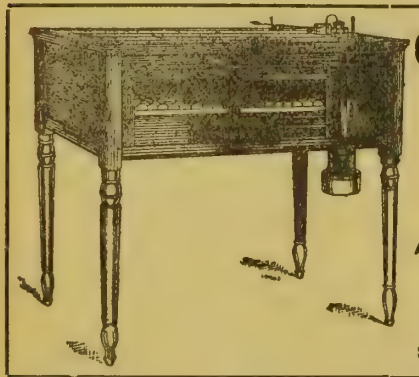

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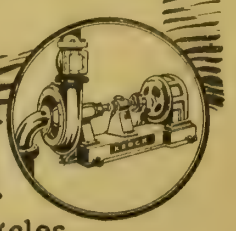

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WHAT IS WHITE DIARRHOEA?

Written for California Cultivator

By Jean A. Koethen

IF I were able to say exactly what white diarrhoea is, I should be wiser than most of the experts who have been studying for years to find out. It is possible, however, to give a pretty fair guess at what it is not and to summarize the results of investigation according to the latest published statements.

White diarrhoea first of all is not the ordinary diarrhoea which attacks baby chicks which have been chilled or improperly fed. When chicks are placed in a brooder which is not warm enough for them, or chilled on their way to the brooder, or, if they are with a hen, allowed to run on the damp ground or in wet grass within a few days after hatching or exposed to a chilly wind, there is apt to appear a brownish discharge from the vent which sticks to the feathers and often pastes up the vent entirely. This is not white diarrhoea, but an indication that something is wrong in the care of the chicks—usually it is lack of sufficient warmth—and can often be cured, if taken in time, by removing the cause. As soon as there is noticed the slightest symptom of this sort the chicks should be given more heat. If they are with a hen, and she is failing to hover them properly, she may often be compelled to do her duty by confining her to the coop. Darkening the coop will also help to keep her quiet. Boiled rice, if the chicks will eat it, is a good diet for chicks affected in this way, but I have found that when they have been started on other fare they usually refuse the rice at first. Sour milk is even better than rice, and this, mixed with rolled oats or used to moisten dry bread, is something only a very sick chick will refuse.

One cold spring day a neighbor of mine stopped to show me the fine little chicks she had just bought at a downtown hatchery. They were in a pasteboard box, with holes for ventilation, and not a scrap of anything warm under or over them. While we talked the box stood on the step in the wind. These chicks, a dozen perhaps of them, were given to a hen that already had a dozen of her own and placed in a wire run in the garage. It was cold, rainy weather, mind, and that hen had not a corner where she could protect those 24 chicks—just the roof of the garage over her and her two wings. Next day when I went to see them one or two had already dropped off and others were pasted up, while the owner wondered what was wrong with the feed that those chicks should get "white diarrhoea." I suspect that great as are the crimes which may justly be laid at the door of white diarrhoea, much of what is proclaimed as white diarrhoea and blamed on an inscrutable Providence is nothing but a digestive disturbance due to lack of proper care and warmth.

Only once have I seen a case of what I thought could rightly be called white diarrhoea. That was in two or three chicks that were hatched by one of my own hens from a ten-dollar setting of eggs that had traveled several hundred miles. The discharge in this case was a peculiar, shiny white, and the chicks seemed to suffer considerably and to grow old and pinched looking in a few days. They died, of course, but I have never had another case in my flock.

Now white diarrhoea proper is a germ disease and comes from infection. It may be infection of the yolk of the egg from the very hen that laid it, or infection of the outside of the shell from a germ found lower down in the egg passage, or it may, in other forms of the disease, come from other parasitic organisms. This is what makes the study of white diarrhoea so difficult. Infection may come from this or that or the other thing, and it is very difficult if not impossible to know just what the contributing cause is, for the symptoms are about the same in either case. The Maine station's pamphlet on poultry diseases mentions three organisms which are believed to be specific causes of white diarrhoea; (1) coccidium tenellum, which produces the disease called coccidiesis; (2) bacterium pullorum, producing the disease commonly known as "bacillary white diarrhoea," and (3) aspergillus fumigatus, producing aspergillosis or brooder pneumonia.

The organisms which produce coccidiesis may exist in the intestines of pigeons, rabbits, rats, mice and all kinds of domestic fowls. Pigeons are particularly susceptible to them, and it seems quite likely that infection is often carried by them to poultry yards. These coccidia, if taken into the digestive system of adult fowls, sometimes cause a chronic disease and thus infect the egg, I suppose on the outside, and produce in chicks hatched from such eggs a disease which is not distinguishable from other forms of white diarrhoea. Dipping the eggs in grain alcohol before they are put in the incubator or under the hen, and thoroughly disinfecting the incubator between hatches ought to prevent this form of the disease among baby chicks.

Bacterium pullorum is, so to speak, the "real thing," the cause of what is known as bacillary white diarrhoea. Probably the majority of deaths from white diarrhoea are due to this malignant organism. Professor Rettger of Yale University and Professor Stoneburn, formerly of the Connecticut experiment station, have done more work on this disease than has been done by other investigators, and in Bulletin 68 have tabulated briefly the results of their study as follows:

The original source of infection is the ovary of the mother hen.

Eggs from infected hens contain the organism in the yolks.

Chicks produced from infected eggs have the disease when hatched.

The disease may be spread through the medium of infected feed and water. Hence normal chicks may acquire it by picking up infected droppings or feed contaminated thereby.

Infection from chick to chick cannot apparently take place after they are three or four days of age.

As a rule infected chicks make less satisfactory growth than those that

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are apparently normal. For some time they appear stunted and weak, but may eventually undergo more or less complete development.

The female chicks which survive often harbor the infection and may become bacillus carriers. Infection in the breeding pens is perpetuated in this manner.

In all probability infection does not pass from adult to adult.

Infected hens are apparently poor layers, especially in their second season and subsequently.

The symptoms of bacillary white diarrhoea do not differ greatly from those of ordinary diarrhoea, save that they are more pronounced. The affected chick is drowsy and miserable, usually refuses to eat and stands in a corner, either peeping or apparently asleep. Very often the back seems to shorten and the abdomen to protrude. Death occurs within a day or two.

Professors Rettger and Stoneburn suggest that treatment must be mainly preventive. Infected hens should be eliminated from the breeding pens. These infected hens can, of course, only be discovered by a careful system of pedigree breeding, each hen's chicks being hatched by themselves. If this is not practicable, and infection is known to exist in the flock, the eggs should not be used for hatching. Sometimes infected hens may be picked out by making an incision in the side similar to that made in caponizing, and examining the ovaries, but this is an operation an ordinary poultryman would hardly care to undertake. The following suggestions for treating the disease when discovered and preventing infection are worthy of careful consideration:

Incubators, brooders and all other appliances used in the hatching and rearing of chicks should be cleaned and disinfected frequently.

Feed and water should be applied in such a manner as to prevent contamination with infected droppings. The use of fine absorptive litter in the brooder, especially for the first few days, is also advisable.

The feeding of sour milk may prove very effective as a preventive measure. The milk must be fed early, or during the infection stage. After the white diarrhoea organism has once entered the general circulation such treatment is of little or no value. Hence sour milk should not be looked upon as a cure, but merely as a possible preventive agent.

Since perfect physical condition is as a rule a barrier to disease it is important that the health and vigor of the breeding stock and chicks be raised and constantly preserved. Proper methods of housing, feeding, incubation, breeding and management should therefore be employed.

Brooder pneumonia, the third form which white diarrhoea may take, is caused by the growth of the aspergillus fungus, or mold germ, in the lungs. Dr. Salmon says: "It is believed that it may occur from infection carried within the egg. Whether this infection is derived from the hen or from the material in which the eggs have been packed is not definitely known, but the latter method of infection is the more probable. The fact of the lungs being the principal seat of the infection indicates that the spores in most cases are inhaled with the breath and germinate at or near the points where they are deposited. The inference from this method of infection would be that the incubators or brooders or both had been allowed to get filthy or moldy and that the atmosphere in these was filled with aspergillus spores." The symptoms are similar to those of bacterium pullorum but the breathing is more rapid and difficult. There is usually the same white diarrhoeal discharge.

I do not know how common white diarrhoea is in California. It is said that the country over it destroys more than 50 per cent of the chicks. If this is true, and the statement seems very large to me, it certainly points to a deplorable disregard of sanitary laws. I am inclined to think, however, that much that has been reported as white diarrhoea was not, and that, since the knowledge of the character of the disease has been so widely disseminated, it must soon be reduced to occasional sporadic appearances like chicken pox and gapes. Life of any sort is too valuable to be wasted in such a careless manner.

SUCCESS DEPENDS UPON WORK NOW

This is one of the most important seasons of the year in the poultry yard for it is during this season that the flock should be renewed. Much of your success next year depends upon the flock you raise this year. A little care now in selecting, mating, incubating, and breeding, will do much towards making an active, healthy, vigorous, profitable flock.

Upon placing a male with hens which have not had a male with them, the eggs become fertile in about three days and remain fertile for 15 to 20 days after the male has been removed.

If the eggs are infertile the birds should be examined. Collections of louse eggs on the base of feathers or the accumulation of droppings on the feathers about the vent, often prevent the proper communication between male and female.

An 80 per cent fertility and 80 per cent of the fertile eggs hatching is considered a reasonable hatch. This means 64 chicks out of 100 eggs set or about 10 chicks out of a setting of 15 eggs.

If the eggs are to be held before setting, they should be kept at a temperature of from 40 to 60 degrees and should be kept covered so the albumen will not evaporate.

When the chick comes out of the shell it is made out of the albumen or white of the egg and has used little or none of the yolk. If the albumen has evaporated too much, there is not enough material to build a chick large and strong enough to get out of the shell. This is one of the causes for chicks dying in the shell. This evaporation may take place either before or during incubation.

Early hatched pullets mature and begin to lay before winter begins. They make good winter layers and are good breeders the following spring while the late hatched pullets do not lay before spring and if used in the breeding yard, produce a low per cent of chicks which are small and weak.

It is advisable also to rear the entire flock as near the same time as possible, for in flocks where there are chicks of all ages, the youngest ones seldom amount to anything. Then, too, if they are all reared in one brood it takes only a short time till the chicks are large enough that they need very little attention. On many farms only a small number is hatched at a time, requiring almost the entire summer of work and worry to renew the flock.—C. T. Patterson, Missouri Poultry Experiment Station.

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E. J. Reefer, the poultry expert of 805 Main St., Kansas City, Mo., is giving away free a valuable book entitled "White Diarrhoea and How to Cure It." This book contains scientific facts on white diarrhoea and tells how to prepare a simple home solution that cures this terrible disease over night and actually raises 98 per cent of every hatch. All poultry raisers should certainly write Mr. Reefer for one of these valuable FREE books.

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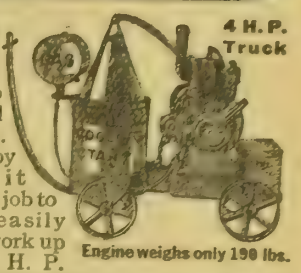

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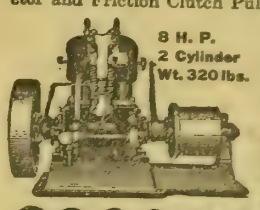

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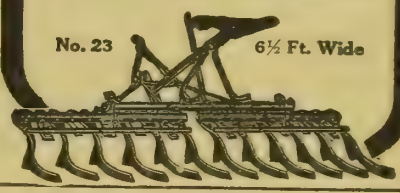

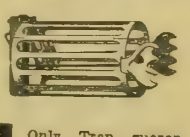

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Money Making Little Liners

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TREES

For Sale—10000 VALENCIA LATE
5000 MARSH SEEDLESS GRAPEFRUIT
8000 EUREKA LEMONS
12000 WASHINGTON NAVELS
Softland trees, perfect in quality, grown by us. Lowest price. Will plant if desired. Consider some exchange—now is most favorable time to make contract for next spring planting. Write or phone today for prices. Phone 559. Ward Realty Co., San Dimas, Cal.

We Have Made a Specialty of Placentia Perfection Walnuts on native black root for a number of years, and are offering the finest trees we have ever grown this year. 80 per cent of our stock is eight feet and up. The scions used were taken from trees in our large orchard that have made a very high record for the past five years. Good Ancestry Pays. Nursery at Villa Park. Hugh T. Thomson, Orange, Cal., R. F. D. 1.

1500 Eureka Lemons, one year; 500 Late Valencias, one year; 200 Washington Navels, two years; 400 Late Valencias, two years. Above buds are ⅝ up, splendid, thrifty, clean stock; 25c open root, 30c balled at nursery, and quantity considered you cannot beat it. Grand year to plant. Call or write. Wilbur K. Howard, Loraine Ave. and Santa Fe crossing, Glendora, Cal.

Walnut Trees—Late blight resisting varieties grafted and budded on California Black and on FIRST GENERATION Royal and Paradox Hybrid roots, which are as much superior to the California black root, as the California Black Root is to the English root—Eureka, Franquette, Mayette, Neff's Prolific, Concord and Placentia. Dr. W. W. Fitzgerald, Elks' Building, Stockton, Cal.

Home-Grown Fruit Trees—Largest assortment, including thousands of Royal Apricots, Tuscan and Phillips Cling Peaches, Pears, Apples, Figs, Grapes, etc., etc. Guaranteed true to name; strong, healthy and well rooted. Special low prices on application. Orange County Nursery & Land Co., Fullerton, Cal.

Cheap Reliable Trees—4,000 Phillips' Clings; also Tuscans, Fay Elbertas, French, and Imperial prunes, 10,000 Bartletts, 8,000 Gravensteins, Grafted Walnuts and other stock cheap. Write or wire for just what you want. Will save you money. Table Grove Nurseries, Healdsburg, Cal.

For Sale—2000 Late Valencia Orange trees, two years from bud. 1800 Washington Navel, one year from bud, A1 stock. Address, H. H. Eshelman, Soldiers' Home, Cal.

Buy Fruit Trees direct from the grower. Finest Apricots and Pears, 12½c, 10c and 8c. Apples, 5c; Oranges, 25c. Let me quote you on everything you need. Julius Mayr, Tree Grower, Hemet, Cal.

3000 Thoroughbred Eureka Lemon Trees—Two-year, 50c balled; 1000 Navels, 30c balled; 1000 Valencias, 40c balled; 400 Avocados, Harman variety. Special price on 50 and up. A. Z. Lane, Glendora, Cal.

Seedless Grapefruit—Limited number of fine trees, propagated from a tree brought from Florida. A superior type of Marsh's Seedless. Send for circular. G. W. Sherwood, Fullerton, Cal.

Budded Avocados—All leading varieties, Feijoas, Guavas, Mangoes, Cherimoyas. Write for prices. Edgemont Avocado Nursery, R. F. D. 2, Box 213, Pasadena, Cal.

10,000 Valencia Orange Trees, ⅝ and up. Superior stock from carefully selected buds. These trees at your own price. Will trade. Twombly Ranch & Nursery Co., Fullerton, Cal. Phone 158-J3.

Eucalyptus—Orders filled by flat or carload. Correspondence invited regarding quantity and variety. Stratton's Nurseries, Petaluma, Cal.

Citrus Trees—Villa Franca and Eureka Lemons, Tangerines, Grapefruit and Standard varieties. Will consider exchange. O. E. Van Slyke, Azusa, Cal.

The Walnut Nursery still has a few Eureka, Chase and Mayette grafts. Order quick. W. A. Litten, Prop., R. F. D. No. 2, Whittier, Cal. Home phone 7863.

Budded Citrus Trees and seedlings at fair prices. Will take auto or land. Butler's Morning Side Nursery, P. O. Box 45, Lamanda Park, Cal.

Walnuts—Choice seedlings, 10c up; also grafted Chase and Placentias. Now contracting citrus and avocados for spring planting. Magnolia Nursery, Whittier, Cal.

The 1200-Acre Nursery, growers of 1500 varieties of trees and plants. OREGON NURSERY CO., Orenco, Oregon. Sales office, 523 Chamber Commerce, Los Angeles, Cal.

A Bargain in first-class Navel, Valencia and Lemon trees. All strong, healthy, vigorous stock. Get my prices before ordering. A. G. Wright, Fullerton, Cal.

For Sale—Eureka Walnut Trees, budded on Native Black Walnuts. Choice stock. Order immediately. Don't delay. Wm. Holve, Fullerton, Cal.

Grafted Walnut Trees on northern black root. Eurekas and Placentia Perfection. Also Satsuma Plum trees. J. M. Koller, Puente, Cal.

You Future Nurserymen—Write for prices on special stocks of plants to start business with. Ballou's Nursery, Pasadena, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited

Royal and Tilton Apricots and Phillips Cling Peaches, 4 to 6 ft., $15 per 100, $135 per 1000. K. B. Utigaard, Hemet, Cal.

For Sale—The finest Valencia Trees in Tulare County. Threequarters up. C. H. Weed, 907 Mill St., Porterville, Cal.

For Sale—Best variety Pomegranate trees known. As profitable as oranges or olives. J. W. Irwin, Lindsay, Cal.

TREES

Lease Expires Next Spring—Must sell. Have left about 3200 Eureka lemons, three-quarters inch and up, buds selected from trees producing heavy crops of fancy fruits. 2500 Valencia Late ⅝ in. up, 3000 Marsh Seedless grapefruit ⅝ in. up. These are stocky and especially adapted for desert planting. Will sell with loose roots or balled. Prices very reasonable. Small amount down and time on balance, or part trade. Reduction for cash. All information cheerfully given. E. T. Vander Sluis, Glendora, Cal.

Grafted Walnut and Paper-Shell Pecans—Exclusive propagators of Tribble Mayette, Kerr Parisienne, and Improved Franquette. All walnut grafts taken from our bearing trees. Finest trees in the State. Eureka, Wiltz, San Jose Mayette, Concord and other varieties. Bartlett Pear on Blight Proof Root. Olives, fruit trees, etc. Reduced prices. New list ready. Tribble Nurseries, Elk Grove, Cal.

Bartlett Pear Trees—Ten thousand 4 to 6 ft.; clean, vigorous stock, $16.00 per 100. Five thousand Mayflower, Southern Beauty and Red Bird Peaches. The earliest, best and most profitable peaches grown. Ripens sixty days before Elberta. No overstocked fruit market when they ripen. Sure croppers. Write for information. 10 trees, $2.50; $17.50 per 100. W. D. Rose, Fullerton, Cal.

AVOCADO TREES

The Avocado is the most valuable of all fruits and the most important future industry before the people of California today. Vigorous, field-grown, budded trees of standard frost-resistant variety; from four to seven feet high, $2.00 to $3.00, according to size. Write for literature. W. A. Spinks, Duarte, Cal.

Olives—Mission and Manzanillo. We will save money for you. Large stock, stocky, straight, well grown, thrifty and clean. Come in and see the finest trees in the land growing in the nursery. Get our prices. Kavan Nursery Co., San Bernardino, Cal.

Citrus Trees—Have fine lot of Marsh Seedless Grapefruit, Eureka, Villa Franca and Lisbon Lemon, Valencia and Washington navel trees. Prices right. Budded on sour stock with carefully selected buds. John Shingler, Uplands, Cal.

Mission Olive Trees—Will be two years old next March. To be absolutely sure of getting Missions I only propagate from my own trees, raised thirty years ago. Also cuttings from same trees for sale. W. A. Hayne, Box 461, Marysville, Cal.

For Acacias, Avocados, Budded Loquats, Citrus trees, Evergreens, Feijoas, Palms, Roses and all kinds of trees, shrubs, vines, etc. Write for our new catalogue. Robertson Nurseries, Fullerton, Cal.

For Sale—Navel, Valencia and lemon trees, three-quarters inch and up, 20c loose root, 25c balled. Budded Avocados, 4 to 7 feet high. Address Box 54, Glendora, Cal.

For Sale—Grafted walnuts on black and soft root, oranges, lemons, apricots, peaches, everything in the nursery line. Get my prices. A. R. Marshall's Nurseries, Box 64, Santa Ana, Cal.

Apricot and Olive Trees—Royal and Tilton Apricots. Mission, Ascolano, Chemlaly olives. Choice stock. Correspondence solicited. C. E. Moyer, Hemet, Cal.

For Sale—Seed-bed and nursery stock. Will trade for city, beach or Covina property. Phone 357 Azusa Ex., S. N. Benton.

Would Exchange—Half interest in 8000 year old Valencia buds; good trees; near Anaheim, for clear lots or land. R. Toon, 1337 W. 24th St., Los Angeles.

Before Planting Olives, Avocados, Feijoas, Rhubarb or Cactus, get my free booklet. Bishop's Nursery, Highland, Cal.

For Sale—Avocado Seed, home grown; also fine budded "Taft" Avocado trees. C. P. Taft, Orange, Cal.

2500 Grafted Walnut Trees—Still unsold. Whittier Nursery, 803 W. Philadelphia St., Whittier, Cal.

MACHINERY

USED WINDMILLS, TANKS, PUMPS, ENGINES, RANCH MACHINERY.
WHY BUY NEW? SAVE HALF.
MATERIAL GUARANTEED.
ENGINES, PUMPS, BOILERS.

Two boilers, 80 and 100 h. p., and Smith Valle steam engine 14x18 and Compressor 12x18. Boilers used less than one year. Pumps 300 inches, price $1000, cost $6000. Fine for mine, sawmill, pumping plant, nearly brand new. Sold account closing estate.

3 H. engine and pump, complete, $75.
10 H. engine and No. 5 pump, $195.
25 H. and No. 6 pump, $360.

RANCH MACHINERY.

Champion Binder, $75; Header, $95; 3-Gang Disc, $35; 15-in. Mouldboard Riding, $35, nearly new; 6-Gang Tractor Disc, $140, cost $270; Holt 60-h. p. Tractor, cost $4000, $750; Southwick Power Baler; Whitman Empress Baler; 4 Mowers; Mounted Hand Sprayer, tank and pump, $12; harrows, potato and beet machinery. Fan Mill, Corn Sheller, Power Ensilage Chopper; small ranch tools. Absolutely cheapest serviceable material can be produced for. Pioneers in our line. DEMMITT CO., UPSTAIRS, 120 N. Main, Los Angeles.

Gas engines, centrifugal and deep well pumps, motors, and everything pertaining to irrigation, for sale and exchange. If you want a complete plant or any part write us; we are experts in irrigation; advice and estimates cheerfully given. Will buy, sell or exchange. Reliable and responsible everything guaranteed as represented. Machinery & Motor Exchange, Inc., 733-735 San Fernando St., Los Angeles. Main 6382, F-3433.

For Sale—Used and new gas engines, 2 H.P. up, rebuilt and fitted with modern equipment. 22 years' experience enables us to repair and rebuild gas engines correctly. Get our prices. Lloyd, 306 N. Main, Los Angeles.

POULTRY

Baby Chicks—As good as the best regardless of price, for April, May, June. White Leghorn, $8.00 per 100; $76 per 1000. Brown Leghorn, $10.00 per 100; $95 per 1000. Leghorn chicks shipped each week. Book to order. R. I. Red, Barred Rocks, Buff and White Orpingtons, Black Minorcas, White Wyandottes; 50% deposit, balance C. O. D., and chicks must be first class or we will refund deposit on return of chicks. Hawkeye Hatchery, Turlock, Cal.

At Five California Shows I won 112 firsts, 55 seconds, four times best bird in show and many specials. Utility and show stock. Eggs and chicks of Black, Buff and White Orpingtons, Rose and S. C. Reds, White and Blue Leghorns, Silver Campines, Anconas, Salmon Faverolles, Polish and Cornish Games. Free mating list. Holman Poultry Farm, Stockton, Cal.

White Plymouth Rock Incubator Chicks—Also White, Brown and Buff Leghorn and Black Minorca, all from Standard bred Exhibition Stock, and Hoganized. Place your orders now for April delivery. Send for Booklet of prices. Mahajo Farm, P. O. Box 597, Sacramento, Cal. Hatchings from mature stock only—22,000 Incubator capacity.

Make Money with our superb White Orpingtons; best breed for every need. Lay most when prices highest; make finest eating. 1000 grand range-raised birds, trap-nested and bred for heavy laying. Eggs, chicks, stock. Send for catalogue. Whitten Ranch, R. 5, Box 646, Los Angeles.

Richey's New Zealand Red Rabbits—1st at L. A. Show. Barred Rock eggs for hatching $1.50, 15; special cockerel mated, $2.50.

Roselle, the famous jelly plant—equals red currant—annual; 10c per packet. Sow in April. Mrs. C. A. Richey, Route 8, Box 557, Los Angeles, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. National Poultry Co., successors to Allaway & Layton Co., 607 E. Third St., Los Angeles, Cal.

For Sale—White Orpington Eggs (Kellerstras, 1914 stock), $5.00 per dozen. S. C. Rhode Island Reds from trap-nested hens, over 200 eggs. $3.00 per 15, from 166 to 200, $1.50 per 15; from utility stock, $1.00 per 15. C. S. Eichholtz, R. 1, Box 238, Pasadena, Cal.

Hatching Eggs $5.00 per 100. Baby chicks 10 to 15 cents; White Leghorns (MacFarlane strain), Buff Leghorns and Rhode Islands; all prize winning stock and heavy layers. H. E. Thomas, Box 93, Palms, Cal.

MacFarlane Strain White Leghorn eggs, $1.50 per 15, $5.00 per 100; chicks, $10.00 per 100 from our thousands of heavy layers. Order now, any quantity. Big plant, lowest prices, best stock. Newton Poultry Farm, Dept. 3, Los Gatos, Cal.

Baby Chicks—White Leghorn, Brown Leghorn, R. I. Reds, Barred Rocks, Black Minorcas and Anconas. We guarantee satisfaction. Write for price-list. The ORLAND HATCHERY, Orland, Glenn Co., Cal.

Rhode Island Reds and S. C. W. Leghorns; greatest laying strains in California. Baby chicks: Reds, $15.00 per hundred; Leghorns, $12.50. Rainescourt Poultry Ranch, Zelza, Cal.

Day-Old Chicks—From healthy, vigorous, heavy-laying, free range stock of S. C. White Leghorns. Price, $7.00 per hundred. H. P. Hansen, R. 4, Box 177, Petaluma, Cal.

S. C. White Leghorn Baby Chicks and Hatching Eggs that are Top Notch. Write for particulars. Prices reasonable. Ten years in business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

Petaluma Hatchery—The one that's different. We challenge the hen, or anybody else. Don't compare prices, compare quality. Circular free. L. W. Clark, Petaluma, Cal.

Petaluma and American Brooder Stoves with new and exclusive features. Write for free catalogue. American Brooder Stove Company, Oakland, Cal.

White Wyandottes—White Rocks, Cockerels, $2.50; eggs, $2-15; $7-100. Ramona Farm, Box 1361, R.D., Sacramento, Cal.

Baby Chicks—If looking for the best—get Golden Buff Leghorns or White Minorcas. Sandridge Hatchery, Kerman, Cal.

Barred Rock Eggs for hatching, $1.00—13. Brown Leghorn eggs, 75c—15. Mammoth Bronze Turkey eggs, $2.50 per doz. Massey Farm, Wilmington, California.

Goodacre Blue Ribbon Strain of heavy layers. Send for 1915 catalogue. Twelve First prizes at Los Angeles show, Jan., 1915. Goodacre Bros., Compton, Cal.

Hatching Eggs a Specialty—Selected S. C. White Leghorns. Reduced prices March and April. $5.00 per 100; $45.00 per 1000. Pine Tree Poultry Farm, Los Gatos, Cal.

Barred Rock Cockerels—(Hawkins Royal Blue Strain) ready for mating, also Barred Rock, R. I. Red, Buff and White Orpington day-old chicks every week. Enoch Crews, Santa Cruz, Cal.

Baby Chicks (White Leghorns)—Shipped on approval. Examine at your home before remitting. No weak ones charged for. Scheliville Hatchery, Sonoma, Cal.

Barred Plymouth Rocks—Winners at New York, Kansas and California shows. Eggs and choice stock for sale. C. H. Vodden, Los Gatos, Cal.

For Sale—A few fine Ancona and White Rock Cockerels. A special bargain at $2.00 each. Fine strains and good individuals. A. E. Nelson, El Monte, Cal.

Houdans—Eggs $2.00 per 15. Males $2.50, females $2.00. Choice stock. Mrs. B. Hocking, Guasti, Cal.

POULTRY

Just Out—The Cultivator Poultry Book, "Poultry for Profit," by Jean A. Koethen. Published by the Cultivator Publishing Co. Highly endorsed by experts. Over 200 pages, 50 illustrations. Contains simple methods of avoiding and overcoming difficulties. A guide to poultry success under Western conditions—it tells what to do, why to do it, and how to do it. Nicely bound in cloth. Price $1.00 postpaid, or with Cultivator one year, $1.75. Send orders to Cultivator Publishing Co., 115-117 North Broadway, Los Angeles, Cal.

White and Brown Leghorns—Day-old chicks from healthy vigorous breeders. "Chicks well hatched are half raised." We will be pleased to send you circular and prices. San Jose Hatchery, 371 Meridian Road, San Jose, Cal.

Poultry—Rhode Island Red Chicks $15.00 per 100. Settings, thousands, from our 1800 heavy layers. Hatched right in our $60,000 Hatchery. Hatching Eggs. Pebbleside Poultry Farm & Hatchery, Sunnyvale, Cal.

Ancona Eggs—Select stock, $1.50 per 15, $7 per 100. Baby chicks, 15c each. Mammoth Pekin Duck Eggs, $1 per 12, $6 per 100. Baby ducks, 20c each, $17.50 per 100. J. P. Clough, 3980 Peralta Ave., Fruitvale, Cal.

Trapnested White and Buff Leghorns, records 120-279 eggs per year. Eggs, chicks, stock. Arthur R. Schroeder, R. 18, Box 179-D, Mountain View, Cal.

Pit Games—A few choice specimens for sale. Write for prices. Delivered your station. O. L. Crane, R. D. 3, Santa Rosa, Cal.

Pheasants—Ringneck and Golden. Eggs for hatching. T. D. Morris, Agua Caliente, Cal.

Cornish Games—The finest of table fowls. A few choice birds left at reasonable price. C. G. Wright, Kerman, Cal.

Barred Rocks—Only a few fine breeding cockerels for $3.00 each. G. L. Hawley, Madera, Cal.

Eggs for Hatching. R. I. Red $1.50 setting, 15 eggs. Free range. J. F. Mason, Route 1, Box 112, Watsonville, Cal.

LIVE STOCK

Ohio Improved Chester White (O. I. C.)—Entire herd immunized against hog cholera. Nothing but immunized stock sent out. Extra fine lot of fall pigs, both sexes, ready for shipment during February and March. Three herd boars used. All stock crated and registered. Make reservations now. C. B. Cunningham, Mills, Sacramento Co., Cal.

Blue Ribbon Herd Duroc-Jersey Hogs—Bred Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 firsts, 13 seconds, 6 thirds, 7 fourths, 1 fifth. Will show 1915. For prices, write Jno. P. Daggs, Modesto, Cal.

Grape Wild Farm Thoroughbreds—Guernsey Bulls of A. R. Breeding. BERKSHIRE HOGS. Finest herd in the state All ages for sale. A. B. Humphrey, proprietor. Mayhews, Sacramento Co., California.

For Sale—Registered. Berkshires:. 25 choice pigs of best breeding from the best strains in America. For prices and description address H. L. Murphy, Perkins, Sacramento Co., Cal.

For Sale—Young registered Berkshire boars and sows; fine, strong stock. Boars ready for service. Stanislaus Ranch Co., Crows Landing, California.

For Sale—Pure Bred Hampshire Boar pigs $25.00 each. Ben F. Thorpe, Bonsall, Cal.

For Sale—Thoroughbred Duroc Jersey boars and sows. Strong and vigorous stock. Fred Hart, Exeter.

One Holstein Bull—Born January 10, 1915, $25. Riccomi Bros., Mountain View, Cal.

Registered Toggenburg buck kids, a few from choice stock at a bargain. H. W. Shepard, National City, Cal.

Glenview Poland China—Stock for sale. Chas. R. Hanna, R. F. D. No. 3, Riverside, Cal.

For Sale—Full-blooded, French Percheron stallion. L. E. Stockton, Ramona, Cal.

M. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale.

WANTED

Wanted—Responsible representative in each county. New Combination. 12 tools in 1. Sells at sight to farmers, teamsters, contractors, etc. Weight 24 pounds. Lifts 3 tons, hoists, stretches wire, pulls posts. Many other uses. Free sample to active agents. Easy work. Big profits. One agent's profit $45.50 in one day. Another $1000 in Dec., 1914. We start you. Write today for Big Color Plate. Quick action secures exclusive sale. Harrah Mfg. Co., Box M, Bloomfield, Ind.

Farms Wanted—We have direct buyers. Don't pay commissions. Write describing property, naming lowest price. We help buyers locate desirable property free. American Investment Association, 12 Palace building, Minneapolis, Minn.

Wanted—To hear from owners of good fruit ranch or irrigated land well adapted for fruit ranch. Send price, terms, legal description. O. O. Mattson, 923 Andrus Bldg., Minneapolis, Minn., Dept D.

Wanted—Man to establish dairy on my alfalfa ranch near Corona. Must have some money or a bunch of cows. Herbert F. Clark, 31 N. Granada Ave., Alhambra, Cal.

For Sale—One thousand fine stocky San Jose Mayette Walnut trees, four to eight feet. Price reasonable. Address Chas. Story, Rivera, Cal.

Wanted—To hear from owner of good farm for sale. Send cash price and description. D. F. Bush, Minneapolis, Minn.

Wanted—To hear from owner of good farm or unimproved land for sale. C. C. Buckingham, Houston, Texas.

Tree Grafters wanted for walnut nursery work. Write or apply immediately to Tribble Nurseries, Elk Grove, Cal.

Wanted—A few pure Duroc Jersey pigs, bred or ready to breed. State price crated. W. R. Faries, Coachella, Cal.

MISCELLANEOUS

Free for Six Months—My special offer to introduce my magazine "INVESTING FOR PROFIT." It is worth $10 a copy to anyone who has been getting poorer while the rich, richer. It demonstrates the REAL earning power of money, and shows how anyone, no matter how poor, CAN acquire riches. INVESTING FOR PROFIT is the only progressive financial journal published. It shows how $100 grows to $2200. Write NOW and I'll send it six months free. H. L. Barber, 430, 28 W. Jackson Blvd., Chicago.

Ranchers—Now is the time to act. Get ready for this season canning up your entire crop of fruit and vegetables, getting from two or three times more cash for your entire crop and save it all by using one of our machines. We have the experience and trade on the canned goods. Write or call and see us for full particulars. Demonstrating plant, 223 E. 9th St., Los Angeles. Canners' Supply & Brokerage Co.

First Class Business Property—On one of the main streets. Small grocery store and large, up-to-date bungalow facing it; 2 smaller houses on side street, all rented for $50.00 per month. Want improved ranch up to $7000 or vacant land and cash. Want good land that will stand investigation as well as mine. Frauds need not apply; am on to them. Owner, 3030 East 1st st., Los Angeles, Cal.

OPPORTUNITY FOR DAIRYMAN
Wanted to lease—$75 a month to a Dairyman having cows, a fully equipped stone, dairy building, with large dairy barn, 40 acres of wet pasture and a good residence. Plant located at Victorville, Cal., where there is no dairy and where 1000 pounds of butter are used monthly. For further particulars apply Rancho Verde Co., Victorville, Cal.

For Lease at Floral Park, Ventura, California, eight acres of land and lath house, 100 by 200 ft. Rent $150.00 per year. M. J. Callahan, 1808 Jones St., St. Joseph, Mo.

For Lease—1200 acres good valley farming land, at $1.50 per acre, for a term of one or more years. Information concerning same write to F. J. Ethererry, Ramona P. O., San Diego Co., Cal.

"Smith's Pay the Freight"—To reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St., San Francisco.

Housewives—E. Z. Y. cleans and polishes everything. Sample 10c. Full size 50c. Blauvelt Crittenden, 1033 Coronado Terrace, Los Angeles, Cal.

Indian Corn Silage—200 tons for sale. Heavily eared corn. Box 24, Butte City, Cal.

SEEDS AND PLANTS

New Varieties of berries originated by Alfred Mitting. New Dewberry White Fawn, the berry is white, large, fine, sweet flavor, $1.00 each. New blackberry Black Prince, a prolific bearer, berry 1½ inches long, quite tart, fine shipper, $1.00 each. New strawberry Santa Cruz, a rich, large, berry, dark red inside and out, fine flavor and shipper, 6 for $1.00. Send orders to Santa Cruz Bulb & Plant Co., 8 New St., Santa Cruz, Cal.

For Sale—Non-irrigated, San Fernando Valley Grown Seeds. Black Seeded Chilean and Angeleno Melon, 80c per lb.; Improved Hybrid, Golden Beauty and Pineapple Casaba, $1.50 per lb. First class seeds direct from the grower. M. C. Sutton, Van Nuys, Cal.

Rhubarb Plants—Now ready. Burbank's Crimson Winter, 75c per dozen. Wagner's Improved Giant Crimson Winter, $1.50 per dozen. Quantity prices on application. "Do it now!" Reginald Bland, San Luis Rey, San Diego County, Cal.

Sudan Grass Seed in fifty-cent packages. One package plants seventy-five acres next planting. Enough to plant six acres for five dollars. Jones County Seed Co., Anson, Texas.

50,000 Winningstadt Cabbage Plants—$2.15 per 1000. Get our seed price list. West Coast (Cut Rate) Seed House, 116-118 E. 7th St., Los Angeles.

For Sale—Tepary Beans, hand-picked; suits interior valleys; immediate delivery; F. O. B. 10c per pound, 50 pounds up less. Carl Nelson, Lindsay, Cal.

Berry Plants, Rhubarb, Cacti—It will be worth your while to send me a postal right now if you are interested. Louis F. Scribner, P. 2, Pasadena, Cal.

Rhubarb—Crimson Winter, $3.00 per hundred; Wagner's Giant, $5.00 per hundred. Good, strong, one-year plants. Currier Bulb Co., Seabright, Cal.

Feterita Corn Seed—The corn that puts the Du in Duroc, the Po in Poland, the Ber in Berkshire Hogs. For sale by John P. Daggs, Modesto, Cal.

Attention Dairymen—Plant Sorghum for green feed or ensilage. Seed for sale in lots to suit. A. L. Sayre, Madera, Cal.

For Sale—Sour orange seed, 75c per quart prepaid, by mail, or $15.00 per bu. F. O. B. J. M. Chaffee, Enterprise, Fla.

Rice Seed for Sale—Free of grass or other seeds. Write Jesse Peter, Pond, Kern County, Cal.

TURKEYS

For Sale—Turkeys; White Holland, Bourbon Red, Mammoth Black and the new Blue (slate); hardy, early maturing, popular varieties; in separate wire-covered yards, range alternately; eggs, $5 per dozen; stock, $5 to $12; won 13 prizes from 13 entries, Los Angeles show, 1915; 9 firsts; first male in all four varieties. Mrs. B. Hocking, Guasti, Cal.

Mammoth White Holland Turkeys—A few fine toms for sale. Also eggs in season from two very select pens. Orders given prompt attention. Prices on application. Address H. McKusick, Box 733, Calexico, Imperial County, Cal.

Mammoth Bronze Turkeys. Largest and best flock in the world. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

BEES

For Sale—150 to 200 Colonies of Bees for sale in first-class condition. In single story 2 hives, strong and well bred Italian stock; many of them about ready to swarm. Price $5.00 per colony. Apply Box M, Cultivator Office.

Beekeeping Pays Big—Price list, bees, instruction books, etc., free. Spencer Apiaries Co., Box 14, Nordhoff, Cal.

FARM LANDS FOR SALE

VICTORIA, AUSTRALIA, WANTS SETTLERS
Special inducements; government land, railways, free schools; cheap irrigation; 31 years to pay for farms adapted to alfalfa, corn, grains, fruit, etc.; climate like California; ample markets; reduced passages; special excursion being arranged. Free particulars from F. T. A. Fricke, Government Representative from Victoria, 687 Market St., San Francisco, Cal., Box X.

Apricot Land Bargain—300 acres ideal apricot land near Watsonville in tracts of 20 acres or more, at $100 per acre; easy terms; adjoining lands in full bearing orchards have netted annually $200 an acre for past six years. Get full particulars from Farm & Forest Realty Co., Watsonville, Cal.

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"VERTICAL FARMING"

We have received a copy of the book, "Vertical Farming," by Gilbert Ellis Bailey, Professor of Geology, University Southern California. Dr. Bailey believes the time has come for the farmer to extend his study and effort to greater depths in the soil than are reached by the usual agicultural implements, and he sustains his point of view with arguments showing the latent fertility of the subsoil and its capacity for storing moisture, once it has been disturbed, to a depth of five or six feet by the use of explosives.

The increase in use of subsoil plows, deep tillage machinery and the explosives for breaking up resistant and impervious subsoil, indicates that many progressive farmers will agree with Dr. Bailey's opinion, and now that the price of all food crops is so high, farmers in general are interested in any means for increasing crop productions. The book is distributed without charge and is certainly well worth sending for.

SOME PICNIC

The employees of the Nicholls-Loomis Company, large hay and grain buyers of Los Angeles, held their annual family picnic on Washington's Birthday in Santa Monica Canyon. Seventy employees of the firm, with their families, were present. Nine of the firm's automobiles and large motor trucks were used to transport those attending. Football and other games added to the pleasure of the afternoon, the principal football game being pulled off between the salesmen and office force against the teamsters.

By the way, it may be in order to refer to the business of this large concern. During the past year of depression it has been more than 100 cars in excess of any previous year's business.

Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Canning Olives

Will pickled ripe olives keep indefinitely by heating and bottling the same as fruit? If not, please advise how to keep them without having to change the brine?—Subscriber.

In the Cultivator of September 24, 1914, we give reprint of an article by Mrs. Sherman on pickeling and canning of olives.

Planting Walnuts

Kindly inform me if a soil five to six feet deep, underlaid with hardpan from one to six feet deep, would be all right to grow English walnuts successfully. The soil is first class.—Subscriber, Ceres.

There is always considerable risk in planting trees of any kind on land underlaid with hardpan. If one could always control the water supply and could be sure no more water would get on the soil than would keep it in a good moist condition, the trees would do well in five feet of good soil. If because of heavy rains or from seepage from adjacent land the soil should receive more than this amount of water there would likely be very serious damage to the trees. Walnuts are particularly susceptible to an excess of water in the soil when the excess is caused by improper drainage, and standing water either in the soil or on the soil will kill the trees within a few weeks.—J. B. N.

Repressing Growth of Apple Trees

Please tell me how to keep apple trees from growing straight up in the air like canes.—Subscriber, Escanto.

If the subscriber refers to young trees just being planted in orchard from the nursery would suggest they be cut back to 16 to 20 inches when set. Then as they start we would watch the young growth, encouraging at least three main branches, properly distributed around the trunk. Other branches we would surpress by thumb pruning, that is, pinching out the tender growth at the tip, then as the tree or four main branches get up to give liberal leaf surface to support the tree we would pinch the terminal bud so as to make them grow somewhat stockier, or at least we would pinch out any branches which showed excessive growth. Of the four branches two or three might be growing indifferently while others were taking all the sap. This should be repressed by thumb pruning during the coming summer. If orchard trees are watched during the first summer's growth they can be forced into better form than if allowed to run riot without any control.

Gophers

Mr. W. A. Randall of Azusa informs us of his observations regarding the use of sulphur mixed in soil around the trunks of trees. He has seen the dirt raked away from the tree and a cup of sulphur thrown around it with the result that gophers have given it a wide berth. We have never heard of this treatment before and it is perhaps worth experimenting with. In the meantime keep the trap in good working order.

Cauliflower Going to Seed

We had some trouble last year with cauliflower plants going to seed instead of making fine large heads. What is the remedy?—Subscriber.

The only remedy for this is the selection of better seed.

Use Nitrogen on Alfalfa

Answering a question as to the nitrogen fixing power of alfalfa and how to secure best results with it, Prof. C. B. Lipman of the University of California writes:

"If any nitrogen fertilizer at all is applied to alfalfa I should certainly give the preference to nitrate of soda. In most cases, if alfalfa is well inoculated, no nitrogen fertilizer is necessary. It has been repeatedly found, however, that a very soluble nitrogen fertilizer such as nitrate of soda, when applied in small quantities as a top dressing on alfalfa when making its first spring growth, or particularly when it is first making a stand, always results in a thriftier plant and one which appears to fix more nitrogen. I have but very little experimental data on that point and the statements above made are based merely on practical field observations. None the less, I should not hesitate under the circumstances above described to recommend the application of a top dressing of nitrate of soda to the extent of 50 to 75 pounds to the acre for alfalfa, and I have no doubt that improvement can thus be obtained. With reference to the use of gypsum on alfalfa land I want to say, as I have always maintained, that it has a limited use. either at the time of planting alfalfa to the extent of about 400 pounds to the acre for the purpose of setting free insoluble plant foods and encouraging the nodule forming bacteria, or for use on old alfalfa fields which have grown bald and patchy. In such cases an application of gypsum in approximately the quantity named together with thorough disking at the time of the year when the alfalfa is most dormant will always result in improved growth.

"As to lime I see no use in applying lime to alfalfa land unless the reaction of the soil is neutral or acid, and particularly the latter. In such cases it is best to apply the lime prior to planting the alfalfa at the rate of at least two tons to the acre of pulverized lime rock, or air slacked lime which is very much the same material. I should give the latter preference, however, because it is more likely to be in a finer state of division and also less resistant to solution by the carbonated water of the soil."

Olive Pomace as Fertilizer

We have inquiry as to the value of olive pomace for applying to orchard lands. We believe it would have great value as a humus former and it contains considerable ash and nitrogen. We will endeavor to get its analysis from a nitrogen, potash, phosphoric acid standpoint. As a feeding proposition, we have the following from the American Olive Company:

"We give below analysis of olive pomace after extraction of all oil: Water, 15.7 per cent; fat, .9 per cent; protein, 7.8 per cent; fiber, 47.8 per cent; ash, 4.2 per cent; free nitrogen and extractive matter, 23.6 per cent. Total, 100 per cent.

Poisoning Woodpeckers

I built an expensive bungalow on my ranch last fall, expecting to occupy it about May. In the meantime there is no one about. I find that woodpeckers have drilled four or five

Little Stories of Success

No. 4

C. B. Driver of Dinuba, has 350 acres of valley land, 220 acres of which are in bearing vineyard. He bought one of the first Baby Caterpillars made. "Yes," said Mr. Driver, "the engine sure does good work, especially in plowing. We use four plows and a harrow, plowing six to eight inches deep and sometimes ten. We take care of about 15 acres a day, working 9 hours." In the winter Mr. Driver uses the Baby to haul manure and does other odd jobs, like moving a house. He figures the Baby will do his work about 20% cheaper than horses or mules, even allowing for a sinking fund of 20% each year. As a matter of fact he has spent only $45.00 for repairs in the last two years.

Mr. Driver's success is being repeated by other owners who know how well the Baby is suited to work on small farms. We'll gladly give you the name of the one nearest you.

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large holes through the gables and sides into the attic. I have placed strychnine in raisins, grains, meat, water, etc., and placed in the attic but the birds do not touch the poison. There are nearly a dozen of the birds flying in and out. Can you tell me some way to get rid of them?—Subscriber, Los Angeles.

As the range of poisons seems to have been pretty well tried would suggest the use of fine wire netting tacked over the gable end of the house. A trap made of netting could probably be arranged so as to catch them but this would require personal attention.

Smut on Field Corn

I want to treat some field corn seed to prevent smut. I have bluestone on hand. Will you kindly tell me how to use it?—Subscriber, Vorden.

Seed treatment is said to be practically of no value in preventing corn smut, which costs this country above $20,000,000 annually. Perhaps the best means of prevention is burning every infected plant as soon as it is discovered and growing corn on clean fields. If infected plants are used as bedding and the manure carried to the corn field the infection of the growing corn is almost instantaneous.

Painting Tree Wounds

I notice in your issue of January 28 an inquiry from Subscriber, Oakland, in regard to a healing paint or wax for trees when large branches have been removed in pruning. I have had considerable experience along this line and about the best thing I ever tried is porch floor paint ready mixed. It always dries hard and forms a complete protection. It is quite expensive though if there is much surface to cover. Have also found that one-half gallon of crude oil and ten pounds asphaltum melted together makes a good covering that will not crack nor peel and it is very cheap.—E. O. Giddings, Porterville.

Another subscriber from Hollywood writes:

"In your questions and answers department of January 28th issue, under 'Dressing of Wounds,' you state that lead and oil is good if the oil is not permitted to come in contact with the bark of the tree. I am interested in knowing what harm will be done if it does come in contact with the bark, and how one can prevent it. In covering wounds on my trees with white lead and raw linseed oil I noticed that very often a dark stain, as if the oil had run into the bark, appears around the part painted. Is this doing damage?"

"Dark stain" aptly expresses the injury done to the work. This is sometimes killed or so injured that the stain deepens and new healthy wood will grow over it ultimately. The only preventive where paint is used is to apply in very limited quantity, covering only the actual cut surface and using the same care one would in painting ordinary woodwork where other portions of the wood are not to be covered.

Discouraging Ground Squirrels

A subscriber, Mr. C. A. Nidever of Paso Robles, sends the following hint for handling ground squirrels:

"I have had trouble in the summer and fall to get squirrels to eat poisoned grain. They would clean up all the grain scattered around the holes but seemed to store it instead of eating it. I tried the gas method of killing them but without much success as the ground was dry and let too much gas escape. Then I tried the following which got nine squirrels out of ten: Put about a teaspoon of poisoned wheat down the hole, stuff the hole with a sheet or two of old newspaper and cover it with dirt. Nine out of ten will never dig out and other squirrels moving in will dig down to the paper and then stop.

"The squirrels don't like the rattle of the paper and those on the inside will eat the poisoned wheat as soon as they get hungry rather than try to dig the paper out. Of course the paper alone won't stop them but delays them until they get hungry enough to eat the first thing at hand. This is slower than merely scattering the grain but pays in the result."

Poisonous Range Plants

Regarding the interest which has been aroused by reference to locoed horses in a recent Cultivator, Mr. Nidever of Paso Robles writes that he has secured much information from a brief circular regarding the principal poisonous plants of the western stock ranges just issued by the bureau of plant industry of the United States department of agriculture. The circular gives recognizable pictures of death camas, lupine, loco weed, two forms of larkspur, and water hemlock or wild parsnip; and the essential facts in regard to their characteristics are pointed out. The purpose of the circular is to call the attention of stockmen in a definite way to the plants which it is most necessary to avoid. Application for copies should be made to the bureau of plant industry, Washington, D. C.

Not Suitable Here

Are liatris and physostegia (perennials) also pennisetum (ornamental grass) suited to the California climate? Will they thrive here?—Gardener, El Monte.

All species of pennisetum seem to do well in California and some of them are very popular both North and South. Liatris flowers in the cooler days of autumn, about chrysanthemum time, and this suggests cool treatment. Therefore they should have partial shade and plenty of water. They have seldom found favor in Southern California, though given many trials.

Physostegia requires still more shade and water and a rich soil. In its native habitat it is found at its best in low, damp meadows subject to spring overflow, where a rich annual deposit is left. These cool fields,

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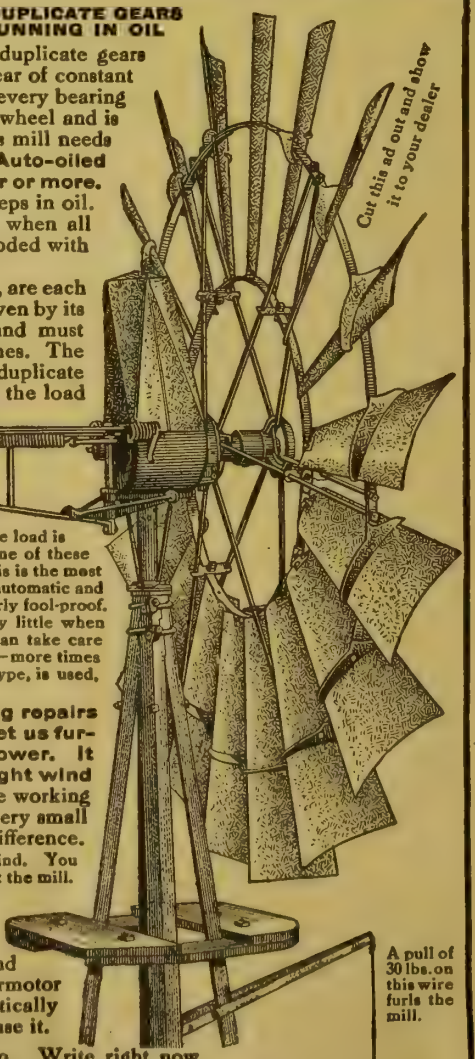
Why not have flowing water, cool in summer and warm in winter, always fresh and pure? It will cost next to nothing. It will give health to your family and stock. Let the water run into a good size reservoir and raise all the fish of the choice kinds your family can eat, and have water to irrigate your garden and make it raise many times as much as it would otherwise. The Auto-oiled Aermotor makes all this possible as it can run from one year's end to another with practically no wear and no cost. Water costs nothing. Use it. To let it stand is to abuse it.



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shaded by few or many trees, have a climate we cannot duplicate, for our nights are too cool and days too dry. These flowers are not recommended for local use.—E. B.

Salpiglossis Seeds

Can salpiglossis seed be sown directly in the ground or should they be started in flats and transplanted later to permanent bed? Do they need rich ground and will they do well on the east side of the house where they get sun until about 2 p. m.?—Gardener, El Monte.

Early sown seeds should be in boxes but at this season they are best sown where they are to grow. The reason of this is that if once checked in growth the plants do not entirely recover and will make tall spindly plants, whereas seeds sown in the permanent bed will make vigorous, bushy, large-flowering plants. They are not exacting as to soil, being closely related to petunias, and, like the latter prefer sunshine. They will do well in an east bed.—E. B.

Tuberculosis-Aspergillosis

Cock and several pullets have died. Usually they go lame, seem stupid, but eat heartily. On examination find spots on liver, sometimes full of hard white lumps, also in intestines. They have plenty of range, good water, some vegetables, green barley, lettuce, alfalfa and Swiss chard. They have excellent care and proper hen houses. —Subscriber, Orange.

There are two diseases that are characterized by these yellowish nodules in the liver and intestines. One is tuberculosis; the other is aspergillosis. Aspergillosis is caused by mold spores from moldy feed or scratching litter, which find their way into the respiratory and digestive tracts and grow there. It is usually indicated by a rattling in the throat and later by diarrhoea, weakness, drowsiness, roughness of plumage and sometimes emaciation and lameness. In tuberculosis there is almost always emaciation ("going light"), pale comb and a ravenous appetite. There is often lameness and sometimes ulcerous swelling of the joints. It is impossible to diagnose tuberculosis accurately without a bacterial examination of the lumps in the liver, but the death of the cock and pullets certainly suggests it. On the other hand, the fact that the pullets had red combs and were normally fat is against it. I should look first in the feed and litter for mold and make sure that everything about the house was as clean as it should be. In the second place I should remove from the flock every bird that seemed ill in the least, and as soon as I was sure of the symptoms I would kill every one and burn their carcasses. Unless you find reason to believe that the trouble is caused by mold, it would be a good plan to remove the whole flock to fresh ground, for tuberculosis bacilli are spread through the droppings, and if any of the sick birds did have tuberculosis the soil where they have been is more or less contaminated. As long as the pullets seem healthy there can be no reason why their eggs should not be used for food.—J. A. K.

Rheumatism

Tom turkey nine months old is unable to stand. He eats and seems well otherwise. Is it rheumatism? This trouble came on at the time of the rain. He has freedom of the ranch and has lived out in the trees at night. Only being fed wheat in the evening.—Subscriber, Acton.

It is hard to say without seeing the bird whether he has leg weakness or rheumatism, but I should certainly make him sleep under a roof till the rains are over. Turkeys can stand a good deal of wetting, but once in a while they suffer from it. If the legs seem stiff or swollen rub them with some good liniment. If there seems to be only weakness, try to persuade him to exercise a little. Rubbing the legs with olive oil might help to strengthen them. If the trouble came on suddenly after a heavy rain I should be inclined to suspect rheumatism. His heavy weight would hardly weaken his legs so that he could not stand without some preliminary symptoms of weakness. The chief treatment for either leg weakness or rheumatism is removal of the cause. If exposure is to blame, shelter should give relief. If he has been eating too heavily and exercising too little, a ration consisting mainly of green feed, with very little grain, will help to tone up his system. Green feed is also one of the best remedies for rheumatism. The following preparation of elder bark is also recommended: Scrape the outer skin from a quantity of the bark and put in a glass fruit jar all it will hold. Cover this with apple vinegar and add (for a quart jar) a piece of alum half as large as a walnut and the same amount of copperas. After this has stood a short time, add enough of the liquid to the drinking water to give it a pleasant acid taste.—J. A. K.

Late Moulting

Out of a flock of 15 hens three began to moult about January first. What is the cause of such late moulting?—Subscriber, Los Angeles.

Had your hens molted once before in the early fall or summer, or is this their only molt? Sometimes an extra good layer keeps on laying right through the fall and postpones molting till winter. I had one such case, a hen in her second year that laid steadily till about Christmas, then became most disgracefully ragged just when all the other hens were out in their new costumes. It is said that the older the hen is, the more likely is she to molt late and the less time will she spend in molting. Sometimes unusual heat or heavy feeding induce a second molt in hens that have already molted. I have heard that it is not uncommon for Leghorns in our warm climate to molt twice, but I have never seen an Orpington do it. Sometimes hens and pullets will molt late without any apparent reason. This winter all my Buttercups, both yearling hens and March pullets, went into the molt the first of December, while Orpingtons in the same house, of the same age and kept under identical conditions, did not drop a feather. This proves to my mind that we really know very little of the reasons why a hen molts when she does. If your hens have laid all the fall without molting, I think you may safely mark them as in all likelihood among your best layers.—J. A. K.

Horse Beans Grow In Winter

Touching upon an answer to a query in a former Cultivator as to the growing of horse beans, Mr. C. K. Meyer of Tuolumne writes:

In answer to a question about horse beans you state that they will not stand frost and advise planting in April or May. They would do no good planted at that time, but should be planted in the fall after the first rain, or if one has water to irrigate, it would be best to plant about the first of October. They will stand frost and even hard freezing. I have grown them here for several years at an altitude of 2500 feet where the winters are much colder than at Merced. They are grown in the coast and bay counties as a winter crop. Horse beans do best in cool weather. They are not related to the ordinary bean but resemble the pea in bloom and

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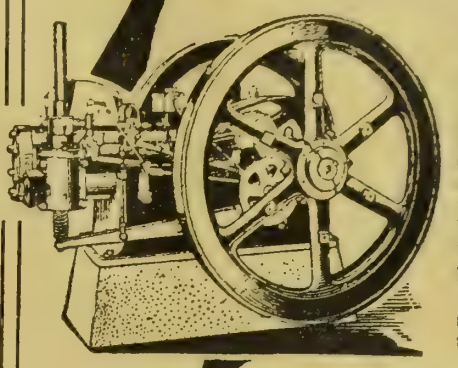

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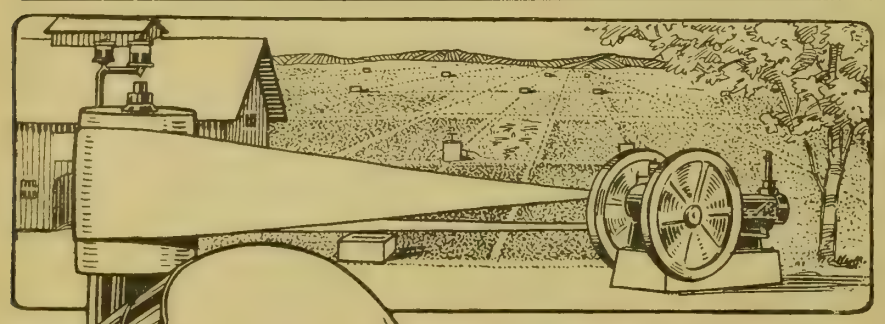

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foliage. In Mr. Igali's article in the Cultivator he makes the same mistake when he states that lentils are not hardy. I received lentils, chick peas and vetch, several varieties of each, several years ago from the University of California experiment station and grew them in a small way for several years and all are entirely hardy here.

Fertilizer for Potatoes

Will you please tell through the columns of your valuable paper the kind of fertilizer used by Northern and New England potato growers? Also the best that can be used on sandy soil to give good results?—G. A. C., Anaheim.

We are not informed as to particular brand of fertilizer but doubt not it is simply a brand which is rich in potash. Any fertilizer maker who understands that a fertilizer is to be used for a crop of potatoes will understand that one rich in potash is necessary.

Leaf Spot of Strawberries

Please tell me what is the matter with my strawberries. They seem to be dying. I enclose some of the leaves.—A. B. J., Escondido.

This was referred to Prof. H. S. Fawcett of the pathological laboratory at Whittier. He writes:

"The specimens of strawberry leaves from Escondido appear to be affected with a fungous leaf spot, sphaerella fragariae. The continued moist weather has probably favored the disease. The fungus is said to germinate only when there is considerable dew or moisture on the leaves. It is also said that plants growing upon heavy, wet, undrained soil suffer more than those on drier soil. I find also in looking up the literature on this disease, that some varieties are much more resistant than others.

"The remedy given for this disease is cutting, gathering and burning of the tops after harvest. The use of Bordeaux mixture after the removal of the diseased leaves, is said to lessen the infection of the next year. In Florida Hume found that three early sprayings with a 5-5-50 Bordeaux mixture checked the disease completely. These remedies are for Eastern conditions, but they would probably be helpful here."

Corn and Blackbirds

Do you know of a corn equally as good as Egyptian that is not bothered by the blackbirds?—B. E. R., Lodi.

We do not know of any variety of Egyptian corn or milo maze which will not be damaged by birds. There is a white seeded, black hulled kafir corn which is not as attractive to birds as the light colored varieties. Sometimes the planting can be done so as to have the crop mature while the birds are away, as most of the damage is done during the week or ten days when the corn is in the milky condition.—J. B. N.

Rabbits With Canker

I have been troubled with a disease among my rabbits which causes a sort of yellowish scab in the ears and seems to make the rabbits nervous. Is there a remedy and if so, what is it?—Subscriber, Los Angeles.

Your rabbits are suffering from that disagreeable disease known as canker of the ear, which is frequently found even in some of the best kept rabbit warrens. This disease is not only very contagious but can be carried through generations of breeding, if any of the parent stock or ancestors have been subject to this disease. Would advise that all specimens so affected be destroyed immediately, as they are worthless for breeders. A cure may be effected by rubbing well into the abscess or parts affected, equal parts of sulphur and pure hog lard, mixed well together. The cause of this disease is unknown.—R. V. M.

Tresspassing Sheep

Have the sheep men any right to pasture unfenced land without renting it, or what must I do to have a legal case against them?

There is no law in California which will prevent sheep from feeding on land which is not fenced; that is, no law other than the estray law. The stock may be taken up and impounded, but as to damages, our law specifies that none may be collected unless the lands are surrounded by a substantial fence.

Olive Cuttings

What variety of olives do you recommend? Would you prefer budded cuttings? Soil is side hill, hardpan land, well drained, in warmest belt of Tulare County.

Where cuttings are used no budding is necessary. In a sense the cutting is a bud and, of course, should reproduce true to the parent tree. Skill and experience are demanded in choosing cutting from the right kind of a tree. Know the productiveness and the quality of the fruit for years, then trust to your cuttings to give you a desirable tree. Side hill soil anywhere with hardpan may be all right for olives; it depends entirely upon the depth of the soil and as to whether the hardpan is so arranged as to give fair drainage. As to variety, we think selected Missions would be best.

Horse Beans

My horse beans, planted last October, have made a fine growth and are full of blossoms. Will they mature a crop? If so, when? Blossoms seem to blight. Or is it only the summer grown that come to maturity? Kindly advise at earliest possible opportunity, as my neighbors plow under in February in order to have the bean stalks decay for limas or other crop in May. But if I could be assured of maturing my horse beans I would not bother with another crop.—J. L. S., Santa Ana.

This crop will mature all right; beans will begin to form as soon as we get a few warm, clear days; it is the cloudy, cold weather that is causing blooms to blight. Green beans should be ready to pick early in March, but the mature beans will not be dry until June or July. We would not advise saving the dry beans, as the weevil gets into them very badly here.—D. F. R.

Employe's Abstinence

Please tell me why business men demand total abstinence on the part of their employes?—M. E., Exeter.

The above is not exactly agricultural and the inference is not entirely correct. That is, all employers do not demand total abstinence. With railways and many large institutions which have the safety and even the lives of the public in their hands there are often restrictions to the extent of requiring total abstinence on the part of employes, this for the obvious reason that clear heads are demanded for the work in hand.

Spraying Tree Tops

I have noticed reference to spraying trees with nitrate of soda when dormant, this to stimulate and induce buds to set stronger crops. Would it be advisable to add the nitrate of soda to lime sulphur or blue vitriol sprays? If so please give formula.—Subscriber. Gardena.

The formula for the nitrate of soda spray for tree tops is 50 pounds nitrate of soda, seven pounds of caustic potash and 50 gallons water. This is perhaps the best time of year to apply this wash which has proved beneficial in some cases though its ultimate worth has not yet been proved out. It is, however, worth a thorough trial on the part of orchardists. We would mix with the other wash referred to. However, that again is worthy of a trial.

The Household Department

BACK HOME

I'd like to take a week's-end off
And get back to the farm,
With griddle cakes and sausages
And other things that charm.

I'd like to tumble in a bed
Of feathers soft and warm—
Secure beneath the old roof-tree
From trouble, fret or storm.

I'd like to hear my mother's voice
Come up the entry hall:
"It's six o'clock, you sleepy head!
And this is my last call."

I'd like to hear the dishes clip
Together down below,
Where she fixed up the breakfast things
Helped by Melinda Snow.

I'd like to rustle up the hair
Of my dog, Towser, now—
The best friend that a boy e'er had,
So close to me, somehow.

Through all the days that come and go,
No matter where I roam,
I'd like to hear his welcome bark
When I go drifting home.

I'd like to take a week's-end off—
And so would you; once more
Go back to lift the latch again
Upon the dear old door.

There snuggle close up to the folks
In pleasant firelight;
There hear the mother-voice again
Give you her fond "Good-night."—
New York Times.

CHARLIE'S AUCTION

Uncle Eph tipped back in his chair and put on his best story-telling expression. "Yes," he drawled, "thar seems to be a lot o' folks in the world that claim the milk of human kindness has all turned sour. You meet 'em every turn in the road. They're not exactly cheerful lookin'. The lines in their faces all turn down. They seem to take a sort o' satisfaction, tho, in their belief that everybody is jest waitin' fer a good chanst to get the best o' everybody else. They can usually give you some convincin' illustrations from their own experience too. Mostly always that's what started them thinkin' everything and everybody has gone to the dogs or are on the way.

"Funny, ain't it, what a little world we live in? It's bounded on the north by 'I,' on the east by 'me' and the rest of the way by 'myself.' So, if a man does me before I get a chanst to do him it's sure proof to me that the world's a howlin' wilderness where every man's hand 's against his brother and the other hand 's got a big club in it.

"It's folks o' that sort that I like to tell about Charlie's auction. I told it to young Dr. Burns one day. He's been tryin' to build up a practice here an' it seems to be mighty like the kind o' buildin' we used to do with A, B, C blocks when we was children, just about the time he'd git it up to a respectable height some of the other doctors would come along and push it all over. His patients helped out some too. The day I told him the story he had been tellin' me his latest affliction. 'Twas bad." Uncle Eph shook his head and took a firmer grip on his old cob pipe. "The man was one o' these 'ere about-to-strike-it-rich sort. He always had some new and brilliant scheme for spendin' other folks money. He was a real convincin' talker. He could take a mustard seed an' make it grow to a big manufacterin' plant before your very eyes. That's the way he got the doctor.

"You see, the doctor saved his baby's life; had a mighty hard pull of it, too. Lost some good payin' patients when the little fellow was at his worst and the doctor couldn't leave him. Well, the father seemed to be grateful enough, allus perfessed to be achin' to do somethin' fer the doctor. Finally he got up a scheme fer puttin' up hossradish an' mustard, fancy, fer the hotel trade. He figgered it out so it looked like a chanst to be a Rockefeller sure enough. Doc he jest handed over about $500 to launch the thing an' didn't ask a scratch o' the pen fer it, he was so sure the man was givin' him this chanst out o' gratitude.

"About three weeks afterward he went out there one day to see how things was gittin' along, and found the house empty an' nobody could tell where the folks was gone. Well, he found they had gone in the night an' left a lot o' debts behind 'em so he knew that kind o' gratitude wasn't wuth much in cold cash.

"Course all that made the doctor feel pretty sore. He sure did say some strong things about folks in general. Said he'd never believe anything anybody said agin', an' when he hear'ed himself talk he'd look in the glass.

"He relieved his feelin's about human nature until he run out o' mean names an' then he begun on the Almighty. I stopped him short there." Uncle Eph's clenched fist came down on the counter with an emphatic thug. "I told him," he went on, "that the Lord probably knew more about folk's meanness than he did, but it wasn't the Lord's fault they was so bad cause He made 'em decent in the first place an' fixed things so they could go on livin' that way. It was jest man's wantin' his own way, an' grabbin' everything in sight fer himself that made all the trouble.

"I didn't quote Scripter at him, tho there was some about 'a fool an' his money' 'riz up in my mind. Scripter is mighty fine medicine fer some folks, but I didn't think his system was prepared fer it jest then, so I told him about Charlie's auction.

"Now Charlie was a fine chap, best one o' the hull Hall tribe, but he never could gether up much uv anything cause he was too good natured and had too many relatives. The Joneses and the Hawkinses and the Cranes and the Halls wuz all related, an' Charlie wuz at the beck an' call uv the hull crowd. They used his team an' broke his harness an' fergot to fix it; they borrowed money uv him an' paid it back when they got good an' ready, if they paid at all; they dropped in on him by the dozens fer Sunday dinner an' on Thanksgivin's, an' circus days, so Charlie never had no use fer a bank book, an' could hardly keep feed enough ahead to take his stock thru the winter.

"Well, there wuz one year Charlie had a specially hard time. The river come up an' licked up his corn, hadn't a stalk left; one uv his best horses got mixed up with a barbed wire fence so bad it had to be killed an' he had to pay a hundred an' fifty dollar note he'd endorsed fer Jed Hawkins.

"Misfortunes like poor relations allus come visitin' in bunches, so to

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Jean A. Koethen

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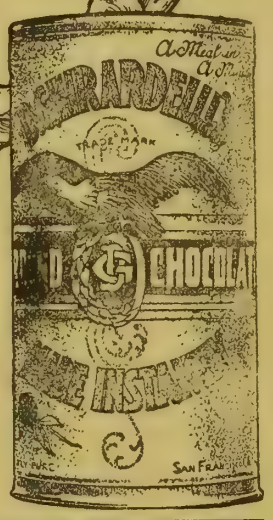

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top it all Charlie's wife got sick. She wuzn't sick in bed, jest kind o' pindlin, but all the bitters an' tonics an' stuff the relatives could think uv didn't seem to help her any an' when she begun to cough an' hev red spots in her cheeks every day, Charlie got scared an' tuk her to the doctor.

"'Twas old Doc Kelly he tuk her to. He'd knowed her an' Charlie ever since they wuz little codgers an' he sure did hate it, but he had to tell Charlie she had consumption, an had it so bad he couldn't do anything fer her but the only chanst o' savin' her wuz to git her to the mountains as quick as it could be done.

"Poor Charlie. It wuz bad enough to know that Nellie wuz in sich a fix, but when there wuz a chanst o' savin' her an' he didn't hev enough cash to pay her fare to the place Doc said she ought to go to—well, they said Charlie looked like a drowndin' man at the last gasp.

"He braced up some before he went back to Nellie. The doctor thought it wouldn't be best to let her know how bad off she wuz, so Charlie jest told her Dr. Kelly thought she wuz pretty much run down an' needed a change o' climate. Nellie laughed an' asked if he wanted her to go to Europe, an' Charlie said 'No, not quite so fur as that,' an' then she lowed they might go an' visit her maw's folks in the next county. She joked about it all the way home, Charlie keepin' up his end on it all well as a man could when his heart wuz well nigh broke, but he didn't sleep any that night, ner fer a good many nights afterwards.

"'Twas a mighty bad time to hev a sale. The floods hed done lots o' damage in the valley an' then a drought come on top o' that an' folks wuz a feelin' mighty blue. He didn't hev time to advertise it much so 'twant much uv a crowd that come, even countin' the wimmin' an' chillern. 'Twas a gloomy sort o' day too, an' everybody seemed to hev a sort uv funeral feelin'.

"The auctioneer got up an' made his little spiel. Got off some brand new jokes to sort o' liven things up, but a sickly sort o' grin wuz all the encouragement he got.

"Well, he put up Charlie's old sorrel fust; wust beast he had, savin' the best o' the stock till he'd got things kind o' warmed up, an' hopin' more folks would come too, I guess. That sorrel wuz a mighty sorry lookin' nag. Looked like she'd bin left in the rain an' the color hed soaked off in spots. 'Charlie won't get much out o' that poor beast," I says to myself, when they led her out, but I bid fifteen dollars jest to start things goin'.

"John Goodell wuz standin' not fur from me an' he hollered out 'Twenty-five.' Don't know what it wuz. Guess 'twas his tone o' vice, kind a darin' like. Anyway my fightin' blood riz an' I yelled back 'Thirty-five!' He sung out 'Forty,' an' then we had it nip an' tuck. We forgot all about the old hoss, leastwise I know I did. Couldn't see nothin' but that mean, tantalizin' 'I'll-beat-ye-yet' look on John's face, an' we stood an' throwed sums o' money in each other's faces like we wuz millionaires. Finally I see Jeff Walker come up an' sort o' grab John by the arm. John stopped biddin' then an' the hoss wuz knocked down to me at seventy-five dollars.

"I come to, about then. I could see that hoss all at once, real plain. I could see my good, hard-earned money too, that I'd jest the same as throwed down in the dust cause that there hoss wuz wuth jest about thirty dollars, an' a tight squeeze at that. Well, course, like any other human, havin' made a fool uv myself I looked around fer somebody to lay the blame on to, an' jest then I remembered that nudge I see Jeff Walker give John Goodell. Maybe I wuzn't mad. Them two had put up a trick on me, I could see it plain as day. I started fer Jeff, snarlin' like a buzz saw. I jest intended to scatter him all over the landscape, but before I could git my hands on him Jim Goodell an' Sim Horn stepped in between us an' John says in a low sort o' commandin' tone 'See here, don't you be a fool an' spoil everything. You jest wait 'till this is over an' we'll tell you somethin' that'll make you feel different.'

"I stopped pushin' at 'em an' cooled down a bit, then I thot about that seventy-five dollars an' I fired up again. Guess John must o' read my mind fer he said, low, so nobody could hear him, 'You won't hev to pay no more'n that hoss is worth. You jest shut up an' go back where you was so folks won't notice an' after they git thru here I'll explain an' fix things up with ye. Here's my hand on't.' I see he meant it an' did what he told me, but I sure was some mystified by sich doin's.

"They was sellin' the cows when I begun to take notice again, an' I'll be blamed if they didn't every one on 'em go fur at least twenty dollars more than they was wuth. The hogs all went at fancy prices, too an' the chickens, you'd a thought they was game birds by the amount o' money they fetched.

"Even the furniture sold like it was new, an' Charlie's kids hed kicked off varnish and pulled off knobs, an' handles an' trimmin's, till it fairly hollered fer the repair shop.

"D'ye know," Uncle Eph reached over slowly and appropriated a soda cracker from the display box standing on a vinegar keg near the counter. He munched in silence for a few moments and then took up his story once more. "As I wuz sayin'," he resumed, " I got to feelin' sort o' creepy over the looks o' things. Men I knowed wuz mighty close wuz biddin' in things at figgers that ud make a good spender nervous. I begun to git pretty anxious fer that little confab with John Goodell fer I hed a suspicion he cud tell me what it all meant.

"Well, they sold everything finally, an' as soon as folks begun to git their stuff together to go home I hunted up John Goodell an' says, 'Now I'd like to hear what you hev to say.'

"' Well,' he says, 'it was jest this way—a lot uv us knowed that Charlie wuz right up against it, and we wanted to help him out but we knowed it would nearly kill him to give him money right out—make him feel he was a dead failure an' all that, when everybody knows 'taint Charlie's fault, so we got together an' schemed this-a-way. I tuk the valley, an' Jeff he went back on the hills, an' Sam Allen he went over White Crick way, an' we told all uv 'em Charli's fix an' told them as wanted to help him out to come to the sale an' raise the price o' anything they bid on jest as fur as they cud afford to, but if 'twas something small they wuz to be careful not to raise too high, or Charlie might suspicion somethin'.'

"' We made every man uv 'em swar they'd never tell it, now or hereafter, but I thot I ought to let you on to it fer I sort o' lost my head an' carried you in too deep with that poor old sorrel. Jeff Hawkins nudged me when I wuz biddin' so heavy fur he wuz afeared we'd give the hull thing away, an' he nowed you wuzn't on to the game fer we didn't think you'd come so fur. We hed it all made up tho that if a man got in too deep we'd help him out o' the general fund, so thar's about forty dollars comin' to you I low.'

"' No sich thing,' I snapped out, 'I guess I know a good investment when I see it. Nellie's a mighty good girl an' I couldn't ask fer any better chanst than to help Charlie save her life.'

"'Oh, if you look at it that-a-way,' said John, clappin' me on the shoulder, 'we won't say a word, only keep mum.'

"When they counted up the money they found they'd got four hundred dollars over an' above what Charlie thot the stuff would bring as sales generally go. They went to the mountains the next week. Charlie got a place on a big ranch before they'd bin there a month, an' Nellie got well an' strong, an' now Charlie's away from that tribe that was always pullin' on him. He's doin' fine—got a place uv his own most paid fur."

Unconscious of the storekeeper's anxious glance, Uncle Eph helped himself to a handful of crackers in his exultation over Charlie's good fortune.

"What did the doctor say to all that?" I ventured.

Uncle Eph chuckled. "Oh, he just hunched up his shoulders a little an' said, 'That's a very pretty story, but I guess a lot o' well-to-do farmers could afford to amuse themselves that way if they felt so inclined.' My! but I was riled, just wanted to take my cane an' beat the meanness out o' him, but performances o' that kind is pretty expensive these days an' don't do much good either, so I jest helt my breath an' the mad in fer a minit er

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two an' then I looked squar at him an' I sed:

"'See hyer young man, you got eye trouble mighty bad; you ought to git it fixed er it'll bring you a lot o' sufferin'. You've got a squint,' I says, 'an' a man with a squint don't see but jest part uv a thing an' you seem to get your vision fixed on the dark side o' things an' miss the light entirely. Now,' I went on, 'the reel facts is, them men, every one on 'em had to dig like beavers fur every cent they got an' that little splurge down to Charlie's cost 'em a heap more'n the money they paid out.'

"'Jeff Walker gave the money he'd saved up to buy a ridin' plow 'count o' him gettin' his leg hurt last winter, an' he hed to limp along jest like always all thru the plowin' season.'

"'The Horns give the price uv a second-hand buggy they'd meant to buy an' bumped to town an' church in their old farm wagon' Widow Jones put in a new washin' machine an' she sure needed one, pore weak little creature. It cost 'em all, good an' plenty,' I told him, an' then I sed a little rhyme to him I'd read somewhere—can't jest recall now—but it's somethin' about the world bein' mighty hard to beat, 'You get a thorn with every rose, but ain't the roses sweet?'

"Doc kinda sobered up. 'Guess maybe you're right about that squint, Uncle,' he said, 'but I can tell you this much, if ever I find a bunch o' folks like that I'll settle right down an' stay with 'em if I live to be a hundred. They'd sure make a man feel like life was wuth livin.'

"Then he jumped up quick an' sort o' laughed an' said, 'Good-bye Uncle Eph, if preachin's over I guess I'll go see an occulist,' an' do you know, it wasn't 'till next day I figgered out that 'occulist' meant 'eye doctor.'"

IDEAS FOR THE COOK

Written for the California Cultivator
By Isabel Cottle

Breakfast

Oranges
Cereal Cream
Spider Corn Cake Bacon
Coffee

Lunch or Supper

Tuna Cakes Cream Scones
Lettuce Salad, Mayonnaise
Indian Pudding Tea

Dinner

Beef Stew with Dumplings
Baked Potatoes Creamed Tomatoes
Pickled Mangoes
Lemon Souffle Brownies
Coffee

Cream Scones

Two cups flour, four teaspoons baking powder, two teaspoons sugar, one-half teaspoon salt, four tablespoons butter, two eggs, one-third cup cream. Mix and sift together flour, baking powder, sugar and salt. Rub in butter with tips of fingers; add eggs well beaten (reserving a small amount of unbeaten white) and cream. Toss on a floured board, pat and roll to three-quarters inch in thickness. Cut in squares, brush with reserved white of egg, sprinkle with sugar, and bake in hot oven fifteen minutes.

Tuna Cakes

Pare and boil three medium sized potatoes, mash, seasoning with butter, pepper and salt, then beat in one-half can tuna picked to pieces. Make into cakes, roll in egg and bread-crumbs and fry a nice brown.

Lemon Souffle

Yolks four eggs, grated rind and juice one lemon, one cup sugar, whites four eggs. Beat yolks until thick and lemon colored, add sugar gradually and continue beating, then add lemon rind and juice. Cut and fold in whites of eggs beaten until dry; turn into buttered pudding dish, set in pan of hot water and bake 35 to 40 minutes. Serve.

Brownies

One-third cup butter, one-third cup powdered sugar, one-third cup Porto Rico molasses, one egg, well beaten, seven-eighths cup flour, 1 cup pecan meats, cut in pieces. Mix ingredients in order given. Bake in shallow fancy cake tins, garnishing top of each cake with one-half pecan.

Use level measurements.

Made of **Resisto Veal**, the new leather that withstands the alkali of the soil and ammonia of the barn yard.

Mayer

HONORBILT WORK SHOES

Stand the hardest kind of wear but are not heavy or clumsy. Resisto uppers, double stitched heavy oak tanned soles—solid counters—double leather toes—the greatest leather combination put into work shoes.

WARNING—Always look for the Mayer name and trade mark on the sole. If your dealer cannot supply you, write to us.

MILWAUKEE Mayer CUSTOM MADE HONORBILT

We make Mayer Honorbilt Shoes in all styles for men, women, children; *Drysox*, wet weather shoes; *Yerma Cushion Shoes, Martha Washington Comfort Shoes.*

F. Mayer Boot & Shoe Co., Milwaukee

Alfalfa Seed

Every field where Seed we offer for sale was grown in 1914 was thoroughly inspected by us for dodder, noxious weeds, etc., before it was harvested.

Everything we offer has been government tested to make our assurance doubly sure, both as to germination and foul weeds.

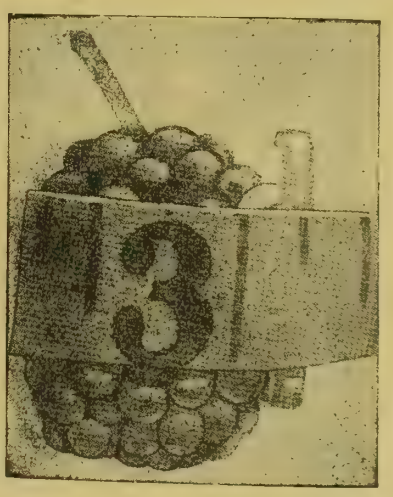
We are actually offering California's best product.

If you are looking for cheap, unreliable stuff, you will have to look elsewhere, but if you want good seed at an honest price we can serve you.

Samples, prices, etc., on application.

V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.

The only exclusive Alfalfa Seed Dealers in the West.



Try this New Blackberry At Our Expense

TO CULTIVATOR SUBSCRIBERS ONLY—To have this New Macatawa Everbearing Blackberry tested in as many localities as possible, claiming it to be the sweetest and best table berry on the Coast, the propagators of this berry have made us a proposition for supplying same in shipments of 6 plants each by parcel post, all charges paid.

Their description of the Macatawa is as follows: "It is a cross between the true Giant Himalaya and the Eldorado. The fruit is very large and sweet, in fact, it is the sweetest blackberry grown. It is coreless and almost seedless; very solid, jet black when ripe and can be shipped 1000 miles without bruising. The shape is oblong, very uniform, averaging three and one-half inches around one way by three and one-fourth inches the other way. The bloom is almost semi-double, about the size of a silver dollar. So far all who have tested this berry say it is the sweetest and best flavored berry they ever tried."

DO YOU WANT SIX OF THESE PLANTS? If so send in the regular subscription price for one year's subscription to the Cultivator, new or renewal; add 25c to cover cost to the nursery of postage and packing, and the six plants will be carefully packed and mailed you promptly without additional charge.

REMEMBER—The regular price of the 6 plants alone is $1.00 postpaid. Only one shipment will be made to a customer, but subscriptions and plants may be sent to different addresses.

ADDRESS ALL ORDERS TO

Cultivator Publishing Co.
115-117 No. Broadway
Los Angeles, Cal.

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, March 3, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade 4 cents above following quotations:

Creamery Extras 26
Firsts 24
Country 22
Ladle 20-21

CHEESE

Prices to trade, 1 and 2 cents higher:

California Fresh ....15@15½
Cheddar ....20@21
Domestic Swiss ....20@21
Eastern Daisy ....18½@19
Oregon Triplets 16½-18
Longhorn ....18½@19
Imported Swiss..........32-@34

EGGS AND POULTRY

Prices to trade, 3 cents higher than following quotations:

Fresh Ranch, case counts..........18½
Candled 20½-22½
Northern case counts..........20½
Petaluma-Santa Rosa 21

Prices to producers:

Hens, lb. ....14@18
Roosters, old ....8@9
Broilers, lb. 26
Fryers 22
Roasters, lb. 17
Turkeys ....17@21
Ducks 19
Geese 16
Squabs, doz. 3.00

LIVE STOCK

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs., per cwt..........7.40
Prime Steers ....7¼@7½
Heifers ....6¼@6½
Calves, lb. ....8½@9
Sheep—
Ewes, head 4.50
Wethers 5.00
Lambs, head ....4.50@4.75

POTATOES

Wholesale selling price:

Idaho Russet ....1.40@1.50
Idaho Rurals ....1.10@1.15
White Rose Seed ....1.50@1.60
Sweets, lug ....70@85
New Potatoes, lb. ....6@8
Northern Burbanks, cwt..........1.35@1.45
Salinas ....1.90@2.00
Shimas ....1.50@1.60
Lompocs ....1.90@2.00

ONIONS

Wholesale selling price:

Australian Brown, cwt. ....90@1.10
Oregon Globes ....1.35@1.50
White Globe ....4.50@4.75
Yellow Danvers ....90@1.10
Sets—
Yellow 9
White 10
Garlic ....25@28

VEGETABLES

Wholesale selling price:

Asparagus—
White ....18@22
Green ....25@30
Artichokes, Northern, doz. ....65@80
Brussels Sprouts, lb. ....8@9
Beets, doz. ....30@35
Cabbage, sack ....75@85
Carrots, doz. ....30@35
Cauliflower, doz. ....80@85
Celery—
Northern, crate ....3.50@3.75
Cucumbers, hothouse ....75@3.00
Egg Plant ....20@23
Escarole, doz. 40
Horseradish, lb. ....10@12
Leeks, doz. ....35@40
Lettuce, crate ....80@1.00
Mint, doz. ....35@40
Mushrooms, Outdoors, lb. ....35@50
Onions, Green, doz. bunches..........15@20
Oyster Plant ....35@40
Peas, lb. ....9@11
Parsnips, doz. ....35@40
Peppers—
Bell, lb. ....30@35
Chili, lb. ....25@30
Pumpkins, lb. ....1@1½
Rhubarb, box ....75@85
Spinach, doz. ....19@22
Squash—
Hubbard, lb. ....1¼@1½
Turnips ....30@35

FRESH FRUIT

Wholesale selling price:

Apples—
Bellflowers ....50@85
Jonathans ....1.60@1.75
Rome Beauties..........1.25@1.75
Pearmains ....75@1.00
Spitzenbergs ....1.35@1.65
Pippins ....75@95
Avocados, doz. ....4.00@8.00
Bananas ....3½@4
Berries—
Strawberries, basket ....12@15
Guavas, basket ....4@6
Pears, Winter Nells, lug..........1.50@2.25
Pineapples, lb. ....5½@6
Pomegranates, box ....1.75@2.00

CITRUS FRUIT

Wholesale selling price:

Lemons ....1.00@2.00
Grapefruit, Seedless ....1.85@2.25
Navels ....1.75@1.85
Tangerines ....1.35@1.75
Limes, basket ....1.00@1.10

DRIED FRUITS

Wholesale prices to retailers are:

Evaporated Apples, Fancy, lb. boxes ....6¼@8
Apricots ....8¾@11½
Nectarines 12½
Peaches ....5¾@6¾
Pears ....10@11
Prunes ....5¾@16
Plums 10

HONEY

Wholesale selling price:

Comb, Fancy, Water White..........14
White 12
Light Amber 11
Extr. Water White 7
White 6½
Light Amber 5½
Beeswax 32

NUTS

Prices named by California Walnut Growers' Association are:

No. 1 ....16½
Budded Walnuts 20
Jumbos 19
No. 2 12
Culls 9

Prices fixed by California Almond Growers' Exchange, f. o. b. California.

Almonds—
Nonpareil ....21@22
I X L ....20@21
N P U ....19@20
Drake's Thinshell ....17@18
Pecans 17
Peanuts—
California, Raw 6
Japan 7½
Eastern 7½
Rice Corn ....5.00@5.25

RICE

Wholesale selling price:

California ....4.75@5.00
Broken ....3.75@4.00

BEANS

Wholesale selling price:

Producer's price not far from one dollar under these quotations:

Limas ....6.35@6.50
Bayous ....6.00@7.00
Lady Washington ....6.00@6.10
Pinks ....5.65@5.75
Black Eyes ....6.75@7.00
Lentils ....10.00@12.00
Small White ....6.00@6.10
Garbanzos ....7.25@7.50

HAY

Buying prices f. o. b. cars Los Angeles:

Barley Hay ....10.00@11.00
Wheat Hay ....10.00@11.00
Tame Oat ....11.00@13.00
Alfalfa ....9.00@11.00

GRAIN

Wholesale selling prices f. o. b. Los Angeles:

Corn, Yellow 2.10
Corn, White 2.20
Wheat ....2.70@2.85
California Red Oats 2.00
Cal. Seed Oats 2.10
Texas Seed Oats 2.50
Oats, White 2.20
Oats, Hulled 2.70
Millet 3.75
Popcorn ....4.75@5.00
Egyptian Corn 2.20
Barley Seed 1.80
Barley, Hulled 2.00
Milo Maize 2.00
Rye 2.40
Sunflower Seed 7.00

FEED STUFF

Wholesale selling prices f. o. b. Los Angeles:

Bran, Heavy 1.80
Alfalfa Meal 1.20
Alfalfa Molasses, per cwt. 1.25
Beef Scraps 3.00
Beet Pulp 1.25
Cracked Corn, cwt. 2.15
Cracked Wheat, cwt. 2.85
Cotton Seed Meal..........1.80
Bloodmeal ....3.45@3.55
Bone Meal 1.95
Meat Meal 3.00
Bone, Green 1.85
Charcoal 2.00
Oil Cake Meal 2.35
Fish Meal ....3.15@3.25
Rolled Oats 2.25
Rolled Barley 1.75
Middlings 2.10
Feed Meal 2.20
Scratch Feed ....2.40@2.60

San Francisco Market

SAN FRANCISCO, March 2, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade, 4 cents above following quotations:

Extras 27½
Prime Firsts 27
Firsts 25
Seconds 22

CHEESE

Wholesaler to retailer.

Oregon Y. Am. 16
Young America ....13½@15
California Flats ....10@14
Cheddar 20
Oregon Twins 14

EGGS AND POULTRY

Prices to trade 3 cents higher than following quotations:

Extras 21
Select Pullets 18½

Price to producer:

Hens, lb. ....15@17
Fryers ....24@26
Roosters, old 15
Roosters, young ....18@20
Broilers ....30@33
Squabs ....3.00@4.00
Ducks ....15@18
Geese ....2.50@3.00
Belgian Hares, lb. ....8@10
Turkeys, live, ...16@17

LIVE STOCK

San Francisco prices, gross weight:

Steers ....4@7¼
Cows and Heifers ....3@6¼
Calves, lb., live weight..........6@9½
Hogs ....5@7¼
Wethers ....6½@6¾
Ewes ....5¼@5¾
Yearling Lambs ....7½@7¾

POTATOES

Wholesale selling price:

Idaho Rose ....90@1.00
Idaho Russet ....1.15@1.30
Delta Burbanks ....90@1.15
Lompoc ....1.65@1.75
Salinas Burbanks ....2.00@2.10
Oregons ....1.40@1.50
Washington ....1.25@1.40
Sweets, cwt. ....1.80@2.10

ONIONS

Wholesale selling price:

Yellow, cwt. ....80@90
Garlic, new ....17½@20

VEGETABLES

Wholesale selling price:

Asparagus, lb. ....15@20
Beans, string ....10@12½
Brussels Sprouts ....2.00@2.50
Celery—Delta ....1.50@2.25
Cucumbers, lug, Hothouse ....90@1.10
Egg Plant, lb. ....4@6
Lettuce—
Sacramento ....1.25@1.75
Southern ....75@1.25
Peas, lb. ....5@12½
Peppers—
Bell, lb. ....5@15
Chili, lb. ....9@15
Rhubarb—
Winter Crimson ....1.50@1.75
Strawberry ....1.75@2.00
Alameda ....2.00@2.50

FRESH FRUIT

Wholesale selling price:

Apples—
Newton Pippins ....40@90
White Winter Pearmains ....50@75
Bellflowers ....25@50
Bananas, Hawaiian, bunch..........75@1.50
Pineapples, doz. ....1.00@2.25

CITRUS FRUIT

Wholesale selling price:

Grapefruit, Seedless, new crop 1.50@3.00
Lemons ....1.50@2.50
Lemonettes ....1.00@1.50
Navels ....1.00@2.00
Tangerines, halves ....65@1.50

DRIED FRUITS

Wholesale prices are:

PRUNES—1914 crop, bulk basis: 30-40s, 7c; 40-90s, 6½c; 90-100s, 6c. The above are for both Santa Clara prunes and stock from outside sections.

Other Fruits. 50-lb. boxes—	Standard	Choice	Extra Choice	Fncy
Ev'pt'd Apples	....	5½c	5¾c	6 c
Peaches	4 c	4¾c	4½c	5¾c
Apricots	9 c	9½c	10 c	11 c
Pears	7 c	8 c	9 c	10 c

RAISINS

RAISINS—The following prices are f. o. b. Fresno, as given out by the Associated Raisin Company, for immediate shipment, and are guaranteed against a decline till April 1st: Fancy seeded, 16-oz., 7¼c; 12-oz., 5⅞c; bulks, 6c; choice seeded, 16-oz., 6⅞c; 12-oz., 5⅝c; bulk, 5½c; Thompson seedless, No. 1, 16-oz. pkgs., 7⅝c; 12-oz., 6¼c; 50-lb. cs., 6½c; loose, Muscatels, 1-crown, 5½c; 2-crown, 5½c; 3-crown, 5⅞c; 4-crown, 6c; Sultanas, 50-lb. cs., 5¾c; bulk, layers, 50-lb. bxs., $2.75; in 20-lb. bxs., 6-crown, $2.75; 5-crown, $2.25; 4-crown, $160; 3-crown, 5-lb. bxs., $1.50; on all bulk stock, 50c additional. Cartons—Clusters, 20 to cs., No. 1, $1.70; No. 2, $2.10; No. 5, 4 to cs., $2.25. Local representatives of the association are asking about ¼c higher, while several of the largest independent packers are quoting ½c under these figures.

NUTS

ALMONDS — Prices fixed by Almond Growers' Exchange to the trade, f. o. b. California:

Nonpareil 21
I X L..........20
Ne Plus Ultra..........19
Drakes 16

Wholesale selling price:

Peanuts—
Unpolished ....5@8
Polished ....6@6½
Shelled, Jap ....6¼@6¾
Italian Chestnuts ....6½@7

BEANS

Wholesale selling price:

Limas ....5.85@5.90
Pink ....4.70@4.75
Black Eyes ....6.00@6.25
Cranberry ....5.00@5.25
Small White ....5.60@5.70
Garbanzos ....6.25@6.75
Large White ....5.30@5.40
Bayou ....5.50@5.70
Manchurian Speckled Bayous.4.25@4.50
Manchurian Butters ....4.50@4.75
Red Mexican ....5.60@5.70
Red Kidney ....6.00@6.25
Horse Beans ....4.00@4.50

HONEY

Wholesale selling price:

Comb, Water White ....14@16
Amber ....10@12
Dark ....7@10
Extracted White ....7@9
Light Amber 5½
Dark ....4@5½
Beeswax ....27@32

HOPS
1914

Wholesale selling price:

Sacramento Valley ....11@13
Sonoma-Mendocino ....12½@15
Oregon Clusters ....12@15

HAY

Under date of February 27, Scott, Magner & Miller say:

Receipts of hay for the past week were 2206 tons, the preceding week, 3250 tons. There is every outlook for a large crop of hay, especially in sections where it has been impossible to put crops in up to this time owing to the heavy rains, and in many of these sections it is now too late to sow grain with the expectation of a crop; hence, much of this land will volunteer, which as a rule, makes a very fine quality of feed hay.

Fancy red oat hay seems to be the most sought after commodity and is extremely scarce. Fair grades of red oat hay are plentiful. Alfalfa is offering freely. Straw is nominal.

Fancy Wheat Hay (light bales) ....11.00@12.00
No. 1 Wheat or Wheat and Oat ....9.00@10.50
No. 2 Wheat or Wheat and Oat ....6.00@8.50
Choice Tame Oat ....10.50@11.50
Other Tame Oat ....6.00@9.00
Barley ....5.00@8.00
Wild Oat ....6.00@8.00
Alfalfa ....6.00@9.00
Stock Hay ....4.50@5.00
Straw, per bale..........30@45

GRAIN

Wholesale prices.

Alfalfa Seed ....14@16
Wheat, Cal. Club ....2.45@2.50
Corn, Eastern Yellow, blk..1.78½@1.80
Corn, Egyptian White ....1.85@1.92½
Barley, Feed ....1.47½@1.50
Oats, Red, Feed ....1.57½@1.65
Millet ....3@3¼
Flax ....6@6½
Rye ....2.10@2.25
Sunflower ....5@5½

FEED STUFF

Wholesale prices.

Alfalfa Meal, car lots ....16.00@16.50
Bran, ton ....32.00@33.00
Feed Cornmeal, ton ....41.00@42.00
Cracked Corn ....41.00@42.00
Rolled Barley, ton..........32.00@33.00
Rolled Oats, ton..........37.00@37.50
Middlings ....36.00@37.00
Shorts ....33.00@34.00
Oilcake Meal ....38.00@39.50
Cocoanut Oilcake Meal..........24.00@25.00

WEATHER CONDITIONS

For Week Ending February 27, 1915

Report from the various stations of the United States Weather Bureau, by George H. Wilson, director, San Francisco.

	Rainfall Data			Temperature Data —Past Week—	
	Past Week	Seasonal to Date	Normal to Date	Maximum	Minimum
Eureka	1.38	35.28	31.31	58	38
Red Bluff	1.81	27.19	17.51	64	34
Sacramento	.67	11.96	13.86	62	38
San Francisco	1.12	20.47	16.21	60	44
San Jose	.60	16.85	11.56	62	30
Fresno	.18	8.16	6.43	66	38
Independence	.00	2.26	6.30	60	24
San Luis Obispo	.64	21.34	13.93	68	40
Los Angeles	.06	13.46	10.86	68	38
San Diego	.26	12.35	7.06	64	44

Citrus Fruit Market

LOS ANGELES, March 2, 1915.

When asked as to orange marketing conditions, a shrewd observer simply remarked, "It's rotten," and he added: "That means both fruit and market." Continued rains, some wind, bruising the fruit, and the general softening conditions, are causing serious decay. This is causing suspicion on the part of the trade. There is nothing strange in this; it is almost invariably the case at this time of the year. This year's condition is somewhat aggravated by wind and rain, but the month of March, or about blossoming time, always brings loss. Icing has begun in the effort to lower the percentage of decay. Last year icing began two weeks earlier than this. In fact, the prices being received now, compared to last year, are favorable. It is presumed that blossoming period over, fruit will again ship in better condition.

There is no change in the lemon market, and the lemon growers generally consider holding up fruit the best policy.

Shipments—

Shipments of oranges from Southern California to date since November 1, 1914, 8579 cars; lemons, 1128; total, 9707. To same date last season, oranges, 8270; lemons, 564; total, 8834. From Tulare County: Oranges, 5089; lemons, 158; total, 5247. Last season to same date, oranges, 4470; lemons, 30; total, 4500. From Northern California this season: Oranges, 618; lemons, 1. To same date last season, oranges, 389; lemons, 5; total, 394. Total from the state this season: Oranges, 14286; lemons, 1287; total, 15,573. To same date last season, oranges, 13,127; lemons, 599; total, 13,726.

NEW YORK, March 1.—Thirty-five cars of navels, seven mixed, two cars lemons sold. Market about 10 to 15 cents lower on navels and lemons. Fair.

NAVELS—	Avg.
Aurora, xf., Amer. Ft. Dis.	$3.05
Aurora, fy., Amer. Ft. Dis.	2.30
Sapho	1.85
Golden Cross, O. K. Ex.	2.25
Red X, O. K. Ex.	1.90
Gold Buckle, imp., R. H. Ex.	2.40
Lochinvar, imp., R. H. Ex.	2.10
Belt, imp., R. H. Ex.	1.80
Gold Buckle, R. H. Ex.	1.80
Lochinvar, imp., R. H. Ex.	2.10
Belt, imp., R. H. Ex.	1.80
Gold Buckle, R. H. Ex.	2.40
Kenilworth, imp., A. H. Ex.	2.40
Peasant, imp., A. H. Ex.	2.15
Dandy, A. H. Ex.	1.90
Pinnacle, O. K. Ex.	2.25
Paul Neyron, S. A. Ex.	2.40
Lotus, O. K. Ex.	2.25
Monogram, O. K. Ex.	2.05
Blue Flag, xf.	2.05
Blue Flag, xc.	1.90
Blue Hussar, O. K. Ex.	2.25
NAVELENCIAS—	
Mahala, L. V. W. Brown	$2.40
Swastika, L. V. W. Brown	2.15
Rialto Brownie, Rialto Ft. Co.	1.95
NAVELS—HALVES—	
Red Ridinghood	$ .95
Mahala	1.10
Perfection	1.30
NAVELENCIAS—HALVES—	
Mahala	$1.10
RUBY—HALVES—	
Royal Purple	$1.25
True Blue	1.05
Golden Orange	1.25
Prairie Chicken	1.15
Golden Elephant	1.35
TANGERINES—HALVES—	
Pinnacle	$1.65
Robusta	1.65
Red Ridinghood	1.55
LEMONS—	
Triple X.	$2.35
BEE	2.10
Whittier	2.15

BOSTON, March 1.—Thirty-one cars sold. Market is easier.

NAVELS—	Avg.
Blue Banner, Suth. Ft. Co.	$2.40
Perfection, Highgrove O. G. A.	2.30
Aurora, Amer. Ft. Dis.	2.25
Jock-of-the-Walk, Amer. Ft. Dis.	2.15
Green Banner, Suth. Ft. Co.	2.15
Green Banner, Suth. Ft. Co.	2.05
Elephant, Elephant Orchard	2.05
Bouquet, Randolph Ft. Co.	2.05
Chinese, Interstate Ft. Co.	2.00
Bonquet, Randolph Ft. Co.	2.00
Regal, Growers Ft. Co.	2.00
Euclid, Growers Ft. Co.	2.00
Sapho	1.95
Titus Ranch, San aMrino C.	1.95
Gray Elephant, Elephant Orchard	1.95
Brownie, Rialto Ft. Co.	1.95
Avian	1.95
LEMONS—	
Gold, O. R. Ex.	$2.85
Comet	2.45

PITTSBURG, March 1.—Market is unchanged. Ten cars sold.

NAVELS—	Avg.
Orchard, National O. Co.	$2.30
Standard, National O. Co.	1.95
Golden Rod, Highgrove O. G. A.	2.12
Plain	1.70
Sutter, S. C. Ex.	1.40
Standard, S. C. Ex.	1.30
Arrowhead, R. H. Ex.	2.20
Carrier, R. H. Ex.	2.05
Garibaldi, R. H. Ex.	1.85
LEMONS—	
Victor, O. K. Ex.	$2.15
Crest	2.10
Arab, S. D. Ex.	2.40
Pup	2.25

PHILADELPHIA, March 1.—Market is lower. Nine cars sold.

NAVELS—	Avg.
Eagle Head, I. Lyon Sons.	$2.05
Buffalo, Lyon Sons.	1.85
Cleghorn, Cleghorn Bros.	1.85
Prospector, Growers Ft. Co.	1.80
Parrot, S. A. Ex.	1.75
Alhambra, S. T. Ex.	1.60
LEMONS—	Avg.
Greyhound, S. D. Ex.	$2.00
Duck	1.85

CLEVELAND, March 1.—Market is very steady. Ten cars sold.

NAVELS—	Avg.
Red C, Covina Ex.	$1.45
Cougar, Covina Ex.	1.30
Lochinvar, R. H. Ex.	2.05
Belt, R. H. Ex.	1.85
Echo, S. T. Ex.	2.15
Lochinvar, R. H. Ex.	2.10
Belt, R. H. Ex.	1.90
Lake Hemet, S. B. Ex.	2.00
Mission Indian, S. B. Ex.	1.60
LEMONS—	
Corus, V. C. Ex.	$2.25

ST. LOUIS, March 1.—Nine cars sold. Market is unchanged.

NAVELS—	Avg.
Caledonia, Placentia M. O. A.	$2.10
Red Bow, Blue Ribbon Groves.	2.00
Silver Gate, El Cajon C. A.	2.15
Reindeer, El Cajon C. A.	2.00
Glendora Home, A. C. G. G. Ex.	2.25
Monopole, A. C. G. G. Ex.	2.25
Cardinal, Orange Co. Ex.	2.10
S. S. brand, Orange Co. Ex.	2.00
LEMONS—	
Albion, Placentia M. O. A.	$1.90
La Puente, Semi-Tropic Ex.	1.85

CINCINNATI, March 1.—Four cars sold. Market is unchanged.

NAVELS—	Avg.
Cream, C. M. Brown.	$2.05
Sapho	1.95
Parrot, S. A. Ex.	2.00
Piru, S. T. Ex.	1.85
Cal. Orange, S. T. Ex.	1.30

KANSAS CITY, March 1.—Two cars sold by Kansas City Fruit Auction Co.

NAVELS—	Avg.
Defender, Dalrymple Ft. Co.	$1.83
El Toro	1.83
Sardinia	1.60

LOS ANGELES, Feb. 27.—Saturday's sales. Three cars sold.

Mutual, M. O. Dis.	$1.17½
Las Flores, Associated O. D.	1.22½
Industry, Sugarloaf O. G. A.	1.17½

CHICAGO, March 1.—A steady feeling prevails in the orange market. Californias sell very well, but Floridas are quiet. Boxes, California navels, $2.25@2.50; Floridas, $1.75@2.40. Tangerines, straps, 2 boxes, $1.75@2.25. Strawberries, strong market for nice goods, 35@40c per quart; green and slightly mouldy, 30c. Lemons, boxes, California, $2.75@3.00. Kumquats slow, 12½c per quart. Apples, boxes, western stock, $1.75@2.25; active business. Grapefruit, boxes, $1.25@2.15.

FARM BUREAUS

(Continued from Page 267)

phases of "Profitable Livestock Raising" at every meeting except the three scheduled for the Salt River Valley.

A. L. Enger, assistant engineer, University of Arizona agricultural experiment station, will discuss "Pumping Plant Problems" at Casa Grande and Summerland.

Dr. A. E. Vinson, biochemist, University of Arizona agricultural experiment station, will talk on "Soil Improvement" at the Crane District, Yuma, Somerton and Wellton.

At the Phoenix Roosevelt district, Lehi and Gilbert, James A. Armstrong, Maricopa County farm adviser, will speak on "What to Expect of the Farm Adviser," and Professor S. F. Morse will discuss "Ranch Profits."

The meetings in the Verde Valley and in Northern Arizona will be held by G. W. Barnes, farm adviser on live stock.

A. L. Paschall is farm adviser for Cochise and Santa Cruz Counties, with headquarters at San Simon, Cochise County.

James A. Armstrong has been appointed farm adviser for Maricopa County. His office is at Phoenix.

LEGAL QUERIES

(Continued from Page 275)

Bees

We are in a citrus fruit district. Our neighbor keeps bees in the hedgerow near our boundary line and they are a great nuisance flying around our water faucets and troughs and stinging our men and horses when we plow, cultivate or work near them. Is there any law or redress from such a nuisance?—Subscriber, Orange.

The keeping of bees in a locality where they are a source of annoyance to others may be a nuisance, and for such nuisance you would be entitled to bring action against the beekeeper to enjoin him from permitting his bees to stray upon your land and in such action would be entitled to collect damages which you may have suffered.

Ditch Abandoned

There is an old ditch running through my place which has not been used for two seasons, the owner having made a new one on another neighbor's land. The right-of-way for the old ditch was given with the understanding that when the use of the ditch stopped the land reverted to owner. How long does non-use determine the abandonment of a ditch? There are no papers showing right-of-way or the agreement.—Subscriber, Big Pine.

Abandonment is entirely a question of fact. If the intention to abandon the ditch of which you speak has been formed and once acted upon the abandonment is as absolute, if it exists for a moment, as though it continued for years. The fact that the old ditch has not been used for two seasons is a strong element backing an inference of abandonment.

Keeping Receipts

Every person has a growing accumulation of receipted bills, cancelled checks, etc., and the question of their disposition is an important one involving legal interpretation of the California outlaw statute. How short a time may receipted bills be safely kept in this state?—F. A. C., Los Angeles.

An action to recover a balance due upon a mutual, open and current account or upon an open book account does not outlaw for four years, so it would be entirely safe for a person to keep receipted bills for at least four years.

Community Property

If there are no children will one-half of community property go to husband's people should he die intestate? Would a deed secure wife?—Subscriber, Lathrop.

In case of community property upon the death of the husband one-half goes to the wife, and there being no issue, the wife takes one-half of the remaining one-half, making altogether three-fourths, leaving one-fourth to the relatives of the husband. The best and most secure method is that of a will duly executed, as the husband can will one-half of community property to the wife or whomsoever he desires.

Separate Property

Would property acquired through gift be given to the wife or would it go to husband's sister?—Subscriber, Glendora.

Property acquired through gift, bequest or devise is separate property, which upon the death of the husband is divided equally between the wife and the relatives of the husband, in case there are no children and no will.

Probate Will

What proceedings should a person take to have deed changed when husband has died leaving no will and wife has remarried? Have paid taxes on property for the last eight years. —Subscriber, Fresno.

If the property was in the name of the husband, in order to acquire title thereto, the estate of the husband must be probated.

FEDERATED ASSOCIATIONS

(Continued from Page 259)

Each of these is so busy with its own matters that it has little time to give to others working along similar lines. If this federation can be made a strong one it will find its mission.

Dr. Webber, who was really the first to suggest this more inclusive organization, had in mind another purpose, and that is a scientific one. It was that this might be a great state organization along lines similar to certain national, geographical and scientific societies. Those organizations have large memberships, with a nominal fee which pays for copies of proceedings which are of worldwide interest. We see nothing to prevent including both of these ideas in this new organization.

At the San Francisco meeting, State Horticultural Commissioner A. J. Cook called the meeting to order and stated the purpose of the meeting. Mr. Messenger, editor of the Cultivator, was named as chairman, and Prof. H. E. Van Norman of the Agricultural College was named as temporary secretary. Dr. Webber of Riverside outlined the value, scope and possibilities of such a proposed organization. The discussion was participated in by Messrs. Rowley, editor of the California Fruit News; Carver of the State Dairy Association; Gilstrap and Lynch of the State Beekeepers' Association; Hecke, McKevitt and Dunn of the Farmers' Protective League; Craig of the Outlook Association; Pres. Johnson of the Farmers' Union; Guilford of the Sacramento Valley Irrigation Company; Webber and Van Norman of the State University; Kimble of the State Sheep Breeders' Association, and Thorpe of the Walnut Growers' Association.

After an afternoon's discussion it was unanimously decided that such an organization was necessary for the best interests of the agriculture of the state. It was moved and carried that a committee of seven be appointed by the chairman to draft a brief, comprehensive constitution of federation, including a directorate, made up of one representative of each association, to define membership, to outline a plan of finance, and to fix a time for a meeting for action on the proposed plans. As soon as those appointed have accepted a place on this committee a meeting will be called, at which plans will be discussed and arrangements made for a general meeting of producers of the state, to be held in San Francisco within the next month or two.

VACANT LOT UTILITY

(Continued from Page 268)

Beans make a desirable crop and may be planted as late as the last of June provided the ground has been faithfully cultivated up to the time of planting.

Tomatoes are an excellent crop to grow on non-irrigated land where there has been 15 or more inches of rain and the moisture retained by properly working the soil. These should not be set out, except in frostless places, before April 1.

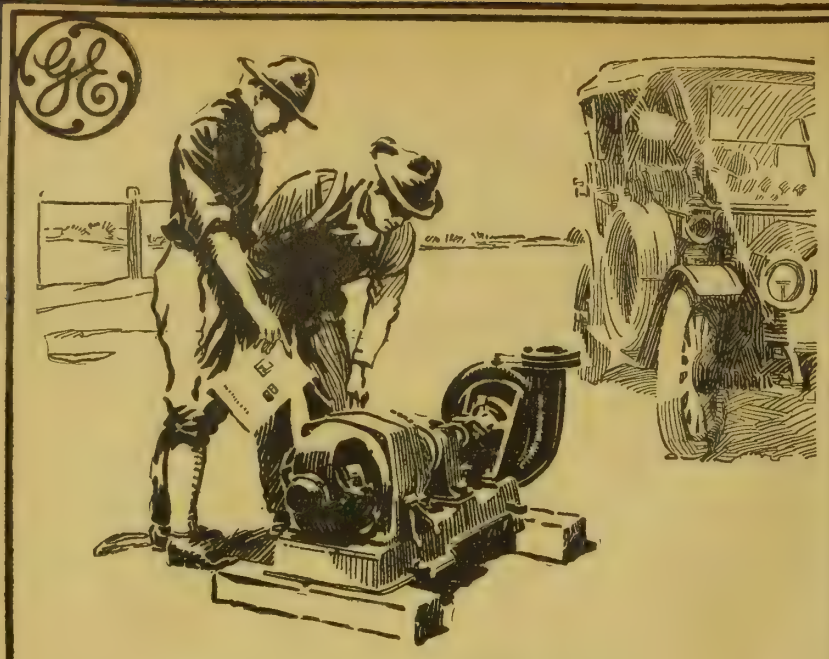
The principal thing in growing stuff on a vacant lot without water is to retain the natural moisture. This is done by keeping the top soil well pulverized by cultivation and destroying all weeds.

Fertilizers in concentrated form may be used but their full value will not be obtained unless there is considerable late rain to dissolve the ingredients and make them available for the plants.

ANOTHER APPARENT CHANGE

(Continued from Page 269)

does the influence of this remarkable parasite stop here, for the pistil is arrested at an early stage of its development and in certain other structural characters the flower closely approximates to that characteristic of a male plant—so closely indeed that very careful experiments were needed to clear up the matter."



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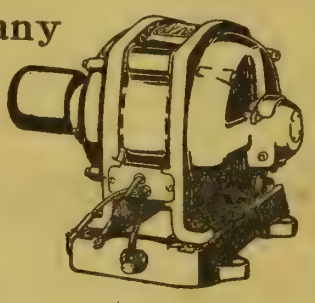


Did Grandfather Dig Out His Water Pipes

every few years because they were rusted out and all the water was going to waste? No sir. You can't remember that he ever took them out at all.

They used *pure iron* in those days, not modern steel with its content of manganese, sulphur, copper and carbon.

ARMCO AMERICAN INGOT IRON CULVERTS

are made from iron in which the *total* of impurities is less than one-sixth of one per cent., and which is made even more carefully than was the pure and durable iron of our grandfathers' time. The tests of service in every State of the Union and in a dozen foreign countries have shown that they are

Tough, Reliable and Lasting

Insist on seeing the triangle brand on every section. It is your protection against the substitution of inferior metal.

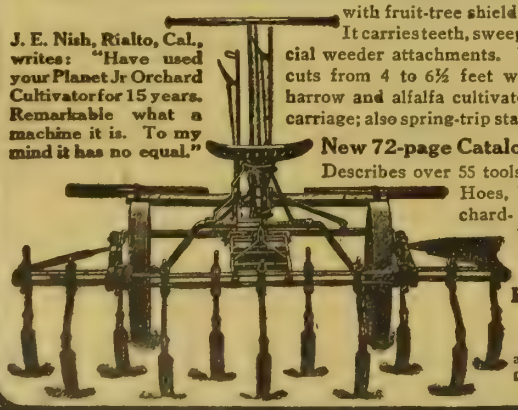
There is an Armco manufacturer in your vicinity. Write him or ARMCO CULVERT PUBLICITY BUREAU, CINCINNATI, OHIO

Planet Jr. Orchard Cultivator

For the fruit-grower who wants maximum profits this **No. 41 Planet Jr Orchard and Universal Cultivator** is an absolute necessity in the orchard, vineyard, or hopyard. Its strong, durable construction and lasting service make it the most economical orchard cultivator you can buy.

This No. 41 has strong, light frame, low wheels, and tongue, all of steel. Is equipped with fruit-tree shield and side-hitch for low trees. It carries teeth, sweeps, furrowers, plows, and special weeder attachments. Works deep or shallow, and cuts from 4 to 6½ feet wide. Convertible into disc-harrow and alfalfa cultivator. Can be fitted with fore-carriage; also spring-trip standards, and irrigation steels.

J. E. Nish, Rialto, Cal., writes: "Have used your Planet Jr Orchard Cultivator for 15 years. Remarkable what a machine it is. To my mind it has no equal."



New 72-page Catalog (168 illustrations) **free!** Describes over 55 tools, including Seeders, Wheel Hoes, Horse Hoes, Harrows, Orchard- and Beet-Cultivators. Write postal for it today.

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"Jackson MADE"

The fidelity and regularity with which a "Jackson Made" pump does its work is almost human—no attention is needed—it simply goes on pump, pump, pumping—hour after hour delivering the maximum amount at the minimum expense.

Tell us your pumping problems and our expert engineers will gladly help you free of cost.

Write for Catalog No. 48G

A Better Make Not Made

For every pumping condition there is a "Jackson Made," which, in satisfactory results, absence of repairs and costly upkeep, excels every other make.

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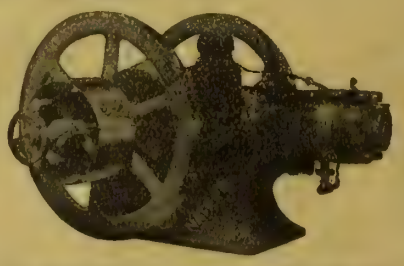
WORKS: WEST BERKELEY, CAL.

National Oil Engine

An engine which will burn fuel costing three cents per gallon, and at the same time is an engine with 90 per cent less parts, is the engine for the rancher to buy.



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National Steam Pump Co.,
Los Angeles, Cal.
Gentlemen:

I bought the first NATIONAL Oil Engine sold in this State. Any one wanting an engine let them come and see my 15 H. P. pulling a 6-in. centrifugal pump lifting thirty feet throwing two cubic feet moving one foot per second, using low grade fuel. I will answer any letter.

Truly yours,
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CALIFORNIA CULTIVATOR

Rural Californian combined with California Cultivator

An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES March 11, 1915 SAN FRANCISCO

Trestle of Rincon Causeway, Coast Route of State Highway

Low Center Of Gravity *with* Usual Road Clearance

Oakland

The Car of the Farm

From radiator to tail-light the Oakland is built to give the service the man in the country wants in his car.

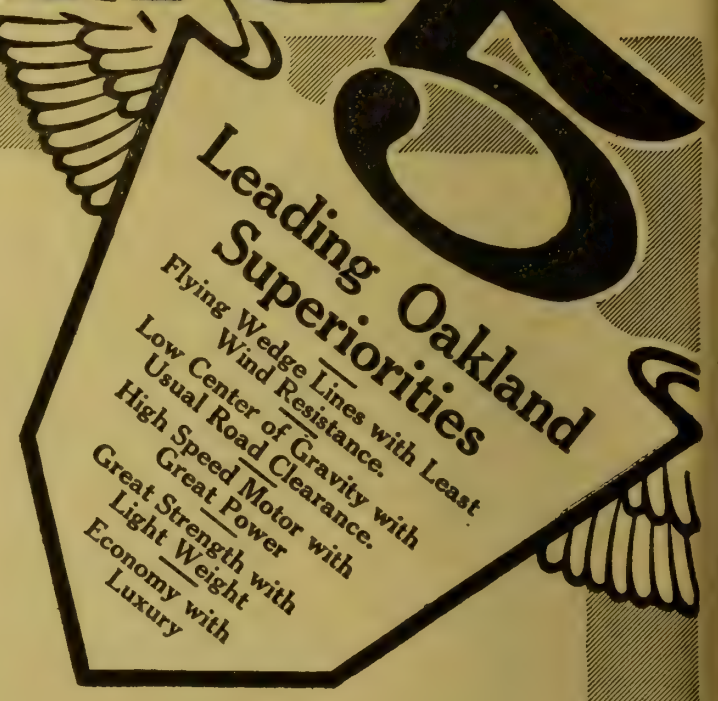
Get at the matter point by point as an expert would judge a show animal. The truth is that the real value in service of an automobile can be boiled down to five points.

The car that has these points will take you more miles at less cost than others, and it will do it for you with most comfort and satisfaction.

Study These Oakland Superiorities

You will find some of them in other makes, but only in the Oakland will you find them all. The low center of gravity with plenty of clearance means the elimination of sidesway and danger when driving on bad roads at high speed. The Flying Wedge Lines mean less wind resistance and added beauty.

The strength of construction means ability to stand the grind of the years. The perfectly balanced Oakland Northway motor that speeds up to 2500 revolutions with increasing power means steady and uninterrupted speed, together with unusual hill climbing ability. Special spring design and construction assure luxurious riding qualities.



Every point about this car works towards economy. Let our dealer give you a ride in the Oakland.

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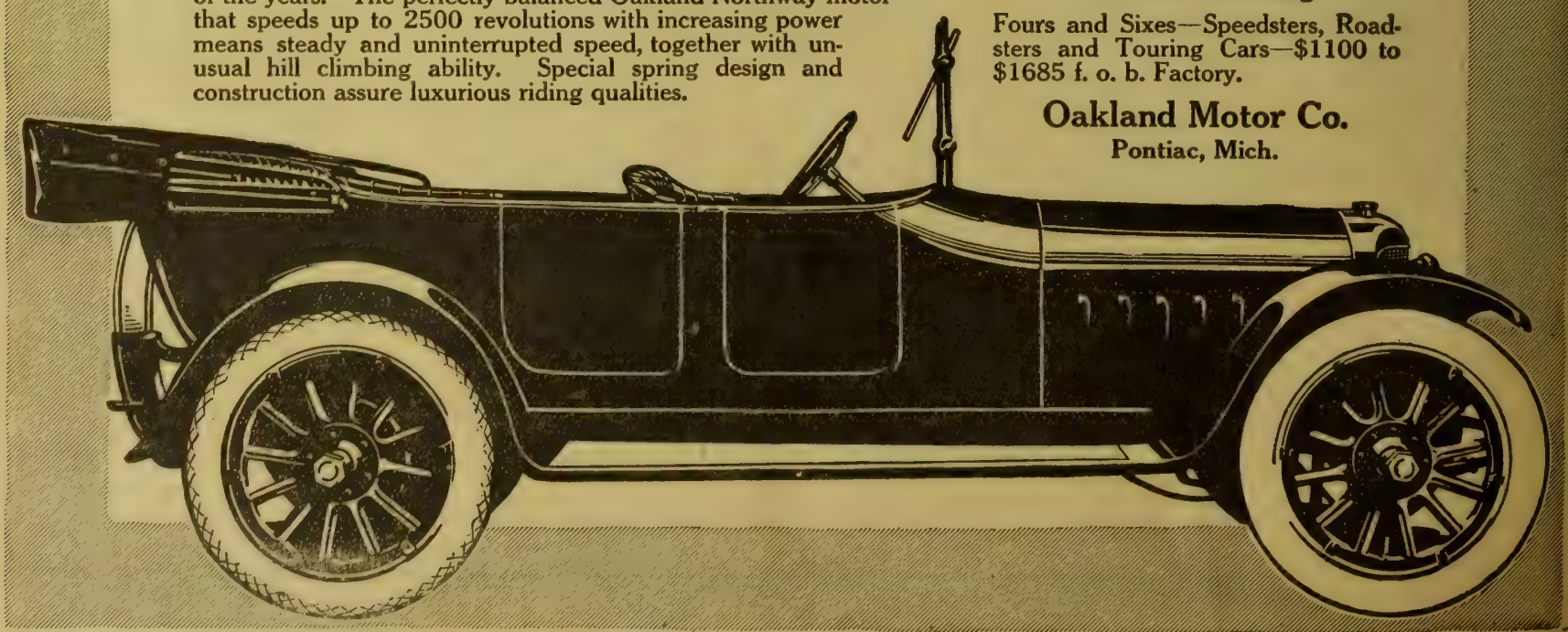
Oakland Motor Co.
Pontiac, Mich.



California Cultivator

Rural Californian combined with California Cultivator

Vol. XLIV No. 10 LOS ANGELES: THURSDAY, MARCH 11, 1915 One Dollar Yearly

Proposed Legislation Affecting Agriculture

Synopses of Some of the Bills Before Our State Legislature. Furnished by San Francisco Chamber of Commerce.

FROM the great number of bills affecting agriculture now before our state legislature, we give digest of some of particular interest, as prepared by the San Francisco chamber of commerce.

Abbreviations—A.B., Assembly Bill; S. B., Senate Bill; A. C. A., Assembly Constitutional Amendment; S. C. A., Senate Constitutional Amendment.

A. B. 98, By Mr. Spengler—This is the Eight-Hour law defeated at the November election. It provides that no person shall be employed more than eight hours during one day of 24 hours or more than 48 hours in one week, in any manufacturing, mechanical or mercantile establishment, laundry, hotel, public lodging house, apartment house, hospital, place of amusement or restaurant or telegraph or telephone establishment or office in this state. The bill does not apply to the harvesting season, canning and curing or drying of any variety of perishable fruit or vegetables nor to graduate nurses in hospitals. The labor bureau is to enforce the provisions of the act.

A. B. 410, By Mr. Chenoweth—Provides that every horse-drawn vehicle and all vehicles propelled by muscular power while on the public highway shall from a half hour after sunset and a half hour before sunrise, carry a lighted lamp showing a white light, visible under normal conditions, at least 200 feet in front and carry a red light in the rear visible for a distance of 500 hundred feet.

A. B. 490, By Mr. Encell—Creates a department in natural resources with a secretary at a salary of $7500, and combines under his office the following commissions: State board of forestry and its members, the state forester, the California Redwood Park, state conservation, state fish and game commission and the state register of lands under the Carey land act.

The department shall be organized into three bureaus known as the bureau of forestry, the bureau of fish and game and the bureau of public lands. The head of each bureau shall be known as a director.

A. B. 491, By Mr. Encell—Creates the office of state forester at a salary of $3000 and he is authorized to appoint an assistant and deputy forester, the salaries of each not to exceed $1800 per year. He shall have charge of the fire wardens of the state; protection and improvement of state parks and forests; enforces all laws for the protection of forest, brush or grass land; enforces the fire laws to furnish assistance for protection from fire. Gives the forester authority to declare a public nuisance all forest areas containing inflammable debris, which by reason of location or lack of protection may endanger life or property.

A. B. 529, By Mr. Ream—Prohibits action for trespassing against owners of live stock whose stock may stray or run upon any unfenced private lands within the boundaries of any national forest of the state, if the owners of such live stock are holders of a grazing permit issued by the United States.

A. B. 603, By Mr. Gebhart—Makes it unlawful for any person to bring into the state any horses, mules, dairy cattle or breeding bulls unless the same are accompanied by a certificate of health and tuberculin test record signed by a qualified veterinarian. Animals accompanying shipment of immigrant movables are exempt.

A. B. 604, By Mr. Gebhart—Amends an act to protect domestic live stock from contagious diseases. Authorizes the governor to appoint an assistant state veterinarian at a salary of $3000 per year; adds a new section to be known as section six and one-half; invests the assistant state veterinarian and the deputies with all the powers and authority of the state vetinarian; repeals section 7 of the act; authorizes the state veterinarian to appoint a deputy veterinarian and a clerk; the deputy to receive $2400 per year and the clerk $1600. The state veterinarian is authorized to appoint additional deputies as necessary, whose salaries shall in no case exceed $200 per month each.

A. B. 621, By Mr. Harris—Declares all section lines running through any agricultural land in the state and the land on each side thereof for a distance of 20 feet public highway where the same shall be necessary to connect or accommodate farming neighborhoods. Any ten freeholders who will be accommodated by such road, five of whom must reside in the district may bring proceedings to demand the land required for such road. If the court shall determine such a road necessary it shall be the duty of the board of supervisors to pay the amount determined by such condemnation proceedings.

A. B. 694, By Mr. Quinn—Authorizes any county in the state to incur by purchase, condemnation or otherwise, land for public parks and to acquire indebtedness therefor. Upon petition of 25 per cent of the total registered voters of the county the supervisors shall call an election to vote on such park bond issue. Such bond issue shall require a two-thirds vote.

A. B. 716, By Rigdon—Appropriates $8,700 for the establishment and maintenance of 58 yearly scholarships of $150 each at the California Polytechnical School. These are to be apportioned one to each county. Failure of a county superintendent of schools to recommend a county before August 1 shall cause that county to forfeit its right to such scholarship.

A. B. 851, By Mr. Ashley—This is the Fruit Standardization bill—requires all packed fresh fruit to be packed in accordance with its specifications, except fruit sold in bulk without packing. Enumerates cherries, peaches, pears, plums and prunes, apricots, grapes and berries. Requires that all packed fruit shall be of uniform size, quality and maturity. Each box or container shall bear in plain figures the minimum weight of the contents. Grapes shall be well matured and show a sugar content of not less than 17 per cent. It is the duty of the county horticultural commissioner to enforce the act. Where there is no commissioner it shall be the duty of the supervisors to appoint inspectors on petition. The act goes into detail as to the size of the box, its shape and the manner of packing. Violations of the act are declared a misdemeanor punishable by a maximum fine of $50.

A. B. 868, By Mr. Sharkey—Creates a county highway department for each county. The county highway engineer in counties of the first class shall receive a salary of $5,000 per year; in counties from the fourth to the 25th class, $3,000 per year; from the 26th to the 36th class, $2,000 per year; from the 37th to the 50th class, $1,500. He is empowered to appoint and employ such assistants as he may need. He must make all surveys, maps, plans, specifications and estimates, inspect the work performed on highways, aqueducts and bridges. He shall have management of all county rock quarries, oil pits and depots, gravel pits and all other material.

A. B. 1283, By Mr. McDonald—Authorizes municipalities to declare noxious or dangerous weeds growing upon the streets or sidewalks or upon private property within municipalities to be public nuisance creating a lien upon the property fronting upon such streets or sidewalks for costs of abating the same.

A. B. 1304, By Mr. Hawson—Makes it unlawful to sell or offer for sale any box or package or carton containing raisins unless the same shall have marked conspicuously thereon the variety of grape from which the raisins were manufactured.

A. B. 1358, By Mr. Spengler—Enforces a one-day rest in seven for every person engaged in any occupation of labor except work essential to the relief of sickness, furnishing lodging or meals, ice cream parlors, museums or art galleries, sale and delivery of daily newspapers, the sale and delivery of milk or cream, and unavoidable work in dairy products, work essential to the production of mines and the continuous supply of electrical current, light, heat, air, water, gas or motive power operating vessels and transportation lines; to telegraph and telephone service and any work which the railroad commission deems necessary. The labor commissioner is authorized to enforce the act.

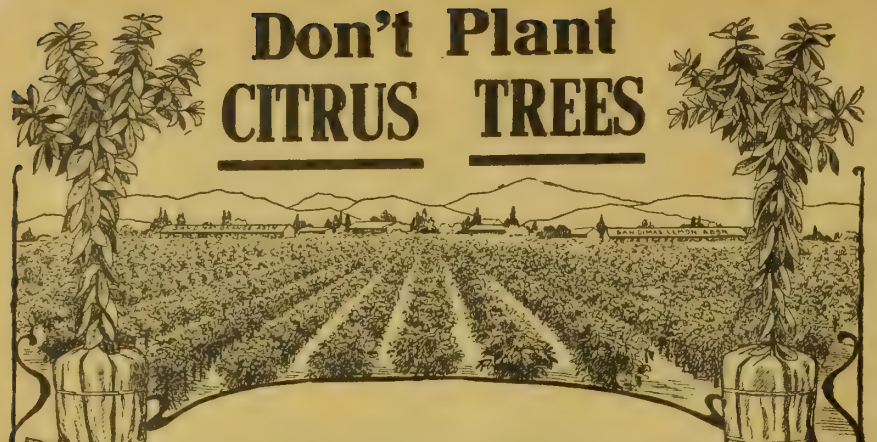
A. C. A. No. 1 By Mr. Cary—Proposes a new section to article 11 of the state constitution, to be numbered 14½, creating a fruit commission, consisting of three members to be appointed by the governor for four years. The legislature by a two-thirds vote shall have the power to remove the commissioners for dereliction of duty or corruption or incompetency. Their salaries shall be fixed by the legislature but the commission shall have the power to fix the salaries of assistant deputies and employes. The commission may fix or change standards of quality, of size, of color, of percentage of sugar and of package of all fruits, nuts and vegetables grown in the state. The commission has the power to inspect all fruits, nuts and vegetables, the packing thereof and may forbid the offering for sale or shipment of products not conforming to standards fixed. The bill provides for hearings filling vacancies.

A. C. A. No. 3, By Mr. Downing—Proposes a new section to article 1 of the constitution to be designated as Section 26. "To the end that citizens may obtain steady employment, the state shall engage in such work of internal improvement and shall establish, own and conduct such farms, factories, workshops and such other industries or means of employment as the legislature or the people may from time to time designate, and shall distribute, sell or supply the product or service of such industries to the people. The profits derived from all such enterprises shall be employed in the extension, betterment and maintenance thereof. The state may also buy or condemn any land within the state, may improve such land or any other land now owned or hereafter acquired by the state and lease the same or any part thereof to actual farmers on easy terms; but no land now owned or hereafter acquired shall ever be sold absolutely."

S. B. 93, By Mr. Stuckenbruck—For the establishment of county free markets. Provides that on the petition of 15 per cent of the qualified electors of a county board of supervisors and the mayor of any municipality, may establish a county free market in such municipality. A board of five directors of the market shall be appointed. The purpose of the free market is to

(Continued on Page 300)

Don't Plant CITRUS TREES



until you can meet the five essential requirements of success. Here they are: **Sufficient Water Supply; Quality Trees; Safe Thermal Conditions; Good Care; Good Soil.**

These five things are fundamental and he who ignores any one of the five invites failure.

Good fruiting trees are good revenue producers, and if you have the requisite water, location and soil—true citrus land—you cannot afford to miss the opportunity to

Plant Citrus Trees

Place your order **NOW** for Spring delivery. You will perhaps never have another chance to buy **QUALITY TREES** at so reasonable a price. Even the so-called **CHEAP TREES** which might better be called **EXPENSIVE TREES** by the man who expects to receive an adequate return on his investment) are quoted the same or very little less.

We were founded twenty-five years ago, and have been improving the grade ever since. Buy **TEAGUE QUALITY TREES**, embodying vigor and symmetry of root, body and top—and in the selection of buds, which will not only be true-to-name in the general acceptance of the terms, but true to the best type of the varieties to which they belong as well.

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Citrus Trees Exclusively **San Dimas, Cal.**

Let us Figure on Your
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Specialties:
DECIDUOUS FRUIT TREES, GRAPE VINES, FIG TREES, SHADE TREES, PALMS. Large Catalogue Mailed free. Fine stock of GRAFTED WALNUTS also MISSION and MANZANILLO OLIVE TREES. Submit your list for quotations.

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TREES—SLAUGHTERED TREES

Great Reduction in Prices to Close Up Yard

25,000 PRUNE, PEACH, PEAR, APPLE, PLUM, CHERRY, ALMOND, OLIVE, FIG, WALNUT, and general assortment of trees, all in fine condition, of best strain.

WIRE, PHONE or WRITE your orders quickly. Stock moving fast.

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Citrus and Tropical Fruits

AVAILABLE PHOSPHORIC ACID

Written for California Cultivator
By Gordon Surr

BULLETIN No. 116, issued by the state agricultural experiment station at Pullman, Washington, is of great interest and value to all who use phosphorus for fertilizing. George A. Olson is the author, the title being "The Quantitative Determinations of Mono, Di and Tri Calcium Phosphates and Their Application."

The phosphoric acid in monocalcium phosphate is soluble in water, while that in dicalcium phosphate, or "reverted" phosphate is insoluble in water but is dissolved by ammonium citrate, the water-soluble and citrate-soluble phosphoric acid being commonly termed "available." These two compounds result, directly or indirectly, from the treatment of phosphates with sulphuric acid, for tricalcium or bone phosphate is the form in which phosphorus exists in untreated bones and in raw phosphate rock.

In the official method of anaylsis of superphosphates, etc., the phosphoric acid in dicalcium phosphate is estimated by treatment with an exactly neutral solution of ammonium citrate, of a certain specific gravity, acting for a certain length of time, at a certain temperature, with agitation at stated intervals. Of this method Mr. Olson truly says: "Just why ammonium citrate has been used to determine the amount of available phosphoric acid in fertilizers is difficult to understand. The action of this solvent certainly is not based upon any fundamental principle of chemistry, neither can it be said that the compounds of phosphoric acid soluble in ammonium citrate are forms of phosphoric acid available for the plants, since some of the iron and aluminum phosphates are soluble in this solvent and yet practically unavailable for plants.

"The method in use for determining available phosphoric acid is wholly empirical and for this reason alone will always prove to be unsatisfactory. An empirical method involves certain conditions of definite concentration, time, and temperature upon particles of the same chemical substance offering equal surfaces. Other things being equal, any variation in concentration, time or temperature will materially influence the results. Therefore, an empirical method will give unsatisfactory results in the hands of different operators, with different substances, and with different degrees of fineness of the substance."

Ammonium citrate also acts to some extent upon tricalcium phosphate, which fact was known as far back as 1882.

Mr. Olson goes on to show that the three forms of calcium phosphate can be differentiated and accurately determined by dissolving the material in nitric acid, adding an excess of ammonia and filtering. Two-thirds of the phosphoric acid of monocalcium phosphate will be present in the filtrate and one-third of the phosphoric acid of dicalcium phosphate, while there will be no phosphoric acid in the filtrate in the case of tricalcium phosphate.

The phosphorus in raw phosphate rock is usually considered to be present in tricalcium phosphate, and raw phosphate rock is, in most places, far cheaper than superphosphate as a source of phosphorus. Superphosphate, when used on soils containing carbonate of lime, soon reverts to dicalcium phosphate and then to tricalcium phosphate, while if soils are acid, the addition of superphosphate increases the acidity on account of the gypsum in the superphosphate. In making super, about a ton, roughly, of sulphuric acid is used to a ton of raw phosphate, consequently superphosphate contains a good deal of gypsum. Acid soils are undesirable for most crops, and the acidity should therefore be neutralized, preferably by lime carbonate in the form of ground limestone. Whether corbonate of lime was originally present in the soil or later added, the results on superphosphate are the same for, in either case, it will soon change to tricalcium phosphate.

In this connection Mr. Olson says: "Fertilizers made up of available phosphoric acid, whether in the presence of gypsum or not, tend to react when mixed with the soil to form compounds more difficultly soluble, such as tricalcium phosphate, and artificial fertilizers can not be considered, truly speaking, mono, or dicalcium phosphates, in the presence of gypsum, but rather sulphuric acid interchanging with phosphoric acid and calcium. In the final analysis, so far as the application of phosphate fertilizers to the soil is concerned, we should only regard them as tricalcium phosphate. The reaction of superphosphate and reverted phosphoric acid with alkali shows them to be tricalcium phosphate. Further, we know that tricalcium phosphate is available to the plants.

There is no need for modifying the tricalcium phosphate other than reducing it to suitable fineness to offer the largest possible surface to be acted upon by the soil and plant solvents in the soil. All chemical tests of phosphate fertilizers should be limited to the analysis of the total phosphoric acid and that which is not precipitated with alkali, such as ammonium hydroxide, and not how much is water or ammonium citrate soluble."

Mr. Olson concludes his remarkably interesting and valuable paper with the following significant paragraph: "In soil, mono and dicalcium phosphates tend to react, forming tricalcium phosphate. There is then nothing to be gained by applying either superphosphate or reverted phosphoric acid to soil." Comment is superfluous save to remark that the phosphoric acid in super usually costs about twice as much as the phosphoric acid in finely ground raw phosphate rock.

Certain crops require a good deal of sulphur, alfalfa for example, drawing more heavily upon sulphur than upon phosphorus, and doubtless in some cases where sulphur is deficient the good results following applications of superphosphate are due as much to the sulphuric acid in the superphosphate as to the phosphoric acid present. In these cases it is generally much cheaper to use gypsum or sulphuric acid independently, taking care that sufficient carbonate of lime is in the soil to prevent acidity. Raw phosphate rock always contains some lime carbonate.

Many so-called "complete" commercial fertilizers are much richer in phosphoric acid than is necessary, seeing that most crops draw far more heavily upon nitrogen and potash than upon phosphorus, and the intelligent will of course wholly disregard a formula which is purely conventional and adapted neither to the requirements of crops nor soils. Thousands of dollars are annually wasted in blindly buying fertilizers, but this is "another story" and can not be gone into here.

A SUCCESSFUL CAMPAIGN

The campaign against the soft gray scale, coccus citricola, which was conducted during the last season in Tulare County, closed some weeks ago excepting that some experimental work is still being done and the life habit of the insect is being more fully worked out. A year ago citrus growers of Tulare County were much more discouraged over this pest than they are today. The preceding season a little experimental work had been done in spraying and in fumigating the pest but it was not satisfactory. Early summer found growers with diverse sentiments as to best procedure. Several new suggestions of methods were offered which it was thought would control it. The preceding year's fumigation which was done early in the season showed that it could be

made to control the pest but the later season work was so unsatisfactory that many thought it could not be depended upon. Report from the infested section today shows successful work done with fumigating tents and sprays. Best work with the spray pump, however, called for two sprayings, which made its expense greater than that of one fumigation, so that as a rule it is presumed the coming season's work will be largely with fumigation. Of the 25,000 acres which show greater or less infestation only some 1200 acres were fumigated, much less than were sprayed. Both the portion treated has, we judge, shown the worst infestation.

The campaign was under the direct supervision of County Horticultural Commissioner Collins and Mr. R. P. Cundiff, former horticultural commissioner of Riverside County. Mr. Cundiff was in the field during the entire campaign. The work began about July 10 and from the first practically no injury was shown by the fruit, and excellent results were secured where full strength tests were given. After September 1 a slight increase in dosage was used and the work was continued until November 15. Some fumigations have been given since but these to a limited extent and purely for experimental purposes. There were six outfits of 32 tents each working under county supervision. In addition there were two private outfits and the weather was so favorable that almost every hour of every night found the tents in action. Because of the widely scattered field the outfits were not operated closely together. This was perhaps an economic error for had the outfits worked in one section, cleaning it up and then moving to another, greater economy could have been practiced in the matter of delivering supplies, repairing tents and general operation. Probably another year will see this plan of work adopted. At no time during the campaign was the cyanide shortage embarrassing.

It is also suggested that an excellent practice followed by some, and which will probably be followed more extensively another year, is to give trees a thorough pruning before fumigation. Especially should the pruning be done as to suckers and as to fruit which is already infested. It has been found that insects located on either the strong sucker growth or on the fruit are much more resistant than those on the leaf or small branches. If these suckers and the fruit which will really be of no value give resistance to the insect because of the abundant flow of sap which they supply it is in any case only an additional proof that they should be removed because they are taking from the tree that which is needed by its other branches. It is a satisfaction to note that none of the fruit on trees which were fumigated subsequent to July 10 were injured. It is possible that another season's campaign will be begun slightly earlier than that date but as small newly-formed fruit is susceptible to cyanide or acid injury and as the scale are not all hatched until about that time it is probable the season will not be crowded very much. As a matter of fact, some young scales hatched that season as late as October and it is hardly probable in any case that a 100 per cent kill could be secured. In all these forms of insect life there are certain sports or out-of-season hatchings.

All told, the season was a most satisfactory one and a triumph for fumigation. Ample provision is made for supplies for another season so that the growers need feel no hesitancy in making plans for a general clean-up of the pest.

ORANGE PASTE

By H. P. D. Kingsbury

An excellent fruit paste may be made from oranges and sugar, and there is nothing better for the purpose of dipping in a chocolate or cream coating, thus making a pure fruit bon bon, or for using in the home as a confection, or as a mixture in pies, cakes, etc.

This paste is easy to make, keeps indefinitely, and will be found even superior to the chunks of candied orange peels and citron peels which are usually used in cakes, as well as being much cheaper.

Take ten pounds of whole, sound oranges and cut them into chunks and run the chunks through the finest knife on your meat grinder, thus making the particles as small as possible. To this ten pounds of finely ground whole oranges add five pounds or pints of water. Put all in the preserving kettle and cook it down, stirring constantly until two-thirds of the water has evaporated off and the paste is fairly stiff. Then add ten pounds of granulated sugar and continue the cooking and stirring until the paste is thick enough so that when the stirring spoon is run into it the hole thus made remains, and all of the water which was added has been evaporated as well as some of the water from the juice of the fruit.

Then pour out into shalow pans so that the layer of paste will be about three-quarters of an inch thick, and let it set into a jelly. It may be set away in these slabs on oiled paper and used as needed. There is a gradual evaporation as time goes on and the paste gets better and better.

It is necessary to be careful not to cook this down to a candying point, or instead of a paste you will have candied ground orange, which will harden. A little practice will perfect the handling of this excellent product.

The cost per pound when making it in some quantity and boxing it for shipment is as follows: Fruit, .003; sugar, .03; boxes, .002; labor, .01; fuel, .02; lining paper, .0003; strap iron for boxes, .0003; power for grinding, .0008, and packing, .001; thus making a total cost per pound ready to ship amounting to about five cents.

This is a product which is largely used by bakers and confectioners, and the large biscuit making concerns as well as in the home for various purposes. It has no foreign competition, and has the advantage of using up the whole fruit.

The method of planting olive trees in Syria is most interesting. The soil is not deeply dug over, but very large holes are prepared for the trees and a layer of stones is placed in the bottom for drainage. Often very old trees are transplanted.

Sure thing, tell the advertiser that you saw his bargain announced in this paper. He will be glad to know what paper you read and what paper it was that brought his message to you.

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Write or telephone for prices or appointment to see trees to
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NOW BEST TIME TO PLANT. Should return from $1,000 to $1,500 per acre first year. If interested in Rhubarb, Berries or Cactus, write J. B. Wagner, Specialist, Pasadena, Cal.

Deciduous Fruits

IMPORTANCE OF BUD SELECTION

Written for California Cultivator
By M. Sharpe

VARIOUS articles by competent authorities have appeared in several recent issues of the Cultivator in relation to bud sports and mutation of citrus fruits, etc., all of which have been very interesting and of especial importance to growers of fruits in general, for by careful bud selection many bad features and undesirable qualities in some fruits can be entirely eliminated. Take for instance the Petit d' Agen or so-called French prune, one of our most important fruit crops and a staple product when dried. The average man will see no variation in them, but to the close observer a great many variations or types will be found in an orchard all worked on the same stock with very little difference, if any, in the soil. There will be some that are clingstones, others freestones, long prunes and others inclined to rotundity. Some will be much sweeter than others. There will be some trees that are regular bearers and others that are shy bearers, some trees will bear very large prunes and others small ones, some will show very marked characteristics, some will maintain a thriftier appearance than others, and many other variations will appear which, though small, clearly demonstrate the need of careful bud selection in the propagation of a species.

The stock might influence the scion to a certain extent, for instance the Myrobolan root, which itself shows distinct variation in habit of growth, season of ripening its fruit, color of fruit and thriftiness, but the stock could hardly affect the scion to such an extent as to make a freestone fruit a clingstone, and many of these types of the large French prune retain their redeeming features when worked on other stocks.

There are at least five of these large types of French prune growing here in Vaca Valley. They are typical French prunes with the exception that they are of the largest size, drying in the neighborhood of 40's when the others would be drying around 60's to 70's. These large types present an opportunity to do away with the very small prune entirely, and a few progressive nurserymen are already taking advantage of this fact and are trying to convince the public of the advisability of planting these selected types.

Very few growers now raise their own trees so it devolves on the nurseryman to carry out this work which is more or less difficult unless they are able to grow their own buds and scions. Unless a nurseryman employs an expert to obtain his buds for him there is great danger of making a mistake, as many growers have already experienced to their sorrow and financial loss. Very likely this is only the result of carelessness on the nurseryman's part or of putting too much trust in an unknown party who may in turn send the hired man out to cut the buds and he in all possibility will cut them promiscuously from various trees. It is a peculiar fact that there are many men engaged in growing fruit who scarcely know one variety from another, their knowledge being confined to the fact that such a variety sells well, but they would be unable to classify the tree in the dormant state, which demonstrates that one engaged in growing young trees cannot be too careful as to who cuts his buds or scions for him if he wishes to do away with the so-called "boarders" in his orchards and to bring all fruits to their highest point of development. When one considers the value of good fruit land he can ill afford to grow a tree which will never bring him anything in return.

Of course climate and locality have to be taken into consideration in some cases, for some fruits bear well in one locality where they do not in another from sometimes unexplainable causes. Also fruit grown in different districts will sometimes show marked differences in color, shape and flavor. However a great deal can be accomplished by careful bud selection in French prune and citrus fruits particularly.

In most discussions of horticultural subjects there is room for dissension and dispute, for no man, however well versed in horticulture he may be, can say that he knows the fruit business and tell the truth, for if there ever was a business that is forever presenting new angles and difficulties and from which new problems are ever rising it is fruit growing, but even at that it is the most fascinating pursuit on earth to those who appreciate it.

AVOCADOS

Bring $40 to $50 a Box In Los Angeles

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FACTS YOU OUGHT TO KNOW

Avocados will grow and thrive in California. Properly selected varieties will stand more cold than oranges, require no more water nor general care, do not so readily harbor pests, make nearly twice the growth per year, eventually produce several times the number of fruits per tree, and make most beautiful ornamental trees. The fruits grown in California are entirely superior in richness and flavor to those grown in the Tropics, and find ready sale at fabulous prices.

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Under scientific California methods of growing, packing and marketing, its field will be the Earth and its culture inevitably become a great industry.

Actual photo. Exact size Avocado grown on ranch of W. A. Spinks.

"As to the value of the Avocado fruit, no one on earth can question that. It is the most nutritious, easily digestible and delicious of all fruits and if it can be purchased in quantity will sooner or later be eaten by everybody everywhere."—Luther Burbank. Extract from letter of Feb. 20, 1915.

Vigorous field grown trees, 2-year-olds from the bud—of rapid-growing, cold resistant and prolific variety 1¼ inches in diameter or larger, $2.00 each. Will bear fruit in from two to three years. Lower prices on quantities. Take advantage of the times and buy at these low prices. Write for complete literature.

Keep this ad in your scrap book and look at it in ten years from now.

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WATER USED BY A PLANT

The following statement concerning the effect of irrigation upon the product of a field is made by Dr. J. A. Widsoe of Utah state agricultural college, and will be of interest to Colorado farmers.

During the life of the plant large quantities of water are passed rapidly from the soil into the plant, and from the plant leaves into the air. As has been shown, hundreds of pounds of water are thus passed through the plant for the production of one pound of dry matter. That the vital processes of the plant may proceed unhindered, the cells of the green plant must be fully filled with water. The more water is in the soil, the more completely are the plant cells filled with water. That is, on a moist soil under conditions of abundant irrigation, the green plant probably contains a larger proportion of water than on dry soil, where the quantity of irrigation water applied is small. This effect is felt most in the stalks of plants. In the leaves, which naturally contain less water than do the stalks, the effect of varying quantities of water is not so apparent; but the water content of every part of the plant is somewhat affected by the water supply. The underground parts of plants, such as potatoes and sugar beets, contain usually a slightly larger percentage

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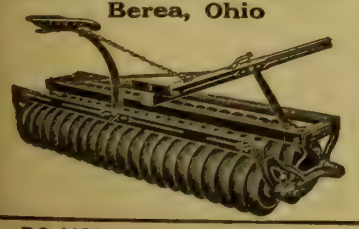

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The most important product of the island of Zanzibar is cloves; next come coconuts.

of moisture, when grown on land abundantly irrigated.

Since most crops are not sold green, this effect of irrigation, has little commercial value. True, in the case of fruits, tomatoes and similar crops, which are usually disposed of in an undried condition, the increased percentage of water in crops grown with much water may make considerable difference in the final weight.

Potatoes and sugar beets when irrigated heavily and late, may weigh more per acre, but the increased yield is obtained only at the sacrifice of quality. In most cases the difference is so small as to be negligible.—E. B. House, Colorado Agricultural College.

SCIENCE AND ART OF AGRICULTURE

"Writing and plowing are two different talents; and he that writes well must have spent in his study that time which is necessary to be spent in the fields by him who will be master of the art of cultivating them."

This was written nearly 200 years ago by an Englishman who was instrumental in introducing important changes in the agricultural methods of his day. The actual tiller of the soil has always held in some contempt the "book farmer," and there are sometimes reasons for his doing so. The man who has spent years in scientific research to determine the chemical content of soils and the methods of plant growth naturally magnifies his work. He is apt to forget that successful agriculture includes other factors than those in which he deals. All the alchemy of sunshine cannot be expressed in chemical symbols, and the rains of the springtime and the dews of the summer nights, as well as other agencies of nature, contribute more than we calculate to the final harvest.

But the farmer is equally in danger of underestimating the work of the scientist. The whole world is in debt to the patient investigators who have wrested from nature so many of her secrets. Agriculture has received its full share of the results of this work, from Liebig's time until now. Both national and state governments are each year putting forth increased efforts to bring a better knowledge of the science of agriculture to those who are already more or less versed in the art.—American Fertilizer.

If you would listen to the claims of the quack doctor or the patent medicine vendor, you will have to go to some other medium than this paper. Our columns are closed air-tight and bomb proof against that kind of publicity. We have opportunities enough to take them on. We long ago made the rule against giving space to any of them. We want the good opinion of our readers and are bound to deserve it.

During the month of December, 1914, over 2000 bags of Korean rice were shipped from Kobe to the United States. This is the first reported shipment to America of this rice, and is a sign of the expanding export trade in this product. Despite the low prevailing prices of this cereal, exportation is being pushed, as the farmers must get rid of the last season's crop. Kunsan, the Southern rice center, is reported to be receiving some 7000 or 8000 bags per day.

For a number of years an arbor day has been observed in Spain, having had an official beginning in 1898. In view of the satisfactory results obtained since the introduction of this celebration the Spanish government has found it advisable to make arbor day general and obligatory throughout the kingdom.

Farmers of Mimbres Valley, New Mexico, maintain a cooperative organization which saved to its members last year in excess of $20,000; this almost entirely in fuel and lubricating oils.

TREES

This is the best time for planting and every planter should place his order as soon as possible. In buying from our immense stock you are certain that your order will be satisfactorily filled with perfectly grown, strong, and thrifty stock. Every tree is labeled true to name.

Fruit Trees — Of Every Kind

We have the largest and best grown stock which comprises all the leading varieties of Apples, Apricots, Almonds, Peaches, Plums, Prunes, Oranges, Lemons, Pears, Cherries, Olives, Nectarines etc. The most complete stock in California today.

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We have almost an endless variety of all the leading Ornamental, Deciduous, and Evergreen trees and shrubs grown on the Pacific Coast, which comprise the varieties best suited for lawn or street planting; and to ornament the grounds of large private or public parks.

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We have a splendid assortment to select from, embracing the leading varieties of Ampelopsis, Clematis, Ivy, Jasmines, Wistaria, etc. Our line is also complete in bedding and border plants. Our large green and lath houses are filled with the very best assortment of house Palms, Ferns, and other decorative plants.

Field Grown Roses

This stock includes varieties best adapted for hedges, grouping, and for climbers. All the leading late varieties still in surplus.

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This is the genuine Smyrna Fig of Commerce — introduced and successfully grown by us.

Undoubtedly it is the only fig to plant if you are looking for profit.

We are absolute headquarters for the Calimyrna Fig and recognized authorities as to its propagation. Write us for full information. We can also supply the Adriatic types—if you want them at right prices. Mission, White Adriatic.

OLIVES

There is an enormous demand for olives. Our stock includes all the best varieties—Mission, Manzanillo, etc.—grown under ideal soil and climatic conditions with strong, sturdy root systems. Ask for a copy of our special bulletin on the olive—free.

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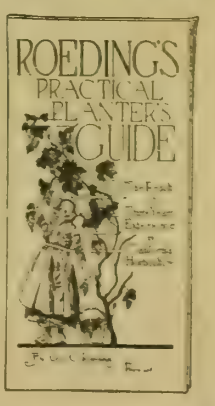

THIS BOOK should be in the hands of every planter and grower. It tells how and when and where—to plant, prune and care for stock—and is fully illustrated, showing "before" and "after." The price is 25c—but to those who write now for prices and suggestions we'll send a copy free. WRITE YOUR NAME AND ADDRESS ON THE MARGIN below, tear off and mail today—attaching a list of what you intend to plant.

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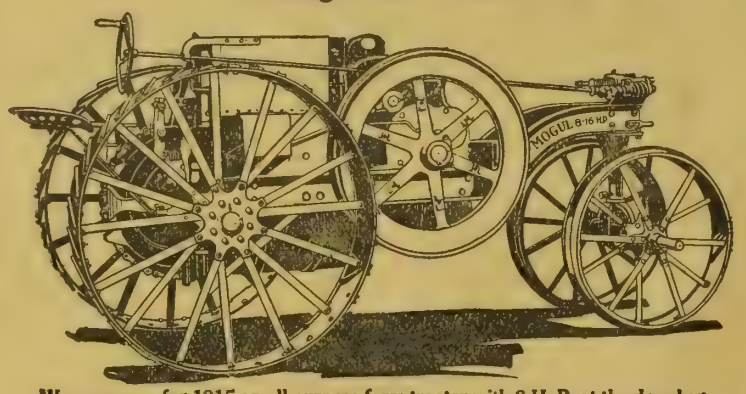

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General Agriculture

THE EXTERMINATION OF UNDERGROUND PESTS WITH THE UNITED STATES DESTRUCTOR

FOR seven years the public health service of the government has been working in cooperation with the state board of health for the purpose of preventing the spreading of diseases that are carried by rats and ground squirrels. All disease, as a result of their combined efforts, disappeared from among the rats over five years ago. The ground squirrel problem however was much more difficult than the rat problem, and it has required a much longer time to obtain the same degree of success on account of the large territory requiring investigation.

The territory under investigation comprised an area of over 13,000 square miles and consisted of the counties of Contra Costa, Alameda, Santa Clara, Santa Cruz, Monterey, San Benito, Merced, Stanislaus and San Joaquin. The state legislature passed an act which required land owners to destroy ground squirrels and similar rodents and the various boards of county supervisors have loaned their moral and financial support to the movement on account of the great economic benefits which would accrue to their respective counties from wide spread ground squirrel destruction.

As a result of the combined efforts of the United States government and state authorities and the cooperation and assistance of wide awake and progressive land owners, about 75 per cent of the ground squirrels in the counties above mentioned have been destroyed and disease has practically disappeared from among them. The location of land on which infected squirrels are still found is known and the squirrels that remain on these lands are being rapidly destroyed. It is believed that all disease will be wiped out within the next few months.

While it is admitted that the suppression of disease over so wide an area is a creditable achievement, the writer was much more impressed by the enormous economic benefits that will accrue to farmers, orchardists and ranchers as a result of the wide spread destruction of these pestiferous little animals. The government officials who have charge have not overlooked this fact and have taken advantage of every opportunity to demonstrate that it means money in the pocket of every one who has squirrels on his land if he will destroy them.

As the principal interest of the government was to get rid of disease it fell to the medical department to take charge of the work, and while they personally knew about diseases and their devious ways of spreading and had had much experience in the destruction of rats and in the cleaning up of cities, the destruction of ground squirrels was an entirely new problem and as it later proved, a most difficult one. A beginning was made by studying the squirrel himself and the following facts were established:

Ground squirrels live in burrows in the ground about eighteen inches to two feet below and more or less parallel to the surface.

These burrows are, as a rule, connected and interconnected so as to form what are known as colonies or villages.

Each burrow has an entrance which communicates with the surface. The average length of each burrow is about 15 feet, with a capacity of 1.5 cubic feet.

The breeding season begins in November or December and the young are born from March to June, depending upon the locality, climatic conditions as to cold, rain, vegetation, etc.

Each female gives birth to an average of eight young, the litter varying in number from four or five to a dozen or more.

When the young are six weeks to two or three months old they either leave or are driven out of the parent "village" and establish villages of their own.

Ground squirrels will eat anything. They prefer farm or orchard products as a rule but when driven by necessity will eat garbage or their own dead.

Ground squirrels are very destructive as the following brief statements will show:

Growing crops of wheat, oats, barley, hay or alfalfa, orchard or vineyard products, garden truck, etc., are destroyed in great quantities each year. They seem to take an especial delight in cutting the heads from wheat, oats and barley just before the grain is ready for the harvest or, as the farmers say, while it is still "in the milk."

Banks of irrigation canals and ditches and the embankments of dams are frequently undermined and disastrous floods result. They burrow into railroad cuts and fills, causing slides and cave-ins.

In pasture land each squirrel will destroy in the construction of his burrow about seven square feet of pasturage and it has been estimated that 20 squirrels will eat and destroy enough pasturage to feed one cow.

Methods of squirrel destruction have been carefully tested by the United States government and their efficiency proven as follows:

Poisoned Grain

This agent gives better results in the dry than in the rainy season. It is used by scattering on the ground back of the hole in such a manner that the squirrel is obliged to pick it up a grain at a time and place it in the cheek pouch. Absorption of the poison takes place through the lining of the cheek pouch and death results, many times, before the animal has had time to hull and eat any of the grain. Barley is the best grain to use as it must be hulled to get the kernel, hence birds and other animals are not likely to touch it. Squirrels cannot be completely eradicated by the use of barley as some of the older ones have learned by experience to leave it alone. However, if it is applied to the land at intervals of 10 days, about 80 per cent or 85 per cent will be destroyed and the balance can be killed by the methods that will be later described. Grain is especially applicable on pasture or range land or on land where rocks or rocky formations are present.

The poison used is strychnine and there are two methods of preparing it. By one method the grain is coated with an adhesive solution containing strychnine and by the other method the grain is coated in the same manner but the strychnine is so treated before applying that its bitter taste is delayed for several minutes. If the expression may be permitted, "before the squirrel can taste the poison to find out what killed him, he is dead."

Waste Ball Method

What are commonly known as "waste balls" may be made of any absorbent material, as jute, cotton, gunny, waste, a ball of horse manure or an oak gall. Jute or cotton has been found to be the best.

A ball of any of the above materials is soaked with Kilmol, placed in the burrow and if the ground vegetation is wet so that there is no danger of fire, it is ignited. An explosion results which usually stuns the squirrel and the resulting poisonous gases kill him. After firing, the hole is covered with dirt and stamped to confine the poisonous gases and give a surer result.

If the ground and vegetation are dry enough to burn it is better not to ignite the ball but to cover and tamp the hole and allow the liquid used to evaporate and produce the gas. The liquid used and results obtained are as follows:

	With Firing	Without Firing
Kilmol	98-100%	90-95%

As will be noted, the poisoned grain is applicable in the dry and Kilmol in the wet season. They cannot be combined so as to obtain the best results from both in the same season. To overcome this difficulty the government officers determined if possible to devise a method which would fulfill the following requirements:

Efficiency. It was their earnest endeavor to devise a method that did not depend upon the cooperation of the squirrel and would obviate the necessity of going over the land more than once.

Applicability during the entire year without regard to the season.

Low cost of construction, maintenance and operation.

Light weight so as to be easily carried and not difficult to use or operate.

After many trials and failures an apparatus known as the Squirrel Destructor was invented and, as is usual with officers of the government, was patented and dedicated to the public. Anyone may have the benefit of its use without the payment of large expensive royalties. The United States Destructor is a simple machine easily understood and handled, and inexpensive to maintain. It consists of a double action air pump, a reservoir for holding the poisonous liquid to be used, a measuring cup and a vaporizing chamber in which the poisonous gas is produced. Twenty full strokes of the pump forces sufficient air through the vaporizing chamber to produce thirteen cubic feet of poisonous gas. As the capacity of the squirrel burrow is only 1.5 cubic feet, considerably more gas is pumped in than is required to fill the burrow. This insures a complete substitution of the air in the burrow and kills the squirrel in from ten to twenty minutes. Kilmol is used with the Destructor with an efficiency of 99 to 100 per cent.

MEASURING HAY IN STACK

Neither Uncle Sam nor most states have a law for the measurement of hay in stack. Wyoming statutes provide the following:

Four hundred twenty-two cubic feet shall constitute a ton of clean native, blue joint hay after 30 days and up to three months settlement in stack. Five hundred twelve cubic feet shall constitute a ton of alfalfa rough slough grass after the same shall have been in stack 30 days and up to one year. Four hundred and fifty subic feet shall constitute a ton of clean timothy or clover after the same shall have been in stack for 30 days up to one year.

The law further provides the following rule for determining the number of feet in a stack: Subtract the width from the "over," divide the remainder by 2, multiply this by the width and multiply this by length. (All measurements are to be in feet). Divide this result by the number of cubic feet in a ton.

The laws of New Mexico contain the following:

To reduce to tons, for hay that has stood in the stack for less than 20 days, divide the cubical contents by 512; for more than 20 days and less than 60 days, divide by 422; for more than 60 days divide by 380.

The New Mexico rule for measuring the stack is the following: Multiply the width by the "over," divide this by 4, and multiply this by the length. Divide this number by the number of cubic feet in a ton and you have the answer in tons.

The only other state which has a statute upon this subject, so far as we are able to ascertain, is Montana, and there the law is almost precisely the same as in Wyoming.

The United States department of agriculture furnishes us with the information that in New York and Virginia 55 stacks of hay which had stood less than 30 days averaged 589.6 cubic feet per ton. Thirty stacks having stood from 30 to 60 days averaged 581.5 cubic feet per ton, while seven stacks which had stood from 74 to 155 days averaged 514.9 cubic feet per ton. —S. L. MacDonald, Colorado Agricultural College.

There is nothing like cooperation in the farm home. A pull-together by the whole family argues well for eventual success in any line.

Just imagine the axle of a car TWISTED 3 TIMES without even showing signs of fracture, and you can begin to get a little idea of the quality that Studebaker BUILDS into this FOUR—simply "because it's a Studebaker." For that's the test—as this picture shows—that Studebaker axles have to undergo. And that's the kind of steel that Studebaker develops.

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And that is typical of Studebaker's entire manufacturing policy. That is why, for example, you find Timken Bearings *everywhere* in the car, even in the differential. They are the BEST anti-friction device made—and Studebaker uses them. So, too, Studebaker puts into this FOUR at $985 a FULL-floating Rear Axle such as you find in only the highest priced cars.

But you'll appreciate even more what that name of Studebaker stands for on a car when you see this FOUR at your local Studebaker dealer's—and see how Studebaker, knowing the farmer's wants so well, has built into this FOUR conveniences and SERVICE-giving qualities that make it ideal for use in the country.

But SEE it at your dealer's. You'll find it EASY-riding and EASY to drive—and with lots of POWER. And when you study its design, its simplicity, its accessibility and the way it is built to make its upkeep LOW, you'll see why so many men living in the country have bought this FOUR simply

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Small Fruits Vegetables

A FARMER'S FRIEND

THE toad is one of the farmer's best friends. He hides during the heat of the day under stones, sticks or any kind of rubbish he can find that will afford shade and moisture, but as soon as the day grows cool he sallies forth in quest of food, which consists principally of insects.

It is a common superstition that to kill a toad will cause the cows of the offender to give bloody milk, which, though without foundation in fact, is productive of good by deterring the slaughter of the innocents by cruel boys.

Like many others of the animal kingdom, the toad sloughs his skin; but you never can find their cast skins around as you do those of snakes. Only once have I been permitted to see a toad change his raiment. I saw one in a shady place beneath a large clod. He acted as though he were in severe pain. Presently I saw the skin on his back beginning to split. The opening grew larger and larger, till at last he worked it forward and off his hind legs, for all the world like a boy taking off his trousers. Next he worked it off his front legs and with his feet he pushed it off his head, rolled it up into a ball and—what do you think! He swallowed the pellet as though it were a delicate morsel.

Formerly he was thought to be venomous, but the idea is absolutely without foundation. His body is covered with wart-like protuberances which on pressure exude a milky liquid of a very acrid taste. Many a time have I seen dogs play with toads, but observed that they were careful not to get the little creatures in their mouths. No doubt they had learned the toad's weapon by experience.

Though he appears to be a clumsy fellow, often have I watched him before my team and he always so timed and spaced his leaps as to escape death by hoofs and wheels. Still he is not active enough to spring upon insects. How does he catch them? His tongue, which is an inch or more long, is attached to the front of his mouth and free behind. When a fly comes near enough the tongue is thrust quickly out, the fly is enveloped and drawn back into the mouth so quickly that the eye cannot follow the movements.

Toads are local in their habits, as are in fact many animals thought to be wanderers. The toad you saw hopping around your yard last summer is the one which will appear next summer and has been doing police duty in your yard and garden for several years.

The number of insects a toad will consume is almost incredible to one who has not observed his habits, and as he is not particularly choice in his selection of food, he destroys vast numbers of injurious insects. His utility as an insecticide is so well known that in some places he has a market value for placing in gardens.

The toad exhibits a considerable degree of intelligence and is easily tamed. I knew of three toads that had been tamed by some children. After having been carried into the house a few evenings they became so tame that they would hop up on the porch and wait for the door to be opened, then they would calmly hop into the kitchen and watch for flies. They became so tame that the children could catch them anywhere in the yard and carry them around without their making any effort to escape. Each succeeding summer three toads applied for the job and we supposed them to be the original ones.—Successful Farming.

TRIUMPH OF THE ITALIAN TOMATO

The tomato was given to the world by America, but Italy is today teaching the rest of the world by example how it should be raised and how it should be preserved. Italian canned tomatoes have practically pushed the American product out of the English market and have gained an enormous market in the United States. The Italians raise a solid meaty tomato of fine color and it is so packed in the cans that the consumer is not obliged to pay for a large percentage of water.

Canned tomatoes, however, are put up principally for the export trade. The Italians themselves prefer their tomatoes in the form of sauce, or paste, which is nothing more nor less than boiled down tomato pulp, minus the skins and seeds, as set forth in an interesting manner in a report by Commercial Agent J. Alexis Shriver entitled, "Canned Tomato Industry in Italy," recently issued by the bureau of foreign and domestic commerce. This sauce is put up in cans and is used by the Italians in a great variety of dishes, of which spaghetti is perhaps the most familiar to Americans.

According to fairly accurate statistics the area planted in tomatoes in Italy is about 22,000 acres, producing about 385,000 tons. The exports to the United States amount to about 20,000,000 pounds of canned tomato and tomato sauce, and some 8,000,000 pounds of the product go to South America. The total value of the tomato exports from Italy is well over $6,000,000.

The skins and seeds that were formerly wasted are now utilized, the former as stock feed and the latter as a source of oil. The crude oil is suitable for soap making and for lamps, and the refined oil is said to be edible. Commercial Agent Shriver's report, Special Agents Series No. 93, may be obtained from Superintendent of Documents, Government Printing Office, Washington, at 5 cents a copy.

GARDEN NOTES

No place is too small to afford some garden or plant growth.

Do not cover fine seed deeply. Put on just enough dirt to cover the seed.

Use wood ashes as a garden fertilizer, working them into the soil of rose beds and about fruit plants.

Good topics for discussion in the farmers' club this month are:

The Vegetable Garden.

The Best Potatoes to Plant.

How to Secure a Good Strawberry Bed.

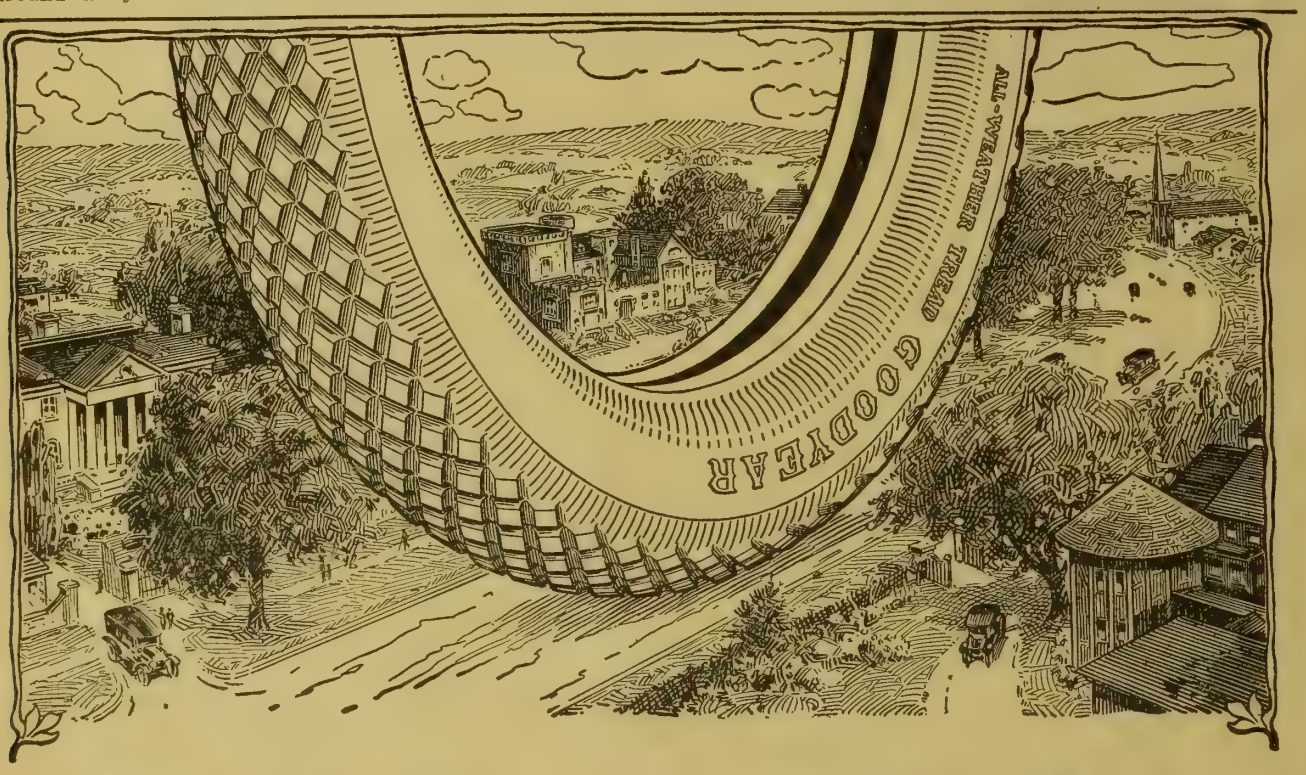
The Best Shrubs to Plant for a Succession of Flowers All the Year.

The Best Annuals for Cut Flowers.

The Best Three Flowering Perennial Plants.—LeRoy Cady, Associate Horticulturist, University Farm, St. Paul.

The manure from a well-fed herd is a matter of great consequence, and its proper management requires judgment. The better the feeding the better the manure. While all manure is worth good care, the better the manure the more important it is to handle it well to prevent heavy losses. The best single piece of advice as to handling stable manure is to get it from the stable to the land where wanted without delay and there spread it with the least possible expenditure of labor. Yet this general plan must be modified at times, and according to circumstances.

Sheep are different from cattle or of value as meat producers they have a fleece wool that will pay for their feed.



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We combat loose treads by forming in each tire hundreds of large rubber rivets.

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Our All-Weather Tread combats puncture by being tough and double-thick. It combats skidding like no other by its sharp-edged bulldog grips.

Those things mean sturdy, trouble-saving tires. Each is found in Goodyear tires alone. In these ways, at least, Goodyear Fortified Tires excel all other makes. Do you know one way in which others excel Goodyear?

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KNOW THE TREES

Written for California Cultivator
By Ernest Braunton

SO many eager inquiries come in every year as to identity of native trees that it may be well to lay down a few rules for their rough recognition. Few care for specific names, and nearly all know the pines, etc. It is the deciduous tree that most puzzles us, and to know if it is an alder or an ash generally satisfies the seeker for knowledge.

In America we have but three families of trees possessing opposite leaves, and all have representatives in California and will be found fairly close to stream banks. It is not necessary to find them in leaf to know them—look to see if leaf scars and buds are opposite, and if so the tree is either ash, maple or horse-chestnut. If they are not opposite they as clearly belong to some other family, of which we do not tell in this article.

We have but one horse chestnut, Aesculus Californica, a small tree 10 to 20, or rarely 30 feet high, and sometimes a mere shrub of five feet, though swollen bases of trunks are as much as three or four feet in diameter at surface of soil. It is easily told from other opposite-leaved trees, even when bare, by the very blunt and stubby twigs. In geographic range this tree reaches neither the northern or southern end of the state. It is somewhat common from the Salmon River south to the Antelope Valley in Los Angeles County.

California can boast of but four maples, and but two of these grow large enough in their native habitat to be called trees. The big-leaved maple (Acer macrophylla) grows from 20 to 60 feet high and ranges throughout the state but is nowhere common. It is a handsome tree and planted out it thrives in the big interior valleys. Acer circinatum, the vine maple, is a shrub or small tree from five to 20 feet high and is found in the north, not occurring so far south as Sacramento. It may generally be told by the four or five spreading stems which often curve over so that the tips touch the ground and take root; hence the common name, the vine maple. Acer glabrum, the Sierra maple, is also a dwarf of five to 10 feet, found from the San Bernardino Mountains northward at an elevation of from 6000 to 8000 feet. In the south it generally is a one-stemmed shrub, but in the north it frequently has from ten to a hundred. Acer negundo, var. Californicum is the California box elder and in gross aspect closely resembles those so common in the Eastern states. It is a tree of 20 to 50 feet in height and ranges from the San Bernardino Mountains northward to the Sacramento River, always along streams, but nowhere common. In lowlands or in sandy, damp soils it makes a fine tree and is utilized for shade purposes and alignments of roadsides.

Out of 30 species of ash found throughout the world, mainly in the north temperate zone, California claims five, and all attain, somewhere, the dignity of trees. Fraxinus Oregona, the Oregon ash, ranges from 30 to 80 feet in height and from San Diego north in territorial appropriation; also growing from tidewater to 4000 feet altitude in the mountains. F. Coriacea, the leather-leaf ash, runs from 20 to 30 feet in height and is found in desert regions from the east base of Mt. San Jacinto to Central California and over into Utah, Nevada and Arizona. F. velutina, the Arizona ash, does not reach far into California, being found from Mt. San Jacinto and Owens River region southeasterly. It is quite easily recognized by the extreme willow-like appearance of its leaflets. F. dipetala, the flowering ash, is a small tree or shrub from five to 15 feet in height and found in canyons in all sections of the state excepting in desert regions. It is a most beautiful tree when in blossom and is then easily told by its heavy clusters of flowers, each one of which has but two petals. Fraxinus anamola, the dwarf ash, is a large spreading shrub or small tree from 15 to 20 feet high, and found in California only in the Death Valley region, and therefore interests us but little. In all countries where Spanish predominates the ash is known as Fresno, from which fact our California city was named, and many ashes, planted, and also native growths, are found there. These are all the trees having opposite leaves that are native to California.

Plant Roadside Trees

1915 is sure to be a year of unusual activity in all lines and in all parts of California. I sincerely hope some of the energy and enthusiasm of our people will be expended in the planting of our roadsides. In Southern California proper, or below the Tehachapi, these trees should be mainly evergreens, but in the central and northern parts they may be a mix-

(Continued on Page 307)

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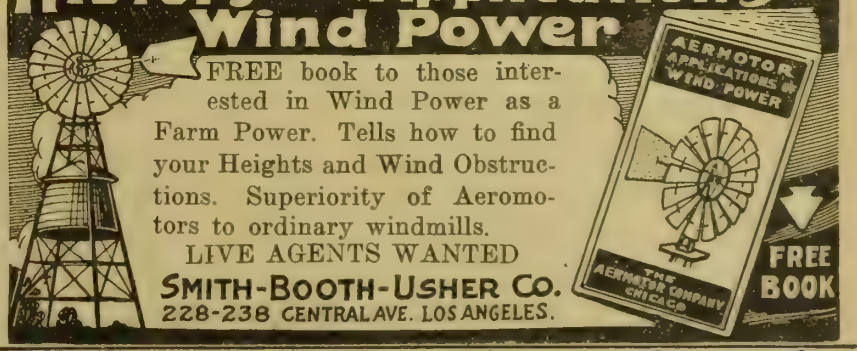

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Economics on the Farm

BOOKKEEPING FOR COOPERATIVE ORGANIZATIONS

DOUBLE entry bookkeeping is urged upon all farmers' cooperative societies in a recent publication of the United States department of agriculture, Bulletin No. 178, "Cooperative Organization Business Methods." The very life of a cooperative organization, says the bulletin, depends upon the confidence its members possess in it, and such confidence is impossible unless the records are unmistakably accurate. The double entry system is the only one which affords a complete check and should therefore be adopted in all cases.

Since the cooperative organization acts as the agent of the grower in marketing his product, the books of the organization must not only contain the usual records of any business enterprise but must also show a clear record of each grower's shipments. The system must be sufficiently elastic to take care of the maximum volume of business at the busy seasons and at the same time be economical.

The six essential requirements for such a system are stated in the bulletin as follows:

A complete set of financial records showing the business tranactions and the results thereof.

A record of each member's transactions with the organization.

Capability of taking care of a maximum amount of business during the shipping season.

Capability of returning to the members the proceeds from their products within a reasonable time.

Clear pooling records when kept, so that any discrimination can be shown quickly.

Auxiliary records which will give statistics and valuable information for the conduct of the business. These records must be accurate.

The necessity for providing a regular system for safeguarding the cash is also emphasized in this bulletin, and nine precautions are given which it is said should be adhered to strictly.

All entries of cash should be explicit, and items supporting such entries should be filed so that they are accessible for reference and verification.

No entries should be recorded in the cashbook which do not relate to cash.

The full receipts of each day should be deposited in the bank.

All canceled checks should be filed in numerical order.

Duplicate checks should always be covered by indemnity bonds.

Reconciliation should be made each month between cash or check register and bank passbook balances.

Permanent record of these reconciliations should be made.

Checks, sales slips, receipts, etc., should be numbered with a numbering machine. Any which are spoiled should be marked void and left in the book.

A regular system should be used for the acknowledgment of all cash sales, or miscellaneous cash items received.

The auditing of accounts also should receive more attention than is frequently the case. At least once a year an expert accountant should go over the books of the organization. To minimize the cost of this, small associations or circles can be fomed by the organizations within a certain radius and a competent auditor can be engaged to do the auditing for all.

HOW RIVERS ARE MEASURED

To show the way in which rivers are gauged—that is, how the volume of running streams is measured—by the United States geological survey, the exhibit maintained by the survey at the Panama-Pacific Exposition in San Francisco will include a display of automatic gauges run by electricity, which report the fluctuating heights of water of an artificial river, one flowing through a bank. The work of measuring the flow of the various streams of the United States every day in the year and some of them several times a day affords an invaluable basis for the study of our water resources. Upon the data thus obtained engineers depend in working out plans of water power development, irrigation, drainage—in fact, every project in which running water is a factor.

ONE TREE BRINGS $100

The government has just received $99.40 in settlement for a single sugar pine tree which was cut in trespass in the Stanislaus national forest in California and which yielded more than enough actual lumber to build a good-sized suburban frame house. The tree scaled 18,933 board feet, and was valued at $5.25 per thousand feet.

Not many trees contain enough lumber to build a two-foot board walk nearly two miles long, and this is believed to be the first case on record in which a single tree felled in a national forest was valued at almost $100 on the stump, although national forest timber is frequently sold at considerable higher rates.

PROPOSED LEGISLATION

Continued From Page 291

allow any citizen to deliver any produce of his farm to the market to be sold, and the money received placed to the citizen's credit without cost to him. The expenses of the market shall be paid by the county. The market may sell at retail, wholesale or on commission. Products of the farm include poultry and eggs.

S. B. 188, By Mr. Cogswell—Creates a department of agriculture and the office of secretary of agriculture. Provides for the appointment of a secretary of agriculture by the governor for four years, his salary to be $7500 per year, and consolidates under his department the state agricultural society, commissioner of horticulture, state board of horticultural examiners, state dairy bureau, examiner of veterinary medicine and the state veterinarian, state board of sheep commissioners, stallion registration board, state board of viticultural commissioners, state superintendent of weights and measures. Provides for the organization of the department of agriculture into three bureaus, namely, animal industry, horticulture and economics, with a head for each bureau, to be known as a director. The secretary is vested with the power and the duty of administering and enforcing the laws governing his several departments. The bill creates also a board of six managers in control of the state fair. They shall serve without compensation other than their necessary expenses.

S. B. 205, By Mr. Kehoe—Provides for the establishment of state parks in counties. Upon petition of 25 per cent of the county registors upon the question of a bond issue to purchase a designated tract for a public park, the supervisors shall call a special election to vote on such bonds, or, if a general election takes place within six months, the question of issuing

CASE "25"

Complete $1350—5% Discount If Cash

If We Equipped and Priced as Others Do

$1239.75

Of the 30 medium-priced cars—from $1250 to $1500—the CASE costs the least.

This is the only car that comes *completely* equipped with Extra Casing, Tire Cover and Extra Inner Tube On Rim, Weed Non-Skid Tire Chains, and Eight-Day Clock.

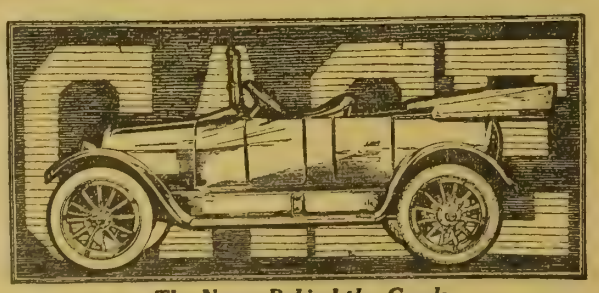
On any other car, men have to pay extra for all these necessary features.

The farmer requires them even more than the man in town. Because you drive in the country six days to his one. You are much more remote from garages and service stations.

These features, **with 5% discount** that we give if cash, amount to precisely $110.25.

Add this to the price of any other car in this class, and it costs you more than the CASE "25" *complete* at $1350.

Or deduct it from the $1350 price of the CASE, and this car costs but $1239.75, on their basis of price and equipment.



The Name Behind the Goods

Hidden Values

CASE buyers count this low cost an extreme advantage. Yet these cars have never been sold on price. They are winning men everywhere because of the way they are made and the stuff that's in them.

These are the "unseen values" in the *vitals* of a car. And you must rely upon a maker's *ability* to build them *right*. Also his *reputation* for *embodying* them.

Your Safeguard

In both of these respects CASE stands, as you know, without a peer.

We have won, through more than 70 years, acknowledged leadership as makers of farm power machinery. And motive power is the basis of an automobile. So—when it comes to you, as it must, to rely on the name behind some car—

Remember that CASE means utmost *security*.

* * * * *

And remember that CASE cars are sold by our own organization. All over America, and beyond, it handles this car in connection with our other products.

Hence we *save thousands* where other makers *must* spend—in selling. And so we spend in many ways for better materials and workmanship. *These are ways where others must save.*

Our new illustrated catalog tells you of many of the places where we spend to your advantage.

Before you buy a car, write for this book and learn the facts that save your repair bills.

NOTE:—Ask us also for our 1915 catalog picturing and describing CASE Threshing Machinery, Tractors, CASE-Racine Tractor Gang Plows, Corn Shellers, Hay Balers and Road Machinery. Sent free, postpaid.

CASE

The Car With the Famous Engine

J. I. Case T. M. Company, Inc.
Founded in 1842
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Racine, Wis.

(281)

bonds may be submitted at such general election. The care and control of said park will be in the hands of a board of five trustees, appointed by the governor, which board shall serve without pay other than their mileage and $5.00 per day when actually engaged. The governor may appoint said trustees for any county, when in his judgment, it would advance the interests of the movement to acquire said park in such a county.

S. B. 341, By Mr. Brown—This is known as the state market bill and creates a state marketing commission of five members appointed by the governor for six years from the state at large.

The annual salary of each commissioner shall be $6000, the salary of the attorney, $4000; the salary of the secretary, $3000; the salaries of all other officers, experts, accountants, inspectors, clerks, laborers, employes and other persons under the commission shall be fixed by the commission.

The commission shall establish at least two offices, one in San Francisco and one in Los Angeles. The commission shall have power to organize, manage, control and carry on the business of receiving on consignment, selling and shipping to dealers and consumers, within or without the state, all agricultural, horticultural, dairy and farm products which shall be grown, raised, produced, processed or manufactured within the state. All producers within the state shall have a right to consign their products to the commission for sale and distribution. The commission shall establish in other cities and towns such receiving and distributing stations as are necessary. It shall be the duty of the commission to maintain a bureau of information and correspondence. It shall charge all producers taking advantage of this act such fees, charges and costs as may be just and reasonable. Two hundred thousand dollars is appropriated to establish the commission.

S. B. 393, By Mr. Cogswell—Creates a department of natural resources with a secretary at $7500 per annum. He shall take over the duties and exercise all the powers of the state board of forestry, the state forester, California redwood park commission, conservation commission, fish and game commission, state register of land under the Carey act. His department shall be divided into three bureaus, forestry, fish and game, and public land. The head of each bureau shall be known as a director.

S. B. 459, By Mr. Benedict—Provides for the formation of flood control districts in the counties of the state for the purpose of protecting land therein from damage from storm waters, and of the necessary works of protection and conservation of such waters for bonding and assessing such flood control districts, and for the cost of maintaining and repairing such improvements; provides for the appointment in any county by the supervisors of a flood control commission, whose salary shall be not less than $2500 per annum.

S. B. 476, By Mr. Jones—Establishes a deciduous fruit experiment station, under the direction of the University of California, the commissioners of which shall receive no compensation other than their necessary expenses. The sum of $50,000 is appropriated to carry out the act.

S. B. 480, By Mr. Duncan—Defines the commission merchant as any person or persons selling or receiving for sale any produce, etc., on commission. Prohibits such merchant or merchants from doing any business before having filed with the secretary of state a statement showing whether said merchant is a private individual, corporation, partnership, or association, and if a corporation, the amount of stock actually subscribed and paid in. This statement to be verified under oath, accompanied by a bond of $5,000 approved by the secretary of state, conditioned that the said commission merchant will conduct his business within the terms of this act and will control, account for, and promptly pay to any and all persons consigning produce, or other personal property, to him, the proceeds of the sale, less his commission.

Any person suffering loss or damage through the acts or ommissions of said commission merchant may recover upon such bond the amount of damage sustained by him.

Every person conducting the business of a commission merchant shall keep a record showing in detail the receipts of produce or personal property, its character and quantity, dates sold, price received, and residence or business address of the person purchasing the same, which record shall be open at all times to the inspection of any person or persons sending produce to said merchant. Provides further, that said merchant shall, within five days after the sale of said produce, or any part thereof, render to the consignor a detailed statement of the funds required to be kept on record by said merchant. Violations are punished by a maximum fine of $300 and imprisonment not exceeding six months, or both.

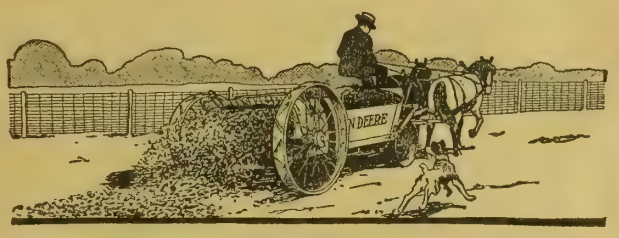
S. B. 508, By Mr. Brown—Creates a state rural credit fund, appropriating $200,000 therefor in aid of agriculture within the state. Creates a board of trustees, consisting of secretary of agriculture, superintendent of banks, and one other person appointed by the governor, at a salary of $5000 who shall be chairman of the commission.

The board is authorized to make loans payable in annual installments, secured by first mortgage on agricultural land, to approved borrowers, for not to exceed 35 years, at not less than four per cent interest. The trustees are authorized to issue tax-exempt mortgage bonds, to purchase mortgage loans on agricultural property from state and private banks, to reduce interest thereon to not less than four per cent, to frame regulations for rural credit associations, and make loans to the members secured by first mortgage, and may accept deposits or reserve funds and pay interest thereon.

S. B. 509, By Mr. Brown—Authorizes the secretary of agriculture to purchase, improve, subdivide and sell agricultural lands to settlers in California. Provides the conditions by which such lands may be purchased on installments. Authorizes the issuance of land settlement bonds with which to create funds for the purchase of agricultural lands, water rights, etc.

S. B. 603, By Mr. Carr—Relates to the formation, government and operation of highway lighting districts within unincorporated towns and villages, and maintains systems of street lights on public highways, and the manner of calling and holding elections, the assessment, collection and disbursement of taxes for said districts.

John Deere Implements



John Deere Spreader

The Spreader with the Beater on the Axle

The beater—the business part of the spreader—and all its driving parts, is mounted on the rear axle. This is a patented feature. You can't get it on any other spreader. The beater on the axle means there are no clutches to give trouble, less than half the parts heretofore used on the simplest spreader, big drive wheels and a low down spreader without stub axles. Only hip high to the top.

Write for more facts. Also ask for "Farm Manures and Fertilizers", a valuable textbook you can get free.

R. & V. Gasolene Engines

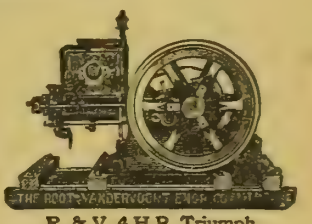
New Triumph One Horse Engine. Just the engine for light work about house and barn, such as running washing machine, pumping water and operating other small machines. Saves every member of the family work and worry.

A reliable, efficient, low priced but high grade engine. Easy to start, smooth running, requires no attention when in operation, economical in use of fuel and perfectly safe in and around buildings. All working parts are back of the fly wheel out of the way—a neat outfit in every respect.

R. & V. Triumph Engines for All Farm Machinery

The R. & V. Triumph line of engines is also made in 2, 4, 6, 8, 10, 12 and 16 H.P. sizes, stationary and portable. Every farm can use one or more of these engines to advantage.

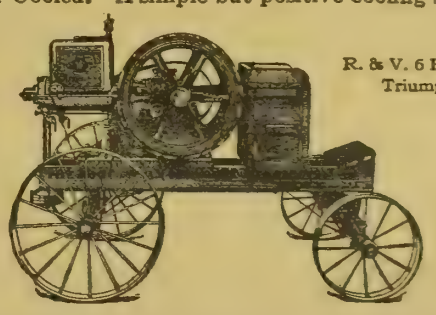
They are dependable gasolene engines—always develop rated horse power.



R. & V. 4 H.P. Triumph

An extra ring over the piston pin prevents scoring and ruining cylinder. This is an unusual precaution for lengthening the life of a gasolene engine. This careful attention to details is followed in constructing every part of the R. & V. Triumph.

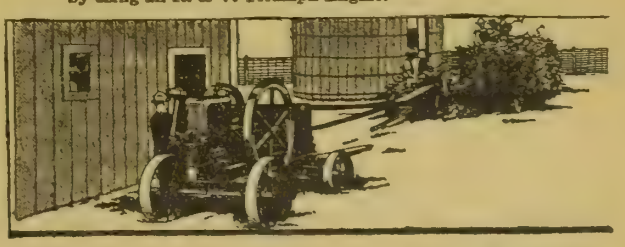
Hopper Cooled. A simple but positive cooling system.



R. & V. 6 H. P. Triumph

The gasolene tank for every R. & V. Triumph Engine is most conveniently and safely located—on practically all of the stationary engines it is in the sub-base.

Write for free booklet "Letting Gasolene Do It." This book tells how you can save time every day in the week by using an R. & V. Triumph Engine.



John Deere Wheel Plows

With Quick Detachable Shares
Unscrew One Nut—That's All

John Deere Wheel Plows, known the country over as "Quality Plows" are now fitted with John Deere Quick Detachable Shares—an exclusive John Deere feature.

Here are some advantages of these shares:

1. No trouble to change shares.
2. Eighty per cent of time saved.
3. No danger of damaging share.
4. Share is drawn up closer.
5. Share is stronger—not weakened by bolt holes.
6. Resharpened or sprung shares can be drawn into place—no drift punch necessary.
7. No unequal strain on share.
8. No danger of injury to hands in taking share off.

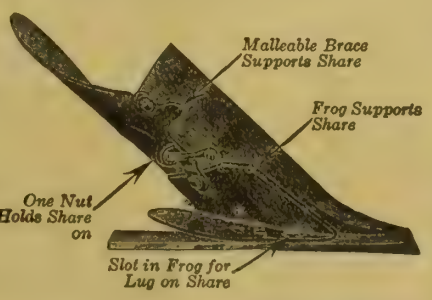
We have beautifully illustrated booklets on the following plows with John Deere Quick Detachable Shares:

New Deere Sulky and Gang (High Lift Frame Plows)

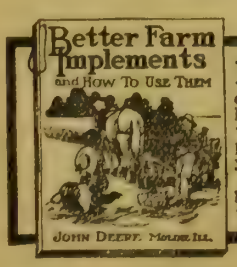
John Deere Stag Sulky and Gang (Low Lift Frameless Plows)

John Deere Two-Way Sulky (Side Hill or Irrigated Land)

John Deere Engine Gangs (For Traction Engines)



Mention the booklet above that you want and we will send it to you free.



Better Farm Implements and How to Use Them

FREE BOOK Illustrates and describes the most complete line of farm implements. Tells how to adjust and use farm tools under varying conditions. It is a practical encyclopedia of farm implements worth dollars to you—a 168 page text book.

It tells about John Deere Implements: Steel plows, cultivators and harrows; corn planters, disc harrows and beet tools; farm and mountain wagons; manure spreaders; portable and stationary grain elevators and corn shellers; hay loaders, stackers, sweep rakes, mowers and side-delivery rakes, motor hay presses; grain drills and seeders; full line of chilled plows; grain binders and corn binders; hit-and-miss and volume-governing gasolene engines.

To get this book, free, state what special implements you are interested in and ask for the book as Package No. X-111.

John Deere, Publicity Department, Moline, Illinois

JOHN DEERE
MOLINE, ILL.
THE TRADE MARK OF QUALITY MADE FAMOUS BY GOOD IMPLEMENTS

Established 1888. Twenty-seventh Year.

The California Cultivator

Rural California Combined with the California Cultivator

A Journal of Horticulture and Agriculture

By
THE CULTIVATOR PUBLISHING CO., Inc.
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Thursday, March 11, 1915

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

FREE SEEDS

The agricultural committee of the national congress reported unfavorably as to the continuation of the free seed distribution. But this report did not appeal to congress, and the continuance of this most objectionable practice was forced through. It is a petty graft which will some day be wiped out, but it is astonishing the hold it has on the minds of our representatives and senators. The seeds may prove good vote getters but as a rule they are outrageously poor crop producers.

FARM BUREAU

The first annual meeting of the San Diego County farm bureau is to be held within the Panama-California Exposition grounds on Saturday, March 20. The full day's program has been prepared and appears on another page. The San Diego people are fully alive to this matter of getting the benefit from their farm adviser. They have arranged a good program, and every producer in San Diego County will do well to attend his exposition the day of the 20th and listen to the good things which are offered in the farm bureau meeting. There never was an exposition that had a more beautiful setting than that at San Diego. It's worth a trip across the continent.

PARCEL POST INSPECTION

Commissioner Cook writes of his satisfaction in the passage by the national congress of the bill which permits horticultural commissioners to inspect packages of plants, seeds or bulbs coming through the mails. This inspection has been permitted by some postmasters, but as a matter of courtesy rather than a matter of right to the fruit growing interests of the country. Now the inspectors will have authority. This bill has been encouraged by the office of the state horticultural commission and in fact by all who have the best horticultural interests of the country at heart. We hope this bill will prevent the spread of fruit pests.

NATIONAL LIVE STOCK

The American Live Stock Association is extending a general invitation to attend its 18th annual convention which will be held in Hall A of the Exposition Memorial Auditorium in the civic center of San Francisco, March 24-26. There will be morning sessions only; afternoons and evenings will be given up to the exposition. This will be one of the most notable meetings ever held by representative live stock organizations, and prominent stockmen from all states of the West will be there. March 26th has been designated by the exposition officials as live stock day. The president of the association is H. A. Jastro of this state.

POPPIES

More wonderful than ever are the California poppies of 1915. We have been hoping for liberal rains that our visitors during the exposition year might be granted the sight of California poppies at their best. The rains and the poppies have both made good. There is one in this office gathered in fields where no cultivation has been given. It has a wonderful golden sheen and measures six and one-eighth inches from tip to tip. Perhaps if we were compelled to be absolutely correct we should say its measurement is six inches, but for a good story you will pardon us for saying it is six and one-eighth inches. It is one of many gathered at random in the same field and all run very large. In the neighborhood of large towns, the townspeople and the tourists have to a certain extent reduced the number of flowers and acres and acres of the yellow gold are no more, but our state flower is still a wonder and we are all proud of it.

LIVE STOCK AT P. P. I. E.

The foot and mouth disease has proved most embarrassing to Mr. Lively and to all who are interested in producing the greatest exhibit of live stock ever brought together, as was the intention of the management of the Panama-Pacific International Exposition. The outbreak of the disease has prevented the installing of any exhibits as yet, but we are glad to say that a determination exists to gather together such an exhibit and that it will be installed before many weeks. It was recently our pleasure to have a few minutes conversation with Secretary Wm. Caldwell of the American Guernsey Cattle Club. While the quarantine exists as at present, it is impossible for stock to be brought from east of the Rockies, but Mr. Caldwell assures us that so far as Guernsey cattle are concerned there are some exceptionally fine herds in California and other coast states. His mission to the coast is to encourage owners of this stock to exhibit. We have not learned as to whether all arrangements have been completed, but we are glad the Guernsey people are taking this step and hope other associations will see that their breeds are represented.

STATE ASSOCIATION

Perhaps the state in which farmers are best organized is New York. There are several horticultural associations, a general agricultural association, together with many gardeners, florists and other similar societies looking after the interests of their members. One of the most enthusiastic members of several of these associations is Mr. George T. Powell of Ghent, New York. When the matter of a general agricultural association for California was explained to him, he endorsed it and said he felt that with little question such an organization in this state would have a great future. The general agricultural association in New York hardly covers as much ground as is proposed in the California organization. In New York the state agricultural society encourages farmers in making exhibits at the state fair, also at its annual meetings has a fine exhibit. The same is true of both of the large horticultural societies, and in addition they have exhibits at the time of their annual meetings.

There certainly is opportunity for California to take an advanced step which may be an example for every state in the Union. Let it have to do with the scientific side of agriculture, with that which is cultural, and surely with the economic. Let it not take the place of any existing organization, but let it advance the interests of all and encourage greater cooperative effort of every kind on the part of the producer.

"I find the Cultivator very helpful in my work—gardening. I think the Cultivator the most helpful paper in the country and like very much the 'Questions and Answers' department, also 'Poultry for Profit' and especially 'The Lawn and Flower Garden.' I am an Eastern gardener and gardening is so different from the Eastern way (New York) that a private gardener must learn a great deal here in California before he can hold a good responsible position.—W. Andress, El Monte."

NEXT WEEK

Next week's number of the Cultivator will have matter of special interest to citrus growers. We regret that we cannot give any golden rule for securing a reasonable price for the best fruit ever shipped out of the state. The present poor market is due to conditions beyond the realm of the Cultivator or of any cooperative organization or of any nation at this time, and these same conditions are affecting all fruits and nearly all produce. This particular matter of marketing will be discussed by Mr. G. W. Waterbury, though, as we say, perhaps he cannot solve the problem.

We have asked Prof. J. Eliot Coit for an article, and it should be something exceptionally good because, as our readers know, Mr. Coit has just finished writing a book on citrus culture which is now on the press. It is announced that this book will be ready for distribution sometime during this month. In answer to our request for an article Dr. Coit writes, "There has been an article buzzing round inside of me for some days past, and after receiving your request I concluded that now is a good time to get it into shape." We believe that Dr. Coit will give Cultivator readers some of the very best of his thought on "The Value of the Careful Handling of Citrus Fruits."

There will be other articles of special interest, and one of the best features will be the household department in which all things citrus will be considered.

Agricultural Notes

The American Association of Nurserymen will meet in its 40th annual convention at Detroit, Michigan, June 23-25.

The Ottawa, Canada, Household League has opened a depot for the sale of household necessaries at cost of distribution.

The cotton boll worm is causing serious damage to this year's cotton crop in this island of Cyprus in some cases causing a loss of 50 per cent in yield.

The Cuban National Horticultural Society is urging the secretary of agriculture to send experts throughout the groves of Cuba and the Isle of Pines to determine if any citrus canker is present.

Operations in the Canadian beet sugar factories for the 1914 season commenced on October 1, and during the month 12,295,200 pounds of raw beet sugar were made from 48,480 short tons of roots worked.

Our surplus food products cannot go to Europe now because present freight rates are more than five times the normal rate. Normal rates from the Atlantic seaboard to Rotterdam are about $2.50 per ton.

It is reported that the Austrian government has issued a peremptory decree that every land holder sow every available piece of land with spring wheat. Failure to comply is punishable with heavy fines and imprisonment.

Seventy-five carloads of oats intended for export have recently been seized by the federal authoritives because they were found to be adulterated within the meaning of the food and drugs act. The adulteration charged is the addition of feed barley or water or both.

The appropriation of $35,000 to fight the citrus canker in Florida became available January 25 when President Wilson signed the urgent deficiency bill. This amount was incorporated in an item making this sum available upon the bill becoming a law. The danger from citrus canker to the citrus industry of the entire nation was shown conclusively and the item was inserted in the bill without severe opposition.

The department of agriculture on February 15 extended its quarantine regulations against foot and mouth disease to include all territory east of the Mississippi River and north of the state of Tennessee. Shipments from this territory to the south or west cannot be made except of animals to be killed within 48 hours. The state of Rhode Island has ordered the closing of all slaughter houses in the state for an indefinite period.

All classes of live stock in the United States are increasing in numbers for the first time in many years. This is the information sent out by the department of agriculture. Including horses, mules, milch cows, beef cattle, sheep, and swine, there were on January 1, 1915, 7,712,000 more farm animals in the United States than on January 1, 1914. The increase in the total value was $78,024,000, or 1.3 per cent. It is quite true that this increase is not yet proportional to the increase in population, which is approximately two per cent; but the fact that there is an increase, that the tide seems definitely to have turned, is regarded as a sufficient answer to alarming exaggerations and misleading figures.

Agricultural News Notes of the Pacific Coast

Northern California

Sutter County is planting many orchards and vineyards.

Live Oak, Sutter County, observed flower planting day March 5 and 6.

Sutter County will commence its planting of rice within a very short time.

Chico and Gridley, in Butte County, have united in forming a large cow testing association.

Sonoma County farmers are holding mass meetings to discuss legislation of interest to agriculture.

The five northern counties of Shasta, Modoc, Siskiyou, Lassen and Trinity are uniting in a prosperity boost.

The Humboldt County Dairymen's Association met recently at Ferndale and discussed legislative matters.

The cost of horticultural inspection and advisory work in Sacramento County is less than $7,000 per year.

The Soscol, Napa County, farm center recently met and observed a demonstration of methods of combating hog cholera.

The Alameda Sugar Beet Company is making extensive plantings of sugar beets in the neighborhood of Davis, Yolo County.

Napa County farmers appeared before the board of supervisors recently and asked for the appointment of a farm adviser.

The California hop growers have prepared articles of incorporation and steps are being taken to finance a marketing organization.

Cooperative poultrymen in Sonoma County are considering the purchase of car lots of corn and wheat and other poultry supplies.

The Farmers' Club at Ukiah, Mendocino County, is organized to buy supplies for its members. It now has a sinking fund of nearly $8,000.

A half dozen large committees are working for the success of the usual farmers' picnic to be held at the University farm at Davis, April 24.

To satisfy a judgment an irrigation ditch near Placerville, El Dorado County, which cost nearly $3,000,000 was sold under the hammer February 23.

The Alameda Sugar Beet Company in annual meeting reported beets produced in Glenn and Yolo Counties last year aggregated in value nearly $60,000.

The shipments of butter from Humboldt County for the past year aggregated 5,124,000 pounds and brought to the county almost a million and a half dollars.

Sheep buyers are finding difficulty in securing as many sheep as desired, and they are offering $6.50 per head in the neighborhood of Dorris, Siskiyou County.

Professor Horne of the bureau of plant pathology, University of California, has been experimenting with the use of bisulphide of carbon in destroying oak root fungus in an orchard of Napa County.

The Ferndale Cow Testing Association recently met in annual meeting and elected president, Axel Quist; vice-president, Harry Hurlbutt; secretary, treasurer and manager, Bernard Crowley.

Central California

Oakdale, Stanislaus County, is planting rice.

Another suit is on involving the waters of Tule River.

Dinuba, Tulare County, is working for a free produce market.

Hanford is already planning for its next Holstein-Friesian sale.

Pomona Grange of Tulare County meets in Visalia this week.

A herd of 81 steers was recently sold by a Visalia stockman for $5,650.

The grange of Dinuba, Tulare County, is moving for a cooperative cannery.

Producers in Southeastern Tulare County are demanding better county roads.

There are nearly $3,000,000 worth of raisins in the hands of California producers.

Farm Adviser Lyons of San Joaquin County is forming boys of Ripon into farm clubs.

The creamery at Salinas, Monterey County, manufactured 250,000 pounds of butter last year.

The San Joaquin County farm bureau is aiding in the forming of a cow testing association.

Prof. Bioletti recently met with vineyardists of Dinuba and demonstrated vine pruning.

The Porterville Cooperative Cannery shipped over seven cars of canned fruits last week.

The creamery at Exeter reports an increase of 50 per cent in the amount of butter fat delivered.

Atwater, Merced County, is planning for a drainage district which will cover about 30,000 acres.

Santa Clara and Santa Cruz Counties are uniting in a thoroughgoing squirrel eradication campaign.

Clovis, Fresno County, recently held a mass meeting to discuss formation of a cooperative creamery company.

It is estimated that $150,000 will be saved to the fruit growers of the state because of reduction in packing rates.

The California Green Fruit Association has voted a fund of $10,000 to widen the market for fruits produced by members of the association.

Hanford, Kings County, claims that corn will be planted in that section this year so extensively that there will be one field of nearly 30,000 acres.

The California Associated Raisin Company now has an ambition to secure within its control full 100 per cent of all the raisins grown in the state.

An expert on silos has been engaged by lumber companies of Modesto to demonstrate as to silo construction and to give advice on general farm practices.

One of the biggest productive industries of Stanislaus County, is that of beans. It is predicted that this year's planting will be nearly four times that of last year.

Manager Madison of the Associated Raisin Company has submitted his annual report. The report shows 67,000 tons of the present crop have been sold and that there are about 35,000 tons yet on hand.

Southern California

Heber, Imperial County, is already planting watermelon seed.

Santa Ana walnut growers have decided to build a new packing house.

The Western Fruit Jobbers are planning to boost for Orange Day, March 20.

The holdover lima bean crop is larger than any preceding year at this date.

It is said Imperial Valley's plantings of cantaloupes will be greater than ever.

It is estimated there are 100,000 acres in California producing lima beans.

Ventura County's farm adviser attended the state meeting at Berkeley recently.

One rose nurseryman at Hemet recently shipped a carload of roses to St. Louis.

Carpinteria, Santa Barbara County, will plant more lima beans than any preceding year.

The Riverside County Beekeepers' Club held its regular session at Riverside last week.

Saturday, March 20, is Farm Bureau Day at the Panama California Exposition, San Diego.

The farmers' club at Mound, Ventura County, was addressed last week by a real live senator.

Farmers in the Victorville section of San Bernardino County are making many improvements.

The San Diego Floral Society will hold three flower shows during the Panama California Exposition.

Talbert, Orange County, has organized a boosters' association to make known the merits of that section.

The Riverside Fair Association has been planting several hundred eucalyptus and pepper trees on its grounds.

A campaign is being made in Oceanside and Escondido to secure more general planting of canning tomatoes.

Orange County is planting a large number of Cedrus deodara recently received from France along its roadsides.

The watersheds back of San Bernardino are said to have snow anywhere from six to 16 feet deep, and Bear Valley Lake is frozen to a depth of 14 inches.

H. M. Armitage of San Diego County has been appointed county horticultural commissioner to succeed Mr. Weinland, who has become county farm adviser.

Fallbrook, San Diego County, has already received about 20 inches of rainfall. The extreme southern end of the state has done itself proud this year in the matter of precipitation.

San Fernando, Los Angeles County, is planning for the very general observation of Orange Day and will devote the entire week to the celebration and to promoting the plan of "Buy at Home."

A more discouraging situation never faced the citrus growers than at the present time. The war, hard times, immense crops and lines of commerce so clogged as to be unable to deliver fruit are all causes.

The Coast

Chandler, Arizona, has baled over 1800 bales of cotton.

Hop growers of Oregon are planning a state organization.

Western Montana is shipping large quantities of butter to the Eastern markets.

The first shearing in Eastern Oregon took place near the end of February at Pilot Rock.

The supreme court of Washington has decided in a suit that potatoes are a horticultural product.

The Arizona experiment station is calling attention to the need for more hogs to be produced in that state.

The Southwestern New Mexico Cattle Growers' Association will hold its next meeting at Silver City April 2-3.

Farm Adviser Armstrong of Maricopa County has taken up his work in the Salt River Valley section of Arizona.

Cattlemen of Cochise County, Arizona, attended the Pan-Handle Stockman's convention at El Paso last week.

The United States congress has appropriated almost a million dollars for canal extension on lands under the Yuma project.

The Colorado agricultural college is making investigations as to best methods of incubation and general poultry practice.

Glendale, Arizona, claims the record of shipping the greatest number of live stock of any station on the Santa Fe in that state.

The poultry and egg people of Texas have organized a state marketing association in the hope of securing more of the customer's dollars.

Two cars of pure bred Herefords have been received by Maricopa County cattlemen to be used to grade up many of the herds of the county.

Live stock men of Eastern Washington are increasing their holdings in anticipation of a later slump in grain prices when live stock prices will surely advance.

Being unable to make European shipments of Newtown pippins, the Hood River apple growers are putting them into Portland markets and retailing at $1.25 per box.

High grain prices have discouraged many from continuing in the hog business near Pullman, Washington, but others are maintaining that averages will justify continuance.

The Arizona agricultural college has a state club agent engaged in extension service who is visiting schools in various parts of the state urging the formation of canning and other agricultural clubs.

The Arizona honey exchange recently met at Tempe, transacted general business and elected officers for the coming year. The president is J. L. Johnson of Tempe, and the secretary M. G. Frizzelle of the same place.

Live stock men of Washington met in January at Pullman, Washington, and since that time have been busy discussing ways of increasing interest in the live stock industry. A stock show with liberal cash premiums will be held.

SUDAN GRASS CROP ON E. J. COWART FARM, NEAR LUBBOCK, TEX.

Grow your own forage—don't keep on buying it. That's the only way to make your live-stock—whether beef or dairy—pay you the biggest profits. You'll never do it when you have to buy feed to carry them through to pasture time each year. Plant

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¶ The wonderful, never-failing, big-yielding forage crop. It will provide hay and ensilage enough to do away with all feed buying at top prices in the spring. Splendid for conditioning animals—work or driving, beef or milk—is rich, succulent, nutritious.

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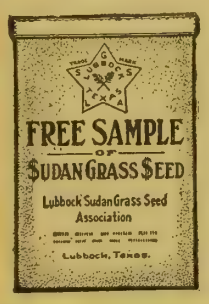
¶ The foremost Government authorities are on record to the effect that Lubbock County, Texas, is one of the best seed-producing centers in the United States. BUY NOW if you want the pure, guaranteed ASSOCIATION SEED. There will be a big shortage before planting time comes.



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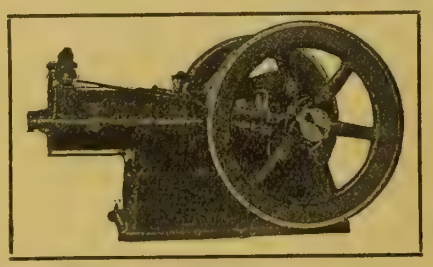

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Positive Delivery at Varying Heads.

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Before you install a pumping plant it will pay you to investigate.
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See Announcement at Head of Editorial Page

Live Stock and Dairy

STANCHIONS

As there are several of our subscribers who have written asking for best method of arranging stalls, and especially of building stanchions, we quote from a recent circular of the department of agriculture, "Conveniences for Handling the Farm Cow and Her Products."

An improvement in the conditions under which cows are kept on the average farm will greatly lessen the labor required in their care, make it more pleasant, and at the same time cause the cows to produce more milk.

Cow Stall

The cow must be kept in clean, comfortable quarters in order to produce the largest quantity of milk and butter. The essentials of such quarters are: Plenty of light, plenty of fresh air, with no drafts, convenience, a floor that can easily be kept clean.

Figure 1 shows a diagram of a simple and convenient arrangement of cow stalls. The cow stands on the platform (a) with her head through the stanchion (b), which is used to tie her in the stall. The gutter is to catch the droppings and urine, keep them out of the way of the milker, and also to prevent the cow from becoming soiled when lying down. The stanchion shown in figure 2 takes the place of a rope or halter. It is hung in the frame (e) with a few links of a chain at the top and bottom, which allow it to swing and be comfortable for the cow. The stanchion is fastened to the sill, which forms the back of the trough. One side of the stanchion opens on a pivot, closes in a slot, and is held fast by a wire loop or a pin placed in a hole bored through the top of the stanchion and piece that opens. The bottom of the feed trough is two inches higher than the platform upon which the cow stands. The floor of the feed trough and stall should rest flat on the ground. Concrete is preferable for the platform, gutter and feed trough, but sound, smooth boards or plank can be used. A wooden floor must be kept in repair so that liquid will not leak through and puddle underneath and cause bad odors. A leanto can be fitted up with this stall and made a very clean and convenient place to keep cows. Where barn room is scarce, the cows can be kept in these stalls at night and in cold, bad weather with no discomfort to them. When this is done, plenty of bedding, such as straw, leaves, etc., should be put on the floor of the stall.

Calf Stanchion

All calves when a few days old should be taught to drink milk, as this makes their handling less troublesome, and if a clean, warm stall equipped with stanchions for confining them while eating is provided, their feeding will be no more trouble than feeding pigs. Figure 3 shows how these stanchions are made. A circular on the subject of feeding calves can be obtained by writing to the dairy division, bureau of animal industry, department of agriculture, Washington, D. C.

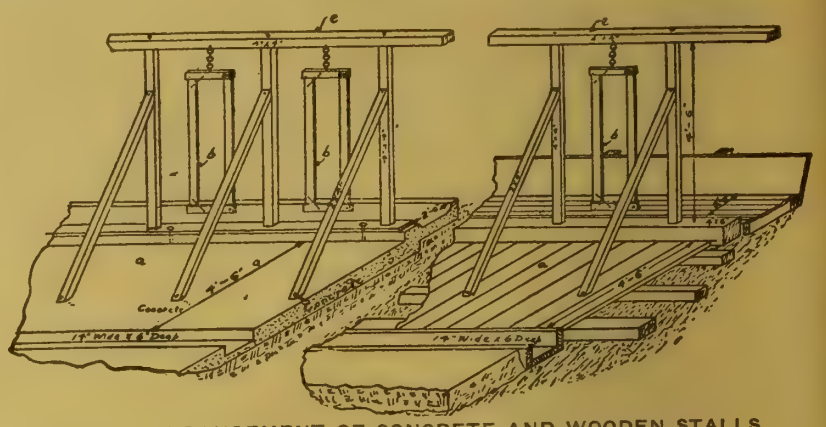

FIG. 1.—ARRANGEMENT OF CONCRETE AND WOODEN STALLS FOR COWS

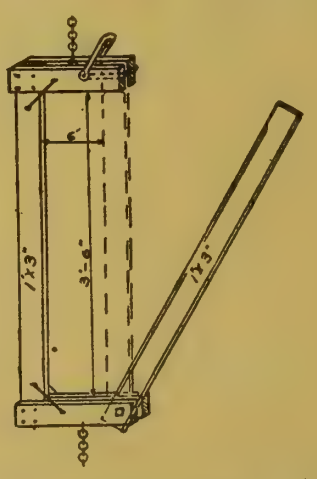

FIG. 2.—DETAIL OF STANCHION FOR HOLDING COW

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IT HAS NO EQUAL

For the Human Body —It is penetrating, soothing and healing, and for all Old Sores, Bruises, or Wounds, Felons, Exterior Cancers, Boils Corns and Bunions, CAUSTIC BALSAM has no equal as a Liniment.

We would say to all who buy it that it does not contain a particle of poisonous substance and therefore no harm can result from its external use. Persistent, thorough use will cure many old or chronic ailments and it can be used on any case that requires an outward application with perfect safety.

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KEEP SHEEP FROM THE "DEATH CAMAS"

Keep your sheep from the death camas (zygadenus), says the United states department of agriculture to ranchmen. Cattle and horses should also be kept from this herb, although actual fatalities from the poisoning are almost entirely confined to sheep. Nausea, muscular weakness and coma are some of the principal symptoms of the poisoning. There is no satisfactory medical remedy, but affected live stock, if kept quiet for some time, will often recover.

The death camas (zygadenus) is most dangerous early in the season, not because the plant is more poisonous at that time, but because it is more likely to be eaten at that time when other forage is dry. Later, sheep are less likely to eat a large quantity, because of the greater abundance of other food. As a matter of fact, most of the cases of extensive poisoning have occurred before the flowering of the plant, which occurs in the late spring.

It is impossible to make even an approximate estimate of the losses of sheep because of the zygadenus, but it is certain that they are very heavy. Investigations have led specialists to believe that many of the losses in Oregon, Utah and California, which were ascribed to other poisonous plants were really caused by the death camas, and without doubt this plant is one of the sources of the greatest losses to sheep owners in Wyoming and Montana. It is said in 1909 in one county in Wyoming 20,000 sheep died because of the zygadenus.

Description of the Death Camas

The death camas may be recognized by noticing its leaves which are grass like, long, narrow and

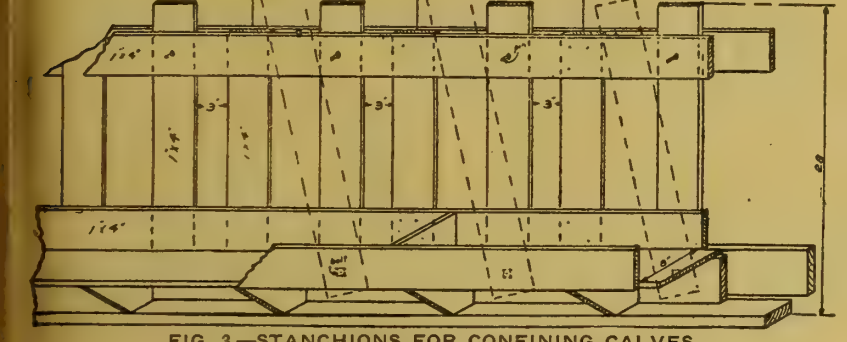

FIG. 3.—STANCHIONS FOR CONFINING CALVES

haped as though they had a keel. They grow from a bulb. The flowers are greenish-yellow or white. The plants are perennial, blossoming n the late spring or early summer nd then disappearing.

This poisonous herb occurs abundantly in the mountain regions of the North, and although found very widely throughout the United States, it s only in the Western region that it as become of sufficient importance o be noticed. The plant is sometimes called wild onion; other names pplied to it are the soap plant, alkali grass, squirrel food, mystery rass and poison sego.

There have been cases of human oisoning as well as stock poisoning s the result of eating the deadly erb. Most of the cases have been hildren who found the bulbs attractive and have collected them instead f the edible camas. There have een a number of fatalities, although ost cases recover.

A new bulletin of the United States epartment of agriculture (No. 125) ives a more particular description f this plant with illustrations which ill be of interest on Western stock anges, although it has been written ore particularly as a professional aper giving an account of the various remedies for the poison, which ave been tried.

ROTECTION OF WOUNDS OF ANIMALS AGAINST FLIES

When an animal is wounded it is important to treat the wound in such way as not to prevent its healing nd yet to prevent screw worms and ouse flies from attacking the open urface, laying eggs or carrying infecon to the animal.

The screw w rm particularly deposits eggs in wounds, and there are other flies that may deposit their eggs in this way. The larvae or maggots hatching from these eggs infest the wound and burrow more or less extensively in the surrounding tissues so that serious damage may result.

The house fly alights on wounds to suck up the exudate and is a cause of considerable annoyance to animals. It prevents wounds from healing and may introduce agents of infection which adhere to its body.

The department in a bulletin on repellents for protecting animals from the attacks of flies, quotes the following formulas for application to wounds.

Formula No. 1—Oil of tar, 8 ounces; cottonseed oil to make 32 ounces.

Formula No. 2—Powdered naphthalin, 2 ounces; hydrous wool fat, 14 ounces; mix into an ointment.

Formula No. 3—Coal tar, 12 ounces; carbon disulphid, 4 ounces; mix, keep in a well-stoppered bottle and apply with a brush.

Mixtures Nos. 2 and 3 are said to adhere to moist surfaces, and No. 3 in said in addition to form a coating over raw surfaces and protect from the screw worm fly.

The editor at the close of the article in which the above formulas are given adds the following formula: Oil of turpentine, 1 dram; phenol, 1 dram; cottonseed oil, to make 4 ounces; mix and apply freely to wounds.

It is stated that this remedy is highly effective and is used widely in the South. It is said to induce healthy granulation of wounds.

FEEDING MOLASSES

The value of molasses as a stock food is not as well understood as it should be. Experiments made in various states show that in a great many instances this feed might be used by the average farmer with profit.

The real feeding value of molasses lies in the amount of sugar it contains, but at the same time it is a splendid appetizer and frequently makes poor hay and other feeds more palatable. It can be fed to all classes of live stock but is probably more suitable for horses and fattening cattle. In the South horses and mules have long been fed on molasses. A government bulletin states that in Louisiana the general custom is to feed the molasses from a large trough, allowing the mules to eat all they wish. It is said they will eat from eight to twelve pounds per head daily. In other places the molasses is diluted with water and sprinkled over chopped hay that is fed to horses.

Perhaps the Texas experiment station has investigated the value of molasses for fattening steers more thoroughly than any other state. In one experiment with feeding yearling steers when molasses was added to a rotation consisting of cottonseed meal and hulls it resulted in a greater and cheaper gain, the steers receiving it gaining 3.11 pounds daily, while those not receiving it gained 2.59 pounds. These results were verified in later experiments.

An investigation made at the Maryland station showed that when molasses was diluted with an equal weight of water and sprinkled over the feed given to cattle the digestibility of both hay and grains was increased. The station authorities say: "These results show that the addition of molasses to a ration has a tendency to increase the digestibility of both hay and grain feeds. This coupled with the generally observed fact that molasses contributes toward making feeds more palatable and also acts as

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every year you use a
Cream Separator

NO other machine or implement used on the farm receives anywhere near such constant use, nor is there any other farm machine or equipment with which quality of work means so much and first cost means so little.

If the separator runs hard, gets out of order or isn't easy to wash, it's a constant bother, and it only takes a very little loss of cream at each separation, when multiplied 730 times, to run into a good deal of money, very soon more than the original cost of the machine. But no matter how small the loss, it is too big a handicap for any cow owner to try to work with.

As a matter of fact, the men who know most about cream separators, the creamerymen, long ago came to the conclusion that the De Laval was the only machine they could afford to use. That's why 98 per cent of the cream separators used in Creameries and milk plants the world over are De Lavals.

All the more reason
why you should buy a
DE LAVAL

No matter where you go you will find the biggest and best dairymen almost invariably are De Laval users. Experience has taught them that it is the best and most economical cream separator.

You don't have to experiment with cream separators any more because the men who are best able to judge as to the merits of the cream separator have already done that for you, and the result of their conclusion is evidenced by the practically exclusive use of the De Laval in creameries and milk plants and the fact that over 1,750,000 farm and dairy size De Lavals—more than all other makes combined—are in daily use.

The nearest De Laval agent will be glad to set up a machine for you and arrange for payment of same as is most convenient. If you don't know the local De Laval agent, simply address the nearest main office as given below.

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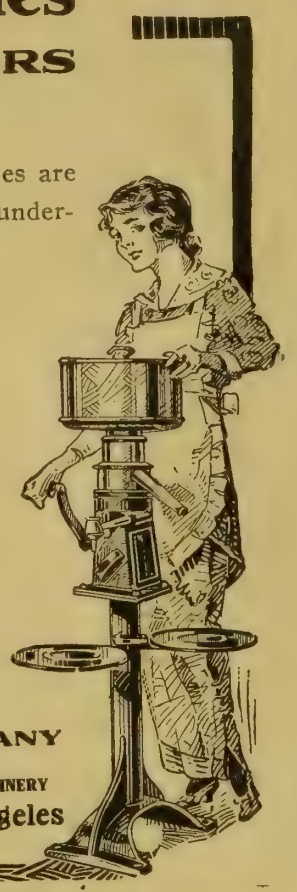

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will reduce inflamed, swollen Joints, Sprains, Bruises, Soft Bunches; Heals Boils, Poll Evil, Quittor, Fistula, or any unhealthy sore quickly as it is a positive antiseptic and germicide. Pleasant to use; does not blister under bandage or remove the hair, and you can work the horse. $2.00 per bottle, delivered. Book 7 K free.

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For Worms in Horses and Cattle.

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High Grade Stock of Best Strains.
Young Stock For Sale
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Room 605, 444 S. Broadway, Los Angeles

When writing advertisers, mention the Cultivator.

an appetizer gives molasses a relatively high place as a stock food and makes it more valuable than its analysis alone would indicate."

We bring up this subject at this time because, as we said in the beginning, we do not believe farmers understand the real value of molasses and molasses feeds. We do not advise that every farmer rush off and buy a barrel of molasses or a ton of molasses feed but we do suggest that it might be to his advantage to investigate the matter a little further and perhaps make a trial of this class of feeding stuffs. Personal experience is more convincing than anything we might say.—Farmer's Guide.

The United States Live Stock Sanitary Association announces that its 18th annual meeting at Chicago will be the most important live stock meeting of the year. The regular sessions will be thrown open so that farmers and stockmen interested in control and eradication of foot and mouth disease may have every facility for hearing this matter thoroughly discussed by federal and state officials.

It is not enough that the dairy herd as a whole is paying a profit; each cow in the herd should be contributing her share toward the total profit. In a profitable herd some cows may be good enough to pay their own board bill and that of two or three unprofitable cows as well. Test your cows.

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Bleeding from Ear

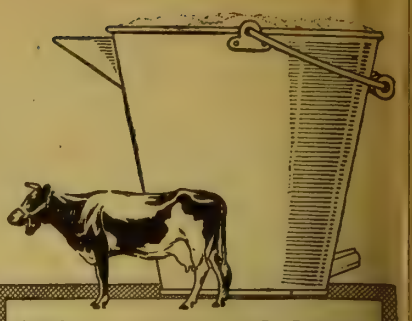
I have a fine Angora cat, about two and one-half years old, and for about a year have noticed an occasional bleeding from the right ear. Lately it has become more frequent. There seems to be no pus and no odor. The cat seems to be perfectly healthy in every other way and is not deaf. What is the cause, and is there a cure?—Subscriber, San Bernardino.

It may be caused by a small wart or a spot of eczema. If you can reach the spot where the blood starts apply a few drops of adrenaline. This will do no harm if dropped into the ear and allowed to run back as far as it will.

Bloating

Would like to have you recommend a remedy to me for cattle that are inclined to bloat.—Subscriber, Holtville.

Bloating is usually caused by feeding on pasture in the morning when the dew is still on the grass or in the afternoon, when the grass is hot from the sun. These conditions cause indigestion, which forms the gas. Cattle usually eat too much anyway, and if allowed to be in pasture for two or three hours after the dew is off, a short time again in the evening, allowing the rest of the time for ruminating, they would get enough to eat and would be less liable to bloat. The best remedy for bloating is a pint of raw linseed oil, with two ounces of turpentine in it. If necessary repeat the dose in an hour or two. Also tie a large hay rope in the mouth. This will act as a gag and they will belch up the gas. In case of extreme bloating it may be necessary to puncture the side and let the gas escape that way. This must be done on the left side at the highest point. Use a trocar and canula, or if that cannot be had use a common knife. Plunge it in and turn it a quarter way around. In extreme cases you must act quickly, as they do not last long.



The Size of Her Yearly Milk Pail

Many cows are really capable of a greatly increased milk yield but do not do their best through a chronic sluggishness of the digestive organs. Such cows need a medicine—just as human beings occasionally need medicines.

KOW-KURE is a scientific cow medicine, which has a direct and lasting tonic effect on the organs of digestion. For over twenty years it has been the standard medicine for the prevention and treatment of such common cow ailments as Abortion, Retained Afterbirth, Barrenness, Milk Fever, Scouring, and Lost Appetite.

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Our valuable treatise on cow diseases—"The Cow Doctor" is yours for the asking.

Dairy Association Co.,
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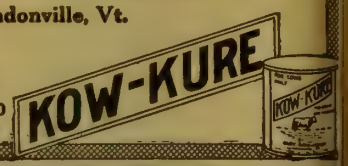

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For Sale:- REGISTERED JERSEY CATTLE. Both Island and American Types. J. D. Huston, Farm address, Imperial, Cal. Home address 1725 W. Adams Los Angeles

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Section Line Across Railroad

Have a section line for my north boundary, county line just west of the house. The county line intersects the railroad about the same distance from the building that the section line does. The superintendent promised me a crossing at one time. Now he refuses. Does or does not the state road law compel railroads to open up section lines and county lines over their tracks? I need the crossing badly; as it now is I have to go around two miles and pass over other property—Subscriber, Thalheim.

According to the United States land laws there is at present reserved along section lines a space for roads. The property of which you speak, however, was undoubtedly originally granted to the railroad. The state railroad commission at the present time has entire jurisdiction over crossings over railroads and the railroad would be subject to their order.

Payment Questioned

A leases land from B, paying the rent on the first of each month. According to B's books at the end of the year it appears that A has not paid his rent for the month of June. A's books show that he has. B was not in the city when A claims that he paid. A has no receipt for the money. Can B proceed to collect the rent for June?—Subscriber, Nestor.

The book entry is not as good as a man's sworn statement, and it is a pure question of fact whether he has paid or not.

Witnessing Will

In regard to witnessing a will as referred to in the issue of the California Cultivator of February 18, is your reply applicable only to a citizen of the United States, or to any other nationality? I am a British subject.—Subscriber, Los Angeles.

If the requirements for the execution of a will are met, no matter where the will was executed or by whom, it may be probated within this state and may pass property within this state. If the will is not executed in accordance with the laws of this state, even though valid where executed, it cannot be admitted to probate, nor can it pass title to real property within this state. The same is true of other states and countries. No question of citizenship arises.

Determining Line

A and B own adjoining lands. A survey has been made, the line of which is, however, disputed. A proposes a new survey but B refuses. Can A, should he employ a competent surveyor, enforce the survey of such surveyor?—Subscriber, Valley Center.

The only method in which you can procure a legal enforcement of your survey would be by bringing action to have the line determined and procure an order appointing a surveyor to make the survey. If you have judgment in such action you could recover the cost of the survey. If the line adjudged was the original line of your opponent you would of course lose.

Umatilla County, Oregon, reports material reduction in the number of swine in that county.

KNOW THE TREES

(Continued from Page 299)

ture of both sections of the tree tribe or in muddy or cool localities, all deciduous, or dropping their leaves in winter. Do not quarrel over what you should plant, but plant some kind of tree in uniform kind and ranks. Better spend your money in roadside embellishment of a permanent nature, as exemplified in trees than ten times that amount in gas-pipe fence panels, as one county has done. Use available funds economically and for permanent beauty and utility.

Carob or St. John's Bread

Ceratonia Siliqua, the carob, is going to be more widely planted in future, not only in parks and gardens, but on streets and highways; perhaps in orchards as an economic asset. Since the cold snap of January, 1913 I have been looking them up and find very few were injured by cold anywhere in California and as for climatic range they thrive from here down through Mexico, Central and South America, to where they again meet heavy frosts in the south temperate zone. They are a handsome, sturdy, hardy tree, splendidly adapted to dry soils yet responding promptly and satisfactorily to good care and culture.

A Fine Evergreen Shrub

A few days ago a ranch owner asked me to name an evergreen shrub of rapid growth that would stand harsh treatment or neglect and still remain a healthy green, spreading its generous mantle over the naked earth to hide its bareness, though never a flower was produced.

Looks like a hard nut to crack, but it isn't. Leptospermum laevigatum will do and will please you well if you don't mind the name. It is closely allied to the eucalyptus, though from its splendid spreading habit and small dark-green leaves you would not suspect it. But the blossoms quite strongly resemble those of the common blue gum, and this shrub will rival the eucalypts in growth where soil and water both are in scanty supply. For shrubby masses in any and all soils and under many varying conditions it has very few rivals and no superiors. Its value is rapidly becoming a matter of common knowledge and each succeeding year witnesses a heavier demand for it for general planting, in mass, or singly, in park, garden or for wild hillside cover.

Plant Rocky Hillsides

In all parts of California, yet more marked in the south, are countless square miles of barren, rocky hillsides, unrelieved by any plant of fine dark green or of any impressive size. Just a few good pines to the acre would change this aspect most pleasingly and effectively. It is not necessary to have forests. Plant a few, sparsely; the general effect will satisfy, and each year you may add a few more small trees. Pines are the better trees for this purpose. Use Mugho, Jack, Canary Island, Aleppo, or even the native Monterey. All are good, fairly drouth resistant, and will soon work a wonderfully satisfying effect on the general landscape and add to all surrounding land values.

Plant Now

During the next 30 days should be planted nearly everything to go into the garden this spring. Trees, shrubs, vines, bedding plants, bulbs, all living vegetable things that inhabit the earth are ready to respond to the call of nature at this time, and some of them are lessened in value and vigor by longer retention from the soil-mother, whence new growth will be found quickly responsive. Heed the dictates of nature at this time and "get a move on" you.

FARMERS' INSTITUTES

A farmers' institute is announced for Alpaugh, Tulare County, on March 19.

The only other institute arranged for this season is to be at Arroyo Grande on April 13 and 14. This will probably close the institute work for this season.

Cotton seed oil production in the United States is now over 200,000,000 gallons annually, or five times as much as in 1890.

Quality. Compare Prices

The Goodrich Tire, like the trained athlete, is all brawn and muscle —no fat

THE old Olympic Game promotors were great for what we call "form."

Symmetry, proportion, soundness and proper balance out-bid bulging muscles for favor—yes, and out-won, too, just as they will today.

Mere bulk never was synonymous with endurance—and the truth of this statement drives home with a bang, when you apply it to tires.

IF thick, heavy tires were the last word in tire construction, we could wipe out of existence a Goodrich Research and Test Department employing seventy people. We would take off the road a battalion of ten automobiles, that run twenty-four hours a day and every day in the year, grinding tires of all makes to pieces, just for the sake of information to us and eventual economy to the user of Goodrich Tires.

There is where we learn to cut out of a tire the material which gets the user nothing.

Of course, when we stripped tire price lists of their padding—fictitious values—we *expected* rivals to say we had stripped our tires.

IT was their only "come-back." They *had* to say that, in stripping down prices to the point where they were *fair* to dealer and consumer and left no room for injurious price-cutting tactics, we had stripped our tires of some quality, too.

THE Goodrich Tire, like the trained athlete, is all brawn and muscle—no fat. It represents an achievement—the ability to cut out the extra costs of manufacture, the extra costs of labor, of extra, needless material, and to give you the best, long-mileage, high-standard tire in the world.

There are padded tires as well as padded price lists.

Don't pay for padding.

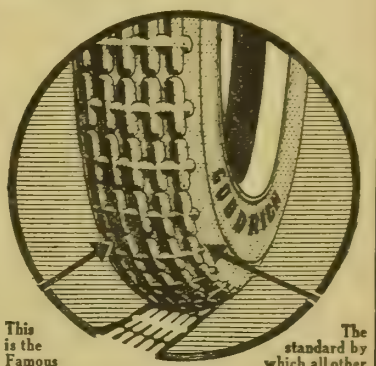
Now don't forget this—we are talking in the main about Goodrich Safety Tread Tires, for they represent ninety per cent of our factory output for resale.

Furthermore, while we have put the padded prices on smooth tread tires on the run, the evil of padded prices on non-skid tires still is in evidence, as shown in table below:

Note the following table of comparative prices on non-skid tires. Columns headed "A," "B," "C" and "D" represent four highly-advertised tires:

Size	Goodrich Safety Tread	OTHER MAKES "A"	"B"	"C"	"D"
30x3	$ 9.45	$10.55	$10.95	$16.35	$18.10
30x3½	12.20	13.35	14.20	21.70	23.60
32x3½	14.00	15.40	16.30	22.85	25.30
34x4	20.35	22.30	23.80	31.15	33.55
36x4½	28.70	32.15	33.60	41.85	41.40
37x5	33.90	39.80	41.80	49.85	52.05

If you are charged less for any other make than Goodrich, they are taking it out of the tire; if you are charged more, they are taking it out of you.



This is the Famous Goodrich Safety Tread

The standard by which all other non-skids are judged

The B. F. Goodrich Co., Akron, O.

GOODRICH Fair-Listed TIRES

POMONA
DEEP WELL PUMPS

For deep lifts, as well as shallow lifts, combined with high heads above surface and through long pipe lines. No auxiliary pump needed for forcing water above the surface.

Built and sold in California over 12 years. Hundreds of buyers will tell you they are always reliable and economical.

No pit required. Does not get oil into the water. Consumes less power per unit volume of water pumped.

Write for Catalog 103 with valuable information on irrigation.

Pomona Mfg. Co., Pomona, Cal.

Our "made right" irrigation valves are good, and not costly

One-Man Power Sprayer

A Complete High-grade Outfit for the Small Grower

Supplies one line of hose. One man does all the spraying. One horse can haul it anywhere. Will spray from 2 to 3 acres a day at small cost. Light—strong—durable. This is the

BEAN EUREKA

Equipped with Novo engine, Bean Pump, 100-gal. tank, canvas cover and curtains, patented pressure regulator, rotary agitator, truck, hose, rod, etc. Write for more details and wonderfully low price. SEND FOR FREE CATALOG 28-A, which describes the entire Bean line.

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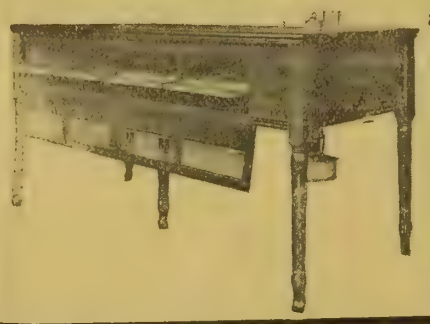
Also Lansing, Michigan

"PIONEER" Patented Incubator



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down and balance payable monthly.

We pay the freight and ship for your approval before you pay ONE CENT. Our prices are much lower than other factories. We claim and guarantee the Pioneer to be the highest class hot water Incubator on the American market. All sizes.

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Under the glass, that smooth looking spindle is as rough as sand-paper. But the ground mica in

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fills up this microscopic roughness. It's a good lubricant itself and forms a smooth, slippery, heat-resisting, wear resisting coating. Thus a very little Mica Axle Grease applied occasionally preserves this lubricating film. Mica Axle Grease saves time, money and scored spindles. Dealers everywhere.

Standard Oil Company (California)

Baby Chicks: Standard Bred. The best to be had are shipped by us every week in the year. Also Petaluma's best utility stock. Price-list and pamphlet mailed free upon request.

Now booking orders for Fall and Spring delivery.

Thomas Hatchery, Petaluma, Cal., Route D.

BABY CHICKS and EGGS

We will book your order for Chicks or Eggs for future delivery.
WHITE LEGHORNS, BLACK MINORCAS AND R. I. REDS OUR SPECIALTY.
Our Chicks are hatched in the
BEST VENTILATED HATCHERY IN CALIFORNIA.
INSTRUCTIONS HOW TO RAISE CHICKS FREE.

Hicks Jubilee Hatchery, Route 2, Box 22, Petaluma, California

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See Announcement at Head of Editorial Page

Poultry for Profit

A CHEAP BUT ADEQUATE BROODER

Written for California Cultivator
By Mrs. R. C. Hutchinson

BEFORE we constructed our present brooder system we had tried the fireless brooder and the hot water brooder. While either of these might be used with success in some climates and by persons exercising judgment and discrimination, I think that in a locality where the nights are chilly and especially where there is a sudden chill in the air towards morning such brooders are too uncertain. From our experience I am rather inclined to say that the loss of young chicks in these brooders is the only certain feature about their use. The trouble seems to be that the chicks get overheated in the hot water brooder and in the fireless brooder crowd together too closely in order to keep warm. The result in either case is the same. The chicks come out of the brooders in the morning damp, overwarm, perspiring through every pore; the cold air chills them and they stand about and shiver, singly or huddled together. The more vigorous chicks are the sole survivors though I should add that we have lost many of the strongest chicks in the fireless brooders through their forcing themselves under the others and thus being smothered.

We have come to these two conclusions: That heat is almost the most necessary factor in the development of the baby chick and that the chick, like a human being, cannot be comfortable unless its feet are warm. On this last principle we have constructed our brooder. My husband calls it "putting a hot brick to their toes."

We began by taking out the wooden floor of our brooder house. We then excavated a trench about two-thirds of the distance across the floor of the house and in this we laid terra cotta sewer pipe 16 inches in diameter. We let this pipe extend for about a foot beyond the outside wall of the house and dug a pit outside to leave room enough for putting fuel into the terra cotta pipe, which was to serve as the stove. The outer opening we closed with a sheet of iron which answered the purpose of a damper as well. Where the pipe left off, about two-thirds of the way across the house inside, we laid sections of five-inch stovepipe (terra cotta would be better) in a shallow trench and let this pipe extend about nine inches beyond the outer wall of the house, joining it by means of an elbow to a vertical piece of stovepipe provided with a damper and extending above the roof of the house to carry off the smoke. We then covered the floor of the brooder house with sand to the depth of four inches, making a solid floor of sand likewise over the sewer pipe and the stovepipe connected with it. We made a board hover two feet wide and eight feet in length. Along the long sides we tacked strips of heavy material, slit every two inches, to hang down over the edges of the board as a curtain. The board was then placed on cross pieces which held it four inches above the sand which overlaid the pipe. When a fire had been made in the large pipe and the sand had become warm we carried out the chicks from the incubator and put them on the warm sand under the hover.

It remains simply to say that we lost hardly a chick thereafter. When the little things felt cold they would run in under the hover. At night it was a pretty sight to see these chicken babies stretched out in the warm sand near the hover, each one apart from the others and each one thoroughly comfortable.

The fire was usually made about four o'clock in the afternoon. The drafts were closed as soon as the fire was burning well and it smouldered all night, keeping the sand warm until well into the next day.

We used heat for a longer or shorter time, according to the season. It was necessary later to teach the chicks to roost and we set up roosts for them in the brooder house, putting the little birds up on them until they got into the roosting habit and were large enough to be transferred to a colony house in the field.

HOW TO RAISE LAYERS

The first essential is good stock. Get the breed that you like from a reliable breeder and stick to it. I tried keeping several different kinds at one time, but I sold all but one breed and had much better success. When good stock has been selected, build good houses to put it in. Don't overcrowd the chickens.

Hatch the chicks early. I would give more for one early hatched chick than for a dozen hatched late. It is the early pullet that begins to lay in the fall and winter when eggs are high. That is where the profit is. Those hatched late loaf all winter and start laying in the spring when eggs are cheap. Don't depend on the old hens to hatch the chicks; they are not to be depended upon to set early and there are plenty of good incubators on the market. Any person with good common sense can run an incubator successfully.

A great many persons complain that incubator chicks are hard to raise. If they are hatched properly they will grow as vigorously as the hen-hatched chicks. Chilling in the incubator is one of the greatest causes of the death of chicks. Don't let them drop while they are hatching, from the egg tray into a cold nursery tray underneath. I learned this from costly experience. I was running a number of incubators of different makes and found that from some which hatched the largest number of the chicks the chicks were the hardest to make live.

This was due I found after many experiments to the space around the egg tray which allowed the chicks to drop over into the colder nursery tray. Those that dropped over while yet wet were the ones that died. After that I made a change so they did not get off the egg tray, and I have had but slight loss of chicks since. If they become too crowded in hatching I open the machine quickly and remove some of the chicks to a warm basket. When the hatch is complete and the chicks are dry, remove them to a warm brooder. Be sure they are kept dry. Another source of loss of chicks is damp brooders.

For the first few weeks I give bread crumbs moistened with sweet milk and a small amount of hard-boiled egg. Take the chill from the water which should be kept before them. After the first feed give them some good chick feed and a small amount of commercial beef scrap, increasing it as they grow older and gradually changing from chick feed to whole grain. Keep dry bran before them all the time.

When they are old enough, probably about seven or eight weeks old depending on the growth of the chicks, remove them to good movable colony houses. If there are stubble fields near they will only need feed once a day, and that at night. These colony houses should be moved occasionally to new ground. Leave the chicks in these houses until fall and put them from there into laying houses.

If chicks thus raised are well fed through the winter they will lay and will be as profitable as any stock on the farm.—Nebraska Farmer.

White Diarrhoea

The proper treatment of this and other poultry diseases is fully explained in a new booklet, "The Care and Feeding of Poultry," written by an experienced poultryman. This booklet, together with a sample of Chictone, is free for the asking. Address The Wight Co., A-91, Lamoni, Iowa.

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CORN GLUTEN MEAL
GUARANTEED ANALYSIS
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Diamond Gluten Meal

The most palatable and digestable poultry food ever produced; made entirely of corn and good enough and clean enough to serve on your table. It is especially adapted for the health of

Baby Chicks

and develops them rapidly and safely into early layers.

Compare the analysis of Gluten Meal with that of other protein foods
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Sample sent upon request

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Send for our booklet, "White Leghorn"
"BABY CHICKS"
from HEALTHY HAPPY HENS
and that helpful pamphlet,
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Free on request.
MUST HATCH INCUBATOR COMPANY (Inc.)
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Guaranteed S. C. W. Leghorn Cockerels
From Imported Stock direct from Tom Barron
S.C.W. Leghorn Day Old Baby Chicks
from American bred Utility Hens mated to Barron strain cockerels.
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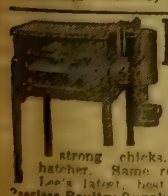

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Incubator measures and adapts heat, moisture and ventilation to each other. Gives definite proportions of each. Results, right conditions, big hatches, strong chicks. The one really scientific hatcher. Same results for all users. Investigate. Lee's latest, best poultry book free. Address
Peerless Poultry Supply Co., 409 E. 3d St., Los Angeles.

The Imperial Valley is discussing a $2,000,000 good roads bond proposition.

DON'T SELL EGGS FROM INCUBATORS

A number of poultry raisers, it seems, are putting on the market infertile eggs that have been tested in incubators from three days to a week. As soon as the breeder finds that the eggs will not hatch he takes them out and sends them to market along with his fresh spring eggs. After the eggs have been in the incubator for this period they are distinctly stale and rot very quickly if kept any length of time. Even when just taken from the incubator these infertile eggs are not fit for boiling or poaching, although they may be used for frying, and are good for cake or certain other baked goods. These eggs when they reach the market, however, are classified as low grade No. 2.

The mixing of incubator eggs with the fresh spring eggs leads the egg packers, who get their principal cold storage supply in spring, to cut the price they pay the farmer, department of agriculture investigators find. The spring eggs designed for keeping for winter consumption must be absolutely good. Moreover, the egg packers in the spring do not candle eggs but hold them three at a time in the hand and clink them to discover any crack and then judge their freshness by their fresh powdery look on the shell. The mixture of infertile incubator eggs with fresh eggs interferes seriously with this clinking and forces the packer to candle the eggs. He then deducts this added expense from the price he offers to the producer. Eggs which have once been subjected to the heat of the incubator cannot be stored, even though frozen.

The farmer who sells incubator eggs to the dealer, therefore, is very liable to injure his own market for fresh eggs. When dealers find a percentage of low grade incubator or other eggs in their fresh spring supply they lower the price for all eggs so that they will be certain that they have covered themselvs against losses from this cause. The department's specialists advise farmers to use any infertile eggs they may take from their incubators for home consumption and to send only fresh eggs to market.

WHITEWASH

Whitewash is the cheapest of all paints and for certain purposes it is the best according to Farmers' Bulletin 474. Lime, which is the basis of whitewash, makes a very sanitary coating and is probably to be preferred for cellars and the interior of stables and other outbuildings. The following directions for making whitewash are taken from "White Paints and Painting Materials," by W. G. Scott:

Ordinary Whitewash

This is made by slaking about ten pounds of quicklime with two gallons of water.

The lime is placed in a pail and the water poured over it, after which the pail is covered with an old piece of carpet or cloth and allowed to stand for about an hour. With an insufficient amount of water, the lime is "scorched" and not all converted into hydrate; on the other hand, too much water retards the slaking by lowering the heat.

"Scorched" lime is generally lumpy and transparent, hence the use of the proper amount of water for slaking and an after addition of water to bring it to a brush consistency.

Factory Whitewash

Interior: For walls, ceilings, posts, etc.

(1) Sixty-two pounds (1 bushel) quicklime, slake with 15 gallons water. Keep barrel covered until steam ceases to rise. Stir occasionally to prevent scorching.

(2) Two and one-half pounds rye flour, beat up in one-half gallon of cold water, then add two gallons of boiling water.

(3) Two and one-half pounds common rock salt, dissolve in two and one-half gallons of hot water.

Mix (2) and (3), then pour into (1) and stir until all is well mixed.

This is the whitewash used in the large implement factories and recommended by the insurance companies. The above formula gives a product of perfect brush consistency.

Weatherproof Whitewash

Exterior: For buildings; fences, etc.

(1) Sixty-two pounds (1 bushel) quicklime, slake with 12 gallons of hot water.

(2) Two pounds common table salt, one pound sulphate of zinc, dissolved in two gallons of boiling water.

(3) Two gallons skimmed milk.

Pour (2) into (1), then add the milk (3) and mix thoroughly.

Lighthouse Whitewash

(1) Sixty-two pounds (1 bushel) quicklime, slake with 12 gallons of hot water.

(2) Twelve pounds rock salt, dissolve in six gallons of boiling water.

(3) Six pounds Portland cement.

Pour (2) into (1) and then add (3).

Note: Alum added to a lime whitewash prevents it rubbing off. An ounce to the gallon is sufficient.

Flour paste answers the same purpose, but needs zinc sulphate as a preservative.

Molasses renders the lime more soluble and causes it to penetrate the wood or plaster surface; a pint of molasses to five gallons of whitewash is sufficient.

Silicate of soda solution (about 35 degrees Baume) in the proportion of one to ten of whitewash produces a fireproof cement.

A pound of cheap bar soap dissolved in a gallon of boiling water and added to about five gallons of thick whitewash will give it a gloss like oil paint.

An old receipt for whitewash, issued by the lighthouse board of the treasury department, said to be very good for outdoor exposure, is as follows:

Slake half a bushel of unslaked lime with boiling water, keeping it covered during the process. Strain it and add a peck of salt, dissolve in warm water; three pounds of ground rice put in boiling water and boiled to a thin paste; half a pound of powdered Spanish whiting and a pound of clear glue, dissolved in warm water; mix these well together and let the mixture stand for several days. Keep the wash thus prepared in a kettle or portable furnace; and when used, put it on as hot as possible, with painters' or whitewash brushes.

The washes which contain milk, flour, or glue are not to be advised for use in damp, interior places, owing to danger of decomposition of the organic matter. For such locations it is better to use one of the formulae containing none of the ingredients. Whitewash is applied with a broad whitewash brush and is spread lightly over the surface, no attempt being made to brush it in as in the case with an oil paint.

A good whitewash recommended by Dr. Coit for young trees, or where they have been heavily pruned is what is commonly known as California tree whitewash:

Quicklime	30 pounds
Tallow	4 pounds
Salt	5 pounds

Water enough to make the mixture flow freely.

POULTRY CLASSES

The poultry which has been admitted to the standard of perfection is classified by breeds and varieties. The general purpose breeds, that is, the breeds which are good layers, and also furnish a good table fowl, are classed to themselves; the breeds which are grown specially for eggs without regard to table qualities, to themselves, and those breeds which are largely used for roasters form a class, as well as numerous other classifications and divisions. The first four classes furnish the bulk of the poultry and are counted the most popular; the entire classification as given in the standard of perfection is as follows:

Class 1, American—Made up of Plymouth Rocks, all varieties; Wyandottes, all varieties; Javas, Dominiques, Rhode Island Reds and Buckeyes.

Class 2, Asiatic—Comprises Brahmas, Cochins and Langshans, in all varieties.

Class 3, Mediterranean—Consists of

(Continued on Page 311)

Tells why chicks die

E. J. Reefer, the poultry expert of 805 Main St., Kansas City, Mo., is giving away free a valuable book entitled "White Diarrhoea and How to Cure It." This book contains scientific facts on white diarrhoea and tells how to prepare a simple home solution that cures this terrible disease over night and actually raises 98 per cent of every hatch. All poultry raisers should certainly write Mr. Reefer for one of these valuable FREE books.

Lousy Poultry Can't Pay

Lice-infested poultry are a constant loss to the poultryman. Lice suck the rich lifeblood from poultry, stunt the growth of young chicks and rob you of your well earned dollars. These pests reduce the hens' laying ability. Buy an effective louse killer and use it liberally.

DR. HESS
INSTANT LOUSE KILLER

Kills Lice Instantly. Sprinkle it thoroughly on lousy hens, rub it well under the wings and neck, put it in the dust bath, in the nests, roosts and cracks. Instant Louse Killer also kills lice on farm stock, bugs on cucumber, squash and melon vines, cabbage worms, slugs on rose bushes. Comes in handy sifting-top cans.

West of Rockies: 1 lb. 25c; 3 lbs. 60c.

If not at your dealer's, write—
DR. HESS & CLARK
Ashland, Ohio

Don't Forget

That care in selecting the grain you are going to feed your baby chicks will save you lots of trouble and loss. The ingredients of

Coulson's MADE IN PETALUMA

Special Chick Food

are very carefully selected to give the best results.

Only strong wheat, sound corn, kiln dried steel cut oats and carefully selected seeds are used in its composition.

Give it a Trial

Send for free book "Chickens" to

Coulson Co. Petaluma, Cal.

Germain Seed & Plant Co.,
Los Angeles, Cal.
Agents for Southern California.

A Night Scene of 1500 Baby Chicks Asleep in Sutherland's Perfect Brooder. Note the distribution.
Write for Complete Catalogue and Prices.

Sutherland's Brooder Works
PETALUMA, CALIFORNIA

MORE EGGS
BETTER THAN THE BEST BEEF SCRAPS
PACIFIC PIONEER
AVAILABLE PROTEIN FISH MEAT MEAL FOR POULTRY
SEND FOR SAMPLE AND BOOKLET
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40 BLAKE ST.
SAN FRANCISCO CAL.
CHEAPER TO FEED
NO FISHY FLAVOR

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TREES

For Sale—10000 VALENCIA LATE
5000 MARSH SEEDLESS GRAPEFRUIT
8000 EUREKA LEMONS
12000 WASHINGTON NAVELS
Softland trees, perfect in quality, grown by us. Lowest price. Will plant if desired. Consider some exchange—now is most favorable time to make contract for next spring planting. Write or phone today for prices. Phone 559. Ward Realty Co., San Dimas, Cal.

1500 Eureka Lemons, one year; 500 Late Valencias, one year; 200 Washington Navels, two years; 400 Late Valencias, two years. Above buds are ⅝ up, splendid, thrifty, clean stock; 25c open root, 30c balled at nursery, and quality considered you cannot beat it. Grand year to plant. Call or write. Wilbur K. Howard, Loraine Ave. and Santa Fe crossing, Glendora, Cal.

Walnut Trees—Late blight resisting varieties grafted and budded on California Black and on FIRST GENERATION Royal and Paradox Hybrid roots, which are as much superior to the California Black root, as the California Black Root is to the English root—Eureka, Franquette, Mayette, Neff's Prolific, Concord and Placentia. Dr. W. W. Fitzgerald, Elks' Building, Stockton, Cal.

Home-Grown Fruit Trees—Largest assortment, including thousands of Royal Apricots, Tuscan and Phillips Cling Peaches, Pears, Apples, Figs, Grapes, etc., etc. Guaranteed true to name; strong, healthy and well rooted. Special low prices on application. Orange County Nursery & Land Co., Fullerton, Cal.

Cheap Reliable Trees—4,000 Phillips' Clings; also Tuscans, Fay Elbertas, French, and Imperial prunes, 10,000 Bartletts, 8,000 Gravensteins, Grafted Walnuts and other stock cheap. Write or wire for just what you want; Will save you money. Table Grove Nurseries, Healdsburg, Cal.

Avocados—Chappelow's only. This is the richest variety of avocados grown going over 29% fat. Trees from 1 to 5 feet. Write for price list. Chappelow's Nursery, Box 104, Route 1, Monrovia, Cal. Trees 3 to 4 feet tall, branched from open ground, F. O. B. Monrovia, $4.00 each.

For Sale—2000 Late Valencia Orange trees, two years from bud. 1800 Washington Navel, one year from bud. Al stock. Address, H. H. Eshelman, Soldiers' Home, Cal.

Buy Fruit Trees direct from the grower. Finest Apricots and Pears, 12½c, 10c and 8c. Apples, 5c; Oranges, 25c. Let me quote you on everything you need. Julius Mayr, Tree Grower, Hemet, Cal.

3000 Thoroughbred Eureka Lemon Trees—Two-year, 50c balled; 1000 Navels, 30c balled; 1000 Valencias, 40c balled; 400 Avocados, Harman variety. Special price on 50 and up. A. Z. Lane, Glendora, Cal.

Seedless Grapefruit—Limited number of fine trees, propagated from a tree brought from Florida. A superior type of Marsh's Seedless. Send for circular. G. W. Sherwood, Fullerton, Cal.

Budded Avocados—All leading varieties. Feijoas, Guavas, Mangoes, Cherimoyas. Write for prices. Edgemont Avocado Nursery, R. F. D. 2, Box 213, Pasadena, Cal

10,000 Valencia Orange Trees, ⅝ and up. Superior stock from carefully selected buds. These trees at your own price. Will trade. Twombly Ranch & Nursery Co., Fullerton, Cal. Phone 158-J3.

I Have Fine Seedling Stock, and will grow you from 2000 to 18000 good lemons or other citrus trees cheap for 1916 planting, or would let stock on shares if desired. H. Gregory, Redlands, Cal.

Eucalyptus—Orders filled by flat or carload. Correspondence invited regarding quantity and variety. Stratton's Nurseries, Petaluma, Cal.

Citrus Trees—Villa Franca and Eureka Lemons, Tangerines, Grapefruit and Standard varieties. Will consider exchange. O. E. Van Slyke, Azusa, Cal.

The Walnut Nursery still has a few Eureka, Chase and Mayette grafts. Order quick. W. A. Litten, Prop., R. F. D. No. 2, Whittier, Cal. Home phone 7863.

Budded Citrus Trees and seedlings at fair prices. Will take auto or land. Butler's Morning Side Nursery, P. O. Box 45, Lamanda Park, Cal.

Walnuts—Choice seedlings, 10c up; also grafted Chase and Placentias. Now contracting citrus and avocados for spring planting. Magnolia Nursery, Whittier, Cal.

The 1200-Acre Nursery, growers of 1500 varieties of trees and plants. OREGON NURSERY CO., Orenco, Oregon. Sales office, 522 Chamber Commerce, Los Angeles, Cal.

A Bargain in first-class Navel, Valencia and Lemon trees. All strong, healthy, vigorous stock. Get my prices before ordering. A. G. Wright, Fullerton, Cal.

For Sale—Eureka Walnut Trees, budded on Native Black Walnuts. Choice stock. Order immediately. Don't delay. Wm. Holve, Fullerton, Cal.

100,000 Orange and Lemon Trees—Luther Burbank and Mediterranean Spineless Cactus Plantations. Robinson Citrus Nurseries, San Dimas, Cal., R. F. D. 35-A.

For Sale—A few thousand Eureka Walnut Scions. Whittier phone 4721. Chas. Story, Rivera, Cal.

Nurserymen—Ornamental young stock for lining out. High quality, well packed. Ballou's Nursery, Pasadena, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

Royal and Tilton Apricots and Phillips Cling Peaches, 4 to 6 ft., $15 per 100, $135 per 1000. K. B. Utigaard, Hemet, Cal.

For Sale—The finest Valencia Trees in Tulare County. Threequarters up. C. H. Weed, 907 Mill St., Porterville, Cal.

TREES

Rialto Seedless Lemon Trees—Write or phone for Brief History and it will be mailed to you. The coming Lemon for California. Also Seedless Grapefruit—Valencias, Washington Navels—Eureka and Villa Franca Lemon—Mexican Lime—Ganter and Harmon Avocado Pears. We are making special inducements to planters. Prices on application. We have first-class stock and can make deliveries from San Bernardino, San Diego and Los Angeles Counties. We are not jobbers but selling our own grown trees. Buds selected from the best bearing trees. 25 years in Southern California growing and handling citrus trees. Yours for good business.
CALIFORNIA ORCHARD DEVELOPMENT CORPORATION
303 South Hill Street
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or
Cyrus W. Wilhite
Home 303 Glendora, Cal.

Lease Expires Next Spring—Must sell. Have left about 3200 Eureka lemons, three-quarters inch and up, buds selected from trees producing heavy crops of fancy fruits. 2500 Valencia Late ⅝ in. up, 3000 Marsh Seedless grapefruit ⅝ in. up. These are stocky and especially adapted for desert planting. Will sell with loose roots or balled. Prices very reasonable. Small amount down and time on balance, or part trade. Reduction for cash. All information cheerfully given. E. T. Vander Sluis, Glendora, Cal.

Grafted Walnut and Paper-Shell Pecans—Exclusive propagators of Tribble Mayette, Kerr Parisienne, and Improved Franquette. All walnut grafts taken from our bearing trees. Finest trees in the State. Eureka, Wiltz, San Jose Mayette, Concord and other varieties. Bartlett Pear on Blight Proof Root. Olives, fruit trees, etc. Reduced prices. New list ready. Tribble Nurseries, Elk Grove, Cal.

BUDDED AVOCADO TREES

MAGEE BROS., R. D. 2, PASADENA

AVOCADO TREES

The Avocado is the most valuable of all fruits and the most important future industry before the people of California today. Vigorous, field-grown, budded trees of standard frost-resistant variety; from four to seven feet high, $2.00 to $3.00, according to size. Write for literature. W. A. Spinks, Duarte, Cal.

Olives—Mission and Manzanillo. We will save money for you. Large stock, stocky, straight, well grown, thrifty and clean. Come in and see the finest trees in the land growing in the nursery. Get our prices. Kavan Nursery Co., San Bernardino, Cal.

Citrus Trees—Have fine lot of Marsh Seedless Grapefruit, Eureka, Villa Franca and Lisbon Lemon, Valencia and Washington navel trees. Prices right. Budded on sour stock with carefully selected buds. John Shingler, Uplands, Cal.

Mission Olive Trees—Will be two years old next March. To be absolutely sure of getting Missions I only propagate from my own trees, raised thirty years ago. Also cuttings from same trees for sale. W. A. Hayne, Box 461, Marysville, Cal.

For Acacias, Avocados, Budded Loquats, Citrus trees, Evergreens, Feijoas, Palms, Roses and all kinds of trees, shrubs, vines, etc. Write for our new catalogue. Robertson Nurseries, Fullerton, Cal.

For Sale—Navel, Valencia and lemon trees, three-quarters inch and up, 20c loose root, 25c balled. Budded Avocados, 4 to 7 feet high. Address Box 54, Glendora, Cal.

For Sale—Grafted walnuts on black and soft root, oranges, lemons, apricots, peaches, everything in the nursery line. Get my prices. A. R. Marshall's Nurseries, Box 64, Santa Ana, Cal.

Apricot and Olive Trees—Royal and Tilton Apricots. Mission, Ascolano, Chemlaly olives. Choice stock. Correspondence solicited. C. E. Moyer, Hemet, Cal.

For Sale—Seed-bed and nursery stock. Will trade for city, beach or Covina property. Phone 357 Azusa Ex., S. N. Benton.

For Sale—Placentia Perfection walnut scions from thrifty young trees, $10.00 per thousand. Garden Grove Nursery, E. A. Blackmer, Garden Grove, Cal.

Before Planting Olives, Avocados, Feijoas, Rhubarb or Cactus, get my free booklet. Bishop's Nursery, Highland, Cal.

For Sale—Best variety Pomegranate trees known. As profitable as oranges or olives. J. W. Irwin, Lindsay, Cal.

2500 Grafted Walnut Trees—Still unsold. Whittier Nursery, 803 W. Philadelphia St., Whittier, Cal.

Cactus and Trees—Cash Nurseries, Sebastopol, Cal.

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For Sale—New Zealand Rabbits—"the best meat producers." Mature does and bucks $2.00 to $5.00 each. Halfgrown youngsters, buck and 3 does unrelated $5.00. Shipped anywhere. Standard Rabbitry, Santa Ana, Cal.

Leading Rabbitry in America—Flemish Giants a specialty. Prize winning and heavy weight stock. Scored and sold on their merits. Inquiry and inspection solicited. Catalogue on request. Empire Rabbitry, Empire, Cal.

New Zealand Red Rabbits, Barred Rock eggs $1.50 and $2.50 per 15. Roselle Jelly Plant 10c package. Mrs. C. A. Richey, R. 8, Box 557, Los Angeles, Cal.

For Sale—Rabbits, all kinds, sizes and prices; also guinea pigs. Melrose Squab Farm, 2151 51st Ave., Oakland.

SCHOOLS AND COLLEGES

Telegraphy — Stenography, bookkeeping, English branches. Positions guaranteed. Mackay Business College, Los Angeles.

POULTRY

Baby Chicks—As good as the best regardless of price, for April, May, June. White Leghorn, $8.00 per 100; $76 per 1000. Brown Leghorn, $10.00 per 100; $95 per 1000. Leghorn chicks shipped each week. Book to order. R. I. Red, Barred Rocks, Buff and White Orpingtons, Black Minorcas, White Wyandottes; 50% deposit, balance C. O. D., and chicks must be first class or we will refund deposit on return of chicks. Hawkeye Hatchery, Turlock, Cal.

At Five California Shows I won 112 firsts, 55 seconds, four times best bird in show and many specials. Utility and show stock. Eggs and chicks of Black, Buff and White Orpingtons, Rose and S. C. Reds, White and Blue Leghorns, Silver Campines, Anconas, Salmon Faveroles, Polish and Cornish Games. Free mating list. Holman Poultry Farm, Stockton, Cal.

White Plymouth Rock Incubator Chicks—Also White, Brown and Buff Leghorn and Black Minorca, all from Standard bred Exhibition Stock, and Hoganized. Place your orders now for April delivery. Send for Booklet of prices. Mahajo Farm, P. O. Box 597, Sacramento, Cal. Hatchings from mature stock only—22,000 Incubator capacity.

S. C. White Leghorn Baby Chicks—From my pure-bred flocks S. C. White Leghorns, carefully selected for laying and Standard qualities, $9.00 per 100, $85.00 per 1000. A first class chick at a reasonable price. Eggs for hatching, $5.00 per 100. $45.00 per 1000. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

Make Money with our superb White Orpingtons; best breed for every need. Lay most when prices highest; make finest eating. 1000 grand range-raised birds, trap-nested and bred for heavy laying. Eggs, chicks, stock. Send for catalogue. Whitten Ranch, R. 5, Box 646, Los Angeles.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. National Poultry Co., successors to Allaway & Layton Co., 607 E. Third St., Los Angeles, Cal.

For Sale—White Orpington Eggs (Kellerstras, 1914 stock), $5.00 per dozen. S. C. Rhode Island Reds from trap-nested hens, over 200 eggs. $3.00 per 15, from 166 to 200, $1.50 per 15; from utility stock, $1.00 per 15. C. S. Eichholtz, R. 1, Box 238, Pasadena, Cal.

Chicks! Chicks! Chicks!—No money down, terms C.O.D. Select Leghorns $8; Minorcas $12; R. I. Reds $12; Barred Rocks $12.50; Buff Leghorns $12, and Aconas $12.50 per 100. No less than 100 shipped. Can ship large numbers. Write C. A. Darwin, 709 S. Main, Los Angeles, Cal.

MacFarland Strain White Leghorn eggs, $1.50 per 15, $5.00 per 100; chicks, $10.00 per 100 from our thousands of heavy layers. Order now, any quantity. Big plant, lowest prices, best stock. Newton Poultry Farm, Dept. 3, Los Gatos, Cal.

S. C. White Leghorn Eggs, McFarland strain, bred for years from the best layers, on alfalfa ranch, perfectly vigorous, eggs $4.00 per 100, $35 per thousand; cocks $2.00. S. H. Johnson, Glenwood Ranch, Wasco, Cal.

Baby Chicks—White Leghorn, Brown Leghorn, R. I. Reds, Barred Rocks, Black Minorcas and Anconas. We guarantee satisfaction. Write for price-list. The ORLAND HATCHERY, Orland, Glenn Co., Cal.

Rhode Island Reds and S. C. W. Leghorns; greatest laying strains in California. Baby chicks: Reds, $15.00 per hundred; Leghorns, $12.50. Rainescourt Poultry Ranch, Zelza, Cal.

S. C. White Leghorn Baby Chicks and Hatching Eggs that are Top Notch. Write for particulars. Prices reasonable. Ten years in business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

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Petaluma and American Brooder Stoves with new and exclusive features. Write for free catalogue. American Brooder Stove Company, Oakland, Cal.

White Wyandottes—White Rocks, Cockerels, $2.50; eggs, $2-15; $7-100. Ramona Farm, Box 1361, R.D., Sacramento, Cal.

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Goodacre Blue Ribbon Strain of heavy layers. Send for 1915 catalogue. Twelve First prizes at Los Angeles show, Jan., 1915. Goodacre Bros., Compton, Cal.

Hatching Eggs a Specialty—Selected S. C. White Leghorns. Reduced prices March and April. $5.00 per 100; $45.00 per 1000. Pine Tree Poultry Farm, Los Gatos, Cal.

For Sale—Fine, selected setting eggs from Hoganized ducks and hens. All varieties. Black Bros., 455 Lucas Ave., Los Angeles, Cal.

Baby Chicks (White Leghorns)—Shipped on approval. Examine at your home before remitting. No weak ones charged for. Schellville Hatchery, Sonoma, Cal.

Red Rock Ranch, Glen Ellen, Cal.—High-class Duroc Jersey hogs. Specialty registered pigs at weaning time. If interested write.

Salmon Faverolle Eggs for hatching, $3.00 per setting. 130 Calif. Terrace, Pasadena, Cal.

POULTRY

Just Out—The Cultivator Poultry Book, "Poultry for Profit," by Jean A. Koethen. Published by the Cultivator Publishing Co. Highly endorsed by experts. Over 200 pages, 50 illustrations. Contains simple methods of avoiding and overcoming difficulties. A guide to poultry success under Western conditions—it tells what to do, why to do it, and how to do it. Nicely bound in cloth. Price $1.00 postpaid, or with Cultivator one year, $1.75. Send orders to Cultivator Publishing Co., 115-117 North Broadway, Los Angeles, Cal.

White and Brown Leghorns—Day-old chicks from healthy vigorous breeders. "Chicks well hatched are half raised." We will be pleased to send you circular and prices. San Jose Hatchery, 371 Meridian Road, San Jose, Cal.

Eggs and Chicks—From prize winning birds, Golden Buff Orpington and Barred Plymouth Rocks. Excellent winter layers. Settings of 15 eggs $2.00 to $1.50. $5.00 per 100. Chicks $15.00 per 100. K. L. Kirby, Oakdale Poultry Farm, Watsonville, R. D. 2.

Barred Plymouth Rocks—Winners at New York and California's leading shows. Laying strain unequalled. Eggs for hatching from seventeen Champion matings. Eighteen years breeding Barred Rocks exclusively. Write for catalogue. C. H. Vodden, Los Gatos, Cal.

Ancona Eggs—Select stock, $1.50 per 15, $6 per 100. Baby chicks 15c each. Mammoth Pekin Duck Eggs, $1 per 12, $6 per 100. Baby ducks 20c each, $17.50 per 100. J. P. Clough, 3980 Peralta Ave., Fruitvale, Cal.

Baby Chicks—Eggs for hatching. Pure bred, R. I. Reds, White and Buff Leghorns, Black and White Minorcas. Eggs $6.00—100; Chicks $12.50—100. White Wyandottes higher. Gem City Yards, Los Gatos, Cal.

Safety First—Feed your baby chicks Croley's Dry Mixed Chick Feeds manufactured by Geo. H. Croley Co. Inc., 631-637 Brannan St., San Francisco, Cal.

Pit Games—A few choice specimens for sale. Write for prices. Delivered your station. O. L. Crane, R. D. 3, Santa Rosa, Cal.

For Sale—Barred Rock Cockerels, also Barred Rock, R. I. Red, Anconas, Buff and White Orpington chix. Enoch Crews, Santa Cruz, Cal.

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For Sale—A few fine Ancona and White Rock Cockerels. A special bargain at $2.00 each. Fine strains and good individuals. A. E. Nelson, El Monte, Cal.

Pheasants—Ringneck and Golden. Eggs for hatching. T. D. Morris, Agua Caliente, Cal.

Barred Rocks—Only a few fine breeding cockerels for $3.00 each. G. L. Hawley, Madera, Cal.

Chinese Ringneck Pheasants, $2.50 each either sex. Powars' Pheasantry, 985 So Tenth St., San Jose, Cal.

For Sale—Indian Game Eggs, $1.00 per setting. The finest of table fowl. S. G Wright, Kerman, Cal.

Eggs for Hatching. R. I. Red $1.50 setting, 15 eggs. Free range. J. F. Mason Route 1, Box 112, Watsonville, Cal.

LIVE STOCK

Ohio Improved Chester White (O. I. C.)—Entire herd immunized against ho cholera. Nothing but immunized stoc sent out. Extra fine lot of fall pigs, bot sexes, ready for shipment during Febru ary and March. Three herd boars usec All stock crated and registered. Make re servations now. C. B. Cunningham, Mills Sacramento Co., Cal.

Blue Ribbon Herd Duroc-Jersey Hogs—Bred Gilts a specialty, 15 bred now, 2 ready to breed. Sires and dams win a blue ribbons 1912, 1913, 1914 State fair 15 firsts, 13 seconds, 6 thirds, 7 fourths, fifth. Will show 1915. For prices, writ Jno. P. Daggs, Modesto, Cal.

Grape Wild Farm Thoroughbreds—Guernsey Bulls of A. R. Breeding. BERKSHIRE HOGS. Finest herd in the stat All ages for sale. A. B. Humphrey, pro prietor. Mayhews, Sacramento Co., California.

For Sale—A few choice ½ and ¾ grac Toggenburg kids, 10 and 12 months ol First cross by "Prince Bismarck," imp and second cross by Crown Prince of tl Sceni, imported. Address J. T. Gordo Jr., Azusa, Cal.

For Sale—Registered, Berkshires:. choice pigs of best breeding from tl best strains in America. For prices a description address H. L. Murphy, Pe kins, Sacramento Co., Cal.

Blatchford's Pig Meal weans pigs easi and safely; no trouble; no milk. Wri for free folder, "The Safety Route fro Pighood to Porkage." Coulson Co., Pet luma.

Easy Money Raising Hogs. Fatten on ca tus fruit. 16¼% sugar. No gra needed. Three times the number may fattened on one acre of cactus fruit th corn. Write M. Wilcox, Orland, Cal.

For Sale—Young registered Berkshi boars and sows; fine, strong sto Boars ready for service. Stanisla Ranch Co., Crows Landing, California.

For Sale—A young thoroughbred Saan Swiss Milch Goat Buck, born hornle white, fertile, large, registered; price $ John Stewart, Box 27, Mentone, Cal.

For Sale—Registered Percheron ma coming three, sound and a big beau will be sold cheap. If interested quick. S. B. Hall, Gardena, Cal.

For Sale—Pure Bred Hampshire Boar pi $25.00 each. Ben F. Thorpe, Bons Cal.

One Holstein Bull—Born January 10, 19 $25. Riccomi Bros., Mountain Vi Cal.

Registered Toggenburg buck kids, a 1 from choice stock at a bargain. H. Shepard, National City, Cal.

Glenview Poland China—Stock for sa Chas. R. Hanna, R. F. D. No. 8, Riv side, Cal.

For Sale—Full-blooded, French Perche stallion. L. E. Stockton, Ramona, (

M. H. Locke Co., Lockeford, Cal.—Ch young Jersey bulls for sale.

For Sale—One mammoth jack and mules. Zack Tompkins, Sunnyvale,

MACHINERY

USED WINDMILLS, TANKS, PUMPS, ENGINES, RANCH MACHINERY. WHY BUY NEW? SAVE HALF. MATERIAL GUARANTEED. ENGINES, PUMPS, BOILERS.
Two boilers, 80 and 100 h. p., and Smith Valle steam engine 14x18 and Compressor 12x18. Boilers used less than one year. Pumps 300 inches, price $1000, cost $6000. Fine for mine, sawmill, pumping plant, nearly new. Sold account closing estate.
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Wanted—Man to establish dairy on my alfalfa ranch near Corona. Must have some money or a bunch of cows. Herbert F. Clark, 31 N. Granada Ave., Alhambra, Cal.

Tree Grafters wanted for walnut nursery work. Write or apply immediately to Tribble Nurseries, Elk Grove, Cal.

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POULTRY CLASSES

(Continued from Page 309)

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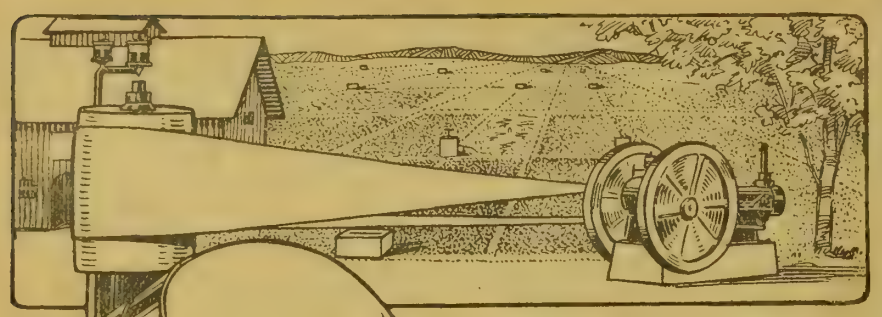

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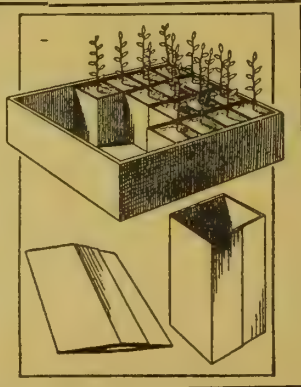
Write for samples and prices of both Pots and Protectors. State which you are interested in.



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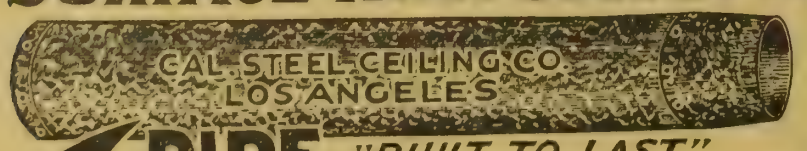

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Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Planting Walnuts

Wish to plant walnuts 20 miles east of Oceanside on the San Luis Rey River, elevation of 280 feet. Water seven to eight feet below surface. Soil sandy loam. What variety would you advise planting? What root should they be budded on and when should they be planted?—Subscriber, Bonsall.

If the water is standing in the soil not closer to the surface than seven to eight feet with the rainfall we have had this winter it is perfectly safe to plant walnut trees in the location described. Damage from water in the soil is caused by the roots following the receding water level and then the water level rising to within three or four feet of the surface. A very small percentage of the roots will go as deep as seven feet so there will be no damage noticeable if a few roots are lost at this depth. Neff's Prolific walnut has been the best producer for me and has characteristics which make it very valuable in the southern part of the state. The best root on which to graft has been the native black walnut and we know of nothing better now.

The planting should be done in January and February, if possible, but since the weather has been cool planting can be successfully done later this spring, but all planting should be done before buds swell or the new root hairs form. This will not likely take place before March 15 this year. The young trees should have the soil well settled around them either by pouring on water enough to fill the hole after the soil has been put in place or by running a stream along the row.

See the article on Planting a Walnut Orchard in the February 11, 1915, number of the Cultivator.—J. B. N.

Bloody Eggs

What is the cause of bloody eggs?—Subscriber, Ontario:

Blood spots in the yolk or white of the egg or blood streaks on the shell are due to the rupture of a minute blood vessel, caused by the hen straining when she lays the egg. Pullets laying their first eggs, and hens that are too fat are more likely than others to have this trouble, but it seems probable that a tendency to it is inherited. That is to say, the thinner the membranes of the oviduct the more likely will a hen be to rupture them, especially when she is laying well. If such a hen is used as a breeder the chances are that her daughters and granddaughters will have the same thinness of membrane with tendency to rupture. It would be a good plan to find out, if possible, which hens lay these bloody eggs, and to keep them out of the breeding pen. A tiny blood spot does not injure the egg, but a condition such as you describe makes it unmarketable, and should be avoided by careful selection of breeders.—J. A. K.

Lime Sulphur Wash

Is crude oil spray as good as lime sulphur for scale, etc.? Which is best, lime sulphur boiled in the regular way or self-boiled? Do you recommend commercial lime sulphur solution?—Subscriber, Gardena.

The answer to the first question depends on what is covered by "etc." For scale alone crude oil emulsion gives very good results but it has no beneficial effects on fungous diseases, of which there are many affecting our deciduous orchards. The lime sulphur, while not as good a fungicide as is Bordeaux mixture, is effective with many fungous troubles and also one of our best insect destroyers. Many of our largest orchardists are now using the commercial lime sulphur solution, applying while trees are dormant at the rate of about one to 11. The self-boiled has given fairly good results but not equal to the regular made lime sulphur solution.

Tomato Wilt

Is there any way of treating the seed or dipping the small plants before planting to prevent tomato wilt or to help control the disease? This trouble was prevalent in this section last year and as we are planning to plant again this year would like to know method of prevention or control of the disease.—Subscriber, Ontario.

There are two kinds of tomato wilt. The so-called summer wilt is caused by a fusarium. Once it has secured entrance to the tissue of the plants it is incurable. The only way to prevent this disease is to plant disease-free seed on disease-free soil, both as to seedbed and field. For instance if the fusarium existed in the plant grown last year some other location must be selected this year. If, however, the trouble was caused by th

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fall wilt it is of a fungous nature and affects the plants usually after the rains or during the moist weather. Spraying with Bordeaux will cure or prevent this condition.

Preserving Fence Posts

How may I treat eucalyptus fence posts so that they will last?—Subscriber, Watsonville.

Hot creosote is the best treatment. Heated oil, either linseed, which is expensive, or ordinary crude oil only is fairly satisfactory. Where creosote is used it is ordinarily put in an open topped tank and the temperature raised so that the liquid will penetrate the wood. Cold creosote is effective for a short time but does not penetrate the wood as thoroughly as does the heated solution. The most economical way of handling posts where there are only a few to be treated is to remove with cold chisel one end of an ordinary 50 or 60-gallon gasoline tank. In this the solution is placed and after the fire has raised it to the proper temperature the thoroughly seasoned eucalyptus posts are stood in it and allowed to remain some hours. There is no material gain in treating green eucalyptus posts. They are so full of sap that there is no opportunity for the creosote to penetrate.

Moving Stumps

How may I take out eucalyptus stumps? Some were recently cut, others are old.—Subscriber, Watsonville.

If by old ones you mean those which are dead and dried to a certain extent presume the char pit method used so extensively in Oregon would work. An excavation is made at one side sufficient to place in a quantity of wood or other fuel, the stump is burned until alive with coals, then the fire is partially covered when it will consume the entire stump, it is claimed by some to the tips of the larger roots. Some bore several holes in the top of the stump and fill with coal oil and fire in this way.

Turkeys

Is it necessary to keep gobblers with turkey hens all the time to have eggs fertile? Some tell me one service is sufficient for the season, others say only for one clutch of eggs.—Subscriber, Santa Ana.

Experts are pretty well agreed that the hen turkey allows the male to tread but once in a season, nevertheless some of them strongly advise not only the keeping of the male with the hens all the time, but the use of two males in alternation. The reasons for this are that a hen will sometimes refuse to mate at all with a given tom, so that unless another male is used her eggs will all be infertile, and that at times when a hen has been served by the tom the eggs are not properly fertilized. If one could be sure that every hen in the flock mated with the tom within a given time and that the eggs in every case had been fertilized, it would be safe to remove the tom from the flock. As it is, one is always kept, and often two, though the two are never allowed to run with the hens at the same time.—J. A. K.

Lice on Hogs

My hogs are covered with lice. What is the best remedy? I have no tank. How are the tanks built and how used?—Subscriber, Auld.

If there are a large number of hogs we would either secure one of the regular galvanized iron tanks or one may be built of concrete. They are built narrow so as to hold as little solu-

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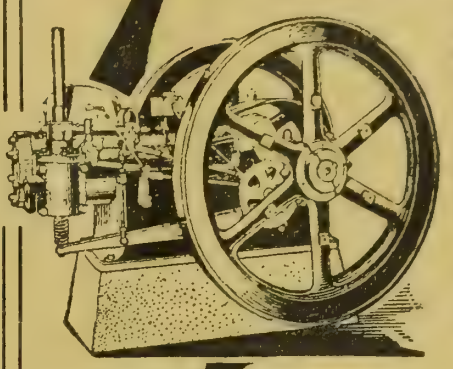

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STANDARD OIL COMPANY
(California)

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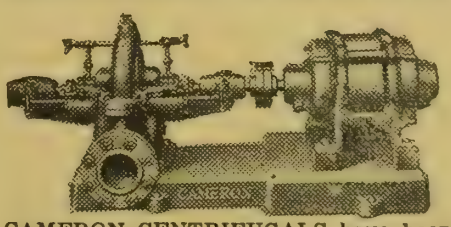

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Does It Pay to Raise Apples ?

Go to the nearby store, get the prices of first-class apples—

"The Big Red Apple"

the kind grown in the Yucaipa Valley—and figure whether growing the king of fruits is a paying proposition. After doing so write the **Redlands & Yucaipa Land Co.** and get printed matter explaining fully the best apple, pear and peach land in California. Or come to Redlands and let us take you to Yucaipa and show what we have.

Yucaipa is 2400 to 3000 feet above the sea, eight miles from Redlands. Land is selling at $285 per acre, on easy terms, one share of water stock in a Mutual Water Company goes with each acre. This is the time of year to plant deciduous fruits.

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When writing advertisers, mention The Cultivator.

tion as possible and yet give opportunity for the hogs to swim to the opposite side once they plunge in. Where one has a very few hogs it is perhaps more economical to have a spray pump and give thorough spraying. This takes much more time but is almost as effective and even preferred by some. There are numerous dips which are known to be very effective. They may be purchased of any house handling supplies for stock. Among them are a two per cent solution of creolin also the common tobacco solution, or any dip used for sheep scab; also chloro naphtholeum, zenoleum, Lincoln's dip, Lee's carbolic dip, and we doubt not there are many others. The hogs should be dipped or sprayed every three or four weeks. The point is not so much what is used as the thoroughness and frequency with which the work is done.

Peaches in Alfalfa

Can peaches be grown on the same land with alfalfa?—Subscriber, Huntington Park.

Possibly they can although we would not recommend it where the effort is made to produce thoroughly good fruit. Where the trees were already planted and one wished to grow a strip of alfalfa down the row it could perhaps be done without serious injury for a few years, but ultimately the peach trees will demand all the ground.

ANNUAL MEETING OF SAN DIEGO FARM BUREAU

Farm Adviser H. A. Weinland of San Diego County announces the tentative program of the first annual meeting of the county farm bureau. It will be held on the grounds of the Panama-Pacific at San Diego on March 20.

10:00 a. m. Opening Exercises. Greetings by the Mayor or President of the Exposition, Organ Rostrum. The Farm Bureau Movement, B. H. Crocheron, Assistant Professor Agricultural Extension. Business meeting. Report of Committee on Constitutional Amendments. Financial Report of Treasurer. Election of officers. Farm Credits, Dean Thomas F. Hunt, College of Agriculture, Berkeley.

1:30 p. m. Field Crops, Prof. J. W. Gilmore, Department of Agronomy, University of California, Public Service Building. Farm Management, Prof. Adams, University of California, Organ Rostrum. Organ Recital. The Dairy Cow, Dean Van Norman, University Farm School, Davis, Organ Rostrum. The California Citrus Industry, G. H. Powell, Manager California Citrus Fruit Exchange, Public Service Building.

GLENN COUNTY'S NEW FARM BUREAU

W. H. Heileman, newly appointed farm adviser for Glenn County, writes:

The organization of a Farm Bureau in Glenn County is favorably in progress. Previous to March first four farm centers had been organized in the county, and during the first week in March two more centers were organized.

The farm adviser for the county began his work on March first. A director's organization has been perfected and two public meetings have been held at farm centers.

The people are enthusiastic regarding the outlook in the county and are generally giving their support. Meetings are well attended and indications are that the organization will become strong in the county.

Schedules for handling the work are not yet perfected though in the centers formed to date matters are working smoothly.

My address for the present is Chamber of Commerce, Willows.

Mutton is rapidly coming into its own as a meat for the family. Butchers are now selling mutton freely in the cities and towns. Sheep men who have fat mutton sheep find no difficulty now in exchanging these animals for cash.

CITRUS Trees

Before you place your order for citrus trees, be sure to see us and get our prices and suggestions. We are recognized as the largest and most successful growers of citrus and deciduous fruit and ornamental stock on the Coast.

We can supply you with almost any quantity of all the best varieties of

ORANGES
LEMONS

and other stock—guaranteed strong and thrifty and true to name.

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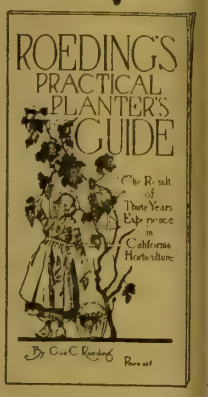
Should have a copy of this remarkable book. It is the result of 30 years' experience in California Horticulture and contains complete instructions for planting and pruning oranges, lemons, olives, as well as all other varieties of fruit and ornamental trees and plants. The regular price of the book is 25c, but if you let us figure on your wants, we will give you a copy free. Write us today.



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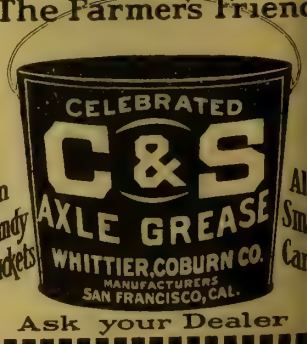

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French, Imperial and Sugar Prunes, Bartlett... Clings and Freestone Peaches, Plums, Almond... Apricots, Figs, Apples, Grafted Walnuts, Graft... Resistant Vines, Rooted Table Grapes, Spinele... Cactus. Special prices on application.

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Healdsburg, Calif.

The Household Department

AH, SWEET IS TIPPERARY

Ah, Sweet is Tipperary in the spring time of the year,
When the hawthorn's whiter than the snow,
When the feathered folk assemble and the air is all a-tremble
With their singing and their winging to and fro.
When queenly Slievenamon puts her verdant vesture on
And smiles to hear the news the breezes bring;
When the sun begins to glance on the rivulets that dance—
Ah! sweet is Tipperary in the spring!

Ah, sweet is Tipperary in the spring time of the year,
When the mists are rising from the lea,
When the golden vale is smiling with a beauty all beguiling,
And the Sair goes crooning to the sea;
When the shadows and the showers only multiply the flowers
That the lavish hand of May will fling;
When in unfrequented ways fairy music softly plays—
Ah! sweet is Tipperary in the spring!

Ah, sweet is Tipperary in the spring time of the year,
When life like the years is young,
When the soul is just awaking, like a lily blossom breaking,
And love words linger on the tongue;
When the blue of Irish skies is the hue of Irish eyes
And love dreams cluster and cling 'Round the heart and 'round the brain, half of pleasure, half of pain—
Ah, sweet is Tipperary in the spring!

—Denis A. McCarthy.

WINIFRED'S BEST YEARS

Winifred Lane and Josiah Dent had been lovers since their A B C days. For 17 years now she had worn the ring he had sold his first colt to buy. Together they had "stood up" for her brother Dick and Eliza at Dick's first wedding, while all the assembled company commented upon them and looked forward to another wedding.

Her father's failing health had brought the first postponement. Then Dick came home a widower and his delicate baby became Aunt Winnie's charge. Dick's second marriage had brought a gleam of hope. But Julia Rebecca declined to live on the farm, and Dick bought a place in another town, leaving to his sister the care of her mother and the farm. Six years later Mother Lane and Julia Rebecca had both died in the same week, and Dick, cheerfully consigning his orphan brood to his sister's care, had taken an extended trip West.

Through it all Josiah had waited patiently, declaring always when Winifred offered him his release that there was but one woman in the world for him, and Winifred had settled down to cheerful performance of daily duty, brightened by the "some day," that would yet be hers.

The patiently awaited day seemed near at hand on this dull November afternoon. Richard Lane had unexpectedly appeared at his sister's home accompanied by his third wife, and without any unnecessary delay had taken his children to the Western town in which he was located.

Miss Lane stood on the front veranda and watched the loaded wagon drive away. "Dick hasn't had any kind of luck with wives so far, but I've a notion this will last," she said aloud as she went slowly indoors.

How still it was! The children's voices seemed to echo through the empty rooms. Winifred's eyes filled with scalding tears.

"Yes," she said in a tone which held both regret and relief, "they're gone for good, and I s'pose I'm free at last. Of course he'll hear," she continued presently. "May'be he'll be over tonight. I'd better tidy up."

Miss Lane lit the parlor lamp and, after a little hesitation, pinned on her best lace collar. "It'll do no harm even if nobody comes," she argued to herself.

But the clock struck 8 and 9, and no one came. "He hasn't heard yet," she assured herself as she went to bed.

The vigil was repeated the next evening and the next. Winifred became perplexed.

"When Dick married his second Josiah was here before tea time," she reflected. "But I won't begin to worry until Sunday," she sensibly determined. "Josiah 'll be at church, and he'll hear about Dick."

Sunday was ushered in with a drizzling rain, but in the afternoon the sun shone bravely. Miss Lane went to evening service attired in the neat gray dress and bonnet which had been purchased for her brother's second wedding, twelve years ago. Feeling lonely, she gladly accepted an invitation from the minister's wife to a seat in the front pew. She could not see Josiah, but she felt his presence two pews behind, and his deep voice in the hymns sent thrills of pride to her loving heart.

With pardonable coquetry, she lingered a little going out. A casual glance through the open door assured her that he was waiting in the entry as of old. She had nearly reached him. In another minute she would have slipped her hand within his arm with the fond assurance of ownership when a blond head, surmounted by a bright red turban, came between them, and Josiah went down the steps with pretty Nettie Searles clinging to his arm.

Miss Lane walked home through the starlight alone. Lighting the lamp, she went directly to a mirror and gazed long and thoughtfully at the reflection within, comparing it with the girlish prettiness of the face beneath the red turban. The glass refused to flatter. The angular form, the careworn brow and hollow cheeks, the lines about the patient mouth, all spoke of burdens borne and labor accomplished.

"It isn't to be wondered at," Winifred said, with a sigh, as she stirred the low fire and settled down to retrospection and consideration.

"My best years have gone and I've got dull and uninterestin' in all this time."

Her first thought was one of renunciation. The freedom she had offered in years gone by she would freely give now. But she thought of the future and hesitated. Not on her own behalf—self had been put entirely out of the question from the first. But as she remembered tales of Mrs. Searles' housekeeping and the flippant remarks she had heard from Nettie's lips she felt suddenly impelled to warfare on Josiah's behalf.

"Red cheeks and dimples can't insure a comfortable home," Miss Lane decided sagely. "If it was any nice girl that's been well brought up I wouldn't hesitate a minute. But all Bloomville knows that Nettie's reputation for dressing and flirting far outdoes her skill in housekeeping. I've no right to shrink from trying to save Josiah from a miserable home. His one hope is in my holdin' him fast to our engagement, and, talk or no talk, I'm going to do it.

"I'll spend the winter with Cousin Emma," she decided. "There ain't a soul in Bloomville knows her address. Dick says she don't look within a dozen years as old as I do, and she's a year older. She always was real tasty. Maybe I can pick up a few hints from her. Looks and dresses and general up-to-dateness makes lots of difference to a man."

All the next day she toiled steadily setting her house in order. And Tuesday morning while waiting for the expressman she penned a note to her recreant lover:

Dearest Josiah—I write to inform you that I am well and expect to

KILMOL SQUIRLGOPHENE

Squirrels
Gophers

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WILL KILL' EM ALL

Waste Ball Method
or with
United States Destructor

Your Money Back
If Not Satisfactory

New Information

Result of Experiments that cost Uncle Sam over $100,000.00
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WRITE NOW—RIGHT NOW

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I Want to Show You This
40 ACRE EQUIPPED FARM

LAND: Level, clean, strong; no brush or stumps; ready for plowing; between two railroads and within 1½ miles of stations on Southern Pacific and Western Pacific. In the Upper Sacramento Valley.
SOIL: Deep San Joaquin loam.
WATER: Unlimited water at 20 to 25 feet.
EQUIPPED: with a plow, a harrow and a cultivator, a pumping plant complete, trees and seed.
SPECIAL: This land is absolutely above all flood from rivers; the titles are clear and guaranteed; there is no bonded indebtedness; there are no reclamation or irrigation assessments. This is clean, strong land without incumbrance of any kind.
THE PRICE is $150.00 per acre with equipment, or $125.00 for the bare land. Terms, ¼ cash, balance 6 equal annual payments, 6%. I want to show you this specially selected piece of land.

OUR CO-OPERATIVE BUYING SERVICE

Will enable you to get any acreage, in certain selected tracts, at strictly wholesale values. You should know about this—write today.

Dudley Moulton.

Expert of Agricultural Lands
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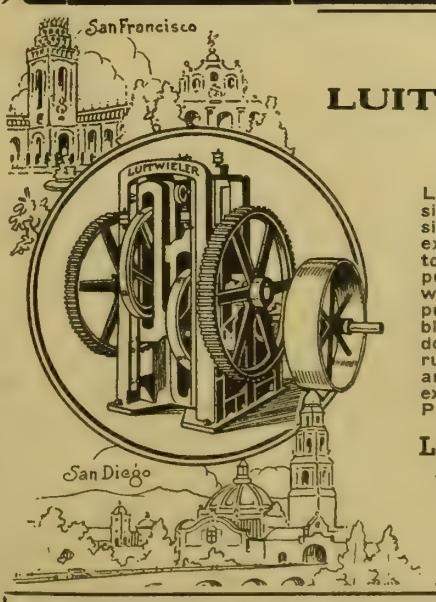

See the Exhibit of

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at Both Expositions

Luitwieler Pumps of different styles and sizes are in actual operation at both expositions. Do not fail to see this interesting exhibit. Experienced pump men are there to fully explain the operation of these pumps. One unusual feature of the Luitwieler exhibit is the operation of a stock pump at full speed, resting on glass tumblers with nothing to hold the pump down. This splendidly proves the easy running qualities of Luitwieler Pumps and the total absence of jar, vibration, excessive friction, etc. Write for our free Pump and Irrigation Booklets.

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Creating a New Art

At the Centennial Exhibition at Philadelphia, the exhibit of the Bell System consisted of two telephones capable of talking from one part of the room to another.

Faint as the transmission of speech then was, it became at once the marvel of all the world, causing scientists, as well as laymen, to exclaim with wonder.

Starting with only these feeble instruments, the Bell Company, by persistent study, incessant experimentation and the expenditure of immense sums of money, has created a new art, inventing, developing and perfecting; making improvements great and small in telephones, transmitter, lines, cables, switchboards and every other piece of apparatus and plant required for the transmission of speech.

As the culmination of all this, the Bell exhibit at the Panama-Pacific Exposition marks the completion of a Trans-continental Telephone line three thousand four hundred miles long, joining the Atlantic and the Pacific and carrying the human voice instantly and distinctly between New York and San Francisco.

This telephone line is part of the Bell System of twenty-one million miles of wire connecting nine million telephone stations located everywhere throughout the United States.

Composing this System, are the American Telephone and Telegraph Company and Associated Companies, and connecting companies, giving to one hundred million people Universal Service unparalleled among the nations of the earth.

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
AND ASSOCIATED COMPANIES

One Policy *One System* *Universal Service*

Advertisements in California Cultivator are Guaranteed
See Announcement at Head of Editorial Page

spend this winter in the city. I leave today, so I shall not have the pleasure of seeing you before I go. But you will be constantly in my thoughts, and your ring, as always, will be my reminder of our engagement. Yours until death. WINIFRED.

"It will show him that I'm holdin' him fast," meditated Miss Lane as the train sped cityward. "And as I didn't give any address, he won't know where to write. He isn't one to go very far with that Searles girl until he breaks with me. And he can't break with me until he finds out where to send a letter."

Bloomville was golden with dandelions and white with apple blossoms when Winifred Lane came home to her own. "Not a soul knows I've come," she reflected as she unpacked the new trunk. She sighed suddenly. "Well, by tomorrow I shall know. He's had the winter to consider in, and if he's still set upon it, I'll give him up."

Josiah Dent came up the church steps with a look of discontent upon his comely face. In the months that had passed since Winifred's disappearance, he had nursed a growing sense of injury.

"'Tain't fair," he complained, "keeping a fellow on the fence so. Her best years have been spent for Dick anyhow, and a woman ages faster'n a man. If she'd given me her address, I'd have settled it months ago."

Josiah went up the aisle to his own pew. Above the high back of the minister's pew there arose a white sailor hat, swathed with an airy muslin scarf. Beneath it soft waves of curling hair rippled across a brow from which all traces of care had been resolutely smoothed away.

Josiah, watching with some curiosity until she turned her head slightly, caught the clear profile and noted the soft color in her cheek. It was Winifred! All at once there dawned upon him the truth that immortal youth is not at the mercy of added years and that better than the passing beauty of girlhood is that womanliness which shall outlast the ages.

"I'm glad I didn't know where to write," thought Josiah, with a sense of narrow escape and a growing feeling of anxiety.

Winifred was unaware of his presence until she heard his voice in the closing hymn. As the last notes ceased she turned to him, smiling straight up into his anxious face.

"Well, Josiah," she said.

And Josiah wondered why he had not known before that raiment, whether it be the unbecoming gray of past years or the crisp muslin that seemed to give back to him the love of his early years, was not worthy of a passing thought. It was the old Winifred who smiled up at him out of those clear eyes. Nettie Searles and the throng about them were alike forgotten. He only thought of the woman before him—the only woman in the world for him—and all Bloomville had its answer to a long winter of speculation and comment as he stooped to kiss her in the crowded church. Winifred Lane's best years were yet to come.—Exchange.

PLAYING SAFE

A man who, with his wife, is employed on a truck farm in New Jersey, found himself in a bad predicament, when, in attempting to evade the onslaughts of a savage dog, assistance came in the shape of his wife.

When the woman came up the dog had fastened his teeth in the calf of her husband's leg and was holding on for dear life. Seizing a stone in the road, the man's wife was about to hurl it, when the husband, with wonderful presence of mind, shouted:

"Mary! Mary! Don't throw the stone at the dog. Throw at me!"—New York Post.

HIS SHARE

"You can't fool all the people all the time," announced the Investigator.

"I know it," replied the Trust Magnate. "There is plenty of profit in fooling half of them half the time."—Cincinnati Enquirer.

Not in the clamor of the crowded street,
Not in the shouts and plaudits of the throng,
But in ourselves are triumph and defeat. —Longfellow.

HOUSEHOLD QUERIES

Canning Pimentos

In response to recent request in these columns for directions for canning pimentos we have received the following from Mrs. D. H. Tarbet of Onarga, Illinois.

There is no homemade canned product that meets so many practical needs as this. Pimentos serve as a garnish as well as a component part of many salads and entrees, and are delicious when chopped and mixed with cream cheese for sandwich filling. If kept in the icebox or a cold place, they do not spoil, or deteriorate quickly after a jar has been opened.

Wash one peck of large red peppers or pimentos in cold water, cut a slice from the stem end of each, and remove the seeds; then cut in thin strips by working around and around the peppers, using a pair of scissors. In this way the strips may be kept as long as one desires. Cover with boiling water; let stand three minutes, drain and plunge into ice water to cover, in which there is a large piece of ice. Again drain and pack solidly into pint glass jars. To one quart of vinegar add two cups of sugar; bring to the boiling point and let boil 15 minutes. Pour over the peppers to overflow the jars, adjust the covers, and store in a cold place.

Another Method

If you have been among the wise people who set out a lot of the sweet bell peppers this spring you will not only have something good all through the season, but you can put them up for winter use. They are called "pimentos" when sold in the stores, and are very expensive. After they ripen and turn red take out the seeds and the tough inner stringy portions and pour boiling water over the pods. Let them stand five minutes, then pack them in the little half pint or quarter pint glass jars honey and various condiments come in. Fill with boiling water and sterilize an hour a day for three successive days, or give them five hours of continuous cooking on one day. So little is needed as an addition to cooked corn, cabbage salad sandwiches, etc., that the small jars are preferable. The peppers mold easily after being opened, and it is a waste to have large cans of them.

Recipes Wanted

Will some of the readers of the household department give some tried recipes for orange marmalade and oblige a constant reader of the paper from San Jose?

Another Request

I would like to see some recipes for making orange marmalade with lemon in, also recipes for cooking rabbits, Belgian hares, in the household department of your paper. They would be much appreciated as we have plenty of oranges and rabbits, and would like to know good ways of fixing them.—Mrs. E. M., Fullerton.

Next Week

Next week's Cultivator will contain many orange recipes to do honor to Orange Day, March 20. There will be some excellent marmalade recipes, but we hope the above requests will be answered by housekeepers with their best tested marmalade recipes.

Because of Orange Day coming on the 20th the rice recipes will not be published until the issue of the 25th; rice will give way to oranges. An almost bewildering number of splendid rice recipes have been received and we know they will be read with great interest by all Cultivator housekeepers.

A fit of anger burns up a good deal of vital force. Some men seem to be angry about half the time. Such men it may be observed, never accomplish much in the world. Anger tears down the nerves and the angry man wants to tear up things in general.

When you are feeling grouchy, let the sunshine in;
When your face gets feelin' hard crack it with a grin.
Don't be 'fraid of wrinkles, tear loose with your mirth;
An old face laughter-wrinkled is the sweetest thing on earth.

NO PRACTICE NECESSARY

The cub reporter saw a hearse start away from a house at the head of a funeral procession.

"Who's dead?" he inquired of the corner storekeeper, who was standing near his door, gazing at the conveyance.

"Chon Schmidt."

"John Smith!" exclaimed the cub. "You don't mean to say John Smith is dead?"

"Vell, py golly," said the grocer, "vot you dink dey doing mit him—practicing?"

"Willing workers work wonders."

What Kind of Light For Your Farm?

The four kinds in the pictures are all in use on modern farms. Three of them are unreliable, troublesome, unclean and cause fires.

GENUINE EDISON Electric Light operated by the

TRADE Thomas A Edison MARK

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IDEAS FOR THE COOK

Written for the California Cultivator
By Isabel Cottle

Breakfast

Stewed Apricots
Cheese Omelet Cornmeal Puffs
Coffee

Lunch or Supper

Creamed Sardines
Scalloped Macaroni and Tomatoes
Fruit Gems Raspberry Jelly
Tea or Milk

Dinner

Braised Beef Tongue Stuffed Potatoes
Carrots au Gratin
Pimento and Cottage Cheese Salad
Maple Bavarian Cream Tea Cakes
Coffee

Fruit Gems

Beat the yolks of two eggs, add two cups milk and stir in three-fourths cup dates and one-half cup raisins, scalded, drained and chopped. Mix and sift one cup whole wheat flour, one-half cup cornmeal, two teaspoons baking powder and one-half teaspoon salt, and add to the milk mixture. Beat vigorously for several minutes, then cut and fold in the stiffly beaten whites of two eggs. Pour into hot greased gem pans and bake 20 minutes in a hot oven.

Cornmeal Puffs

Scald one cup milk, add one tablespoon butter, one-fourth teaspoon salt, then gradually stir in one-half cup cornmeal; cook a few minutes, stirring constantly, then cool. Beat two eggs lightly, add to the cornmeal mixture, then add one-fourth cup sugar, one-fourth cup flour and two teaspoons baking powder sifted together. Mix thoroughly, turn into hot buttered muffin pans and bake 15 to 20 minutes in a hot oven. This recipe makes 12 puffs.

Maple Bavarian Cream

Soak two tablespoons gelatine in two tablespoons cold water. Boil one-half cup maple sugar with one-fourth cup water for five minutes, then slowly pour into the beaten yolks of two eggs, stirring constantly. Cook over hot water until the mixture coats the spoon. Remove from the fire, add the gelatine and stir over ice water until the mixture begins to thicken, then fold in the stiffly beaten whites of two eggs and the whip from one-half cup cream. Turn into a wet mould and chill.

Carrots au Gratin

Wash, scrape and dice six medium sized young carrots. Cover with boiling salted water and cook 20 minutes, or until nearly tender. Drain, saving the liquid. Melt two tablespoons butter, add two tablespoons flour, and when mixed add gradually one cup of the liquid in which the carrots were cooked. Boil a few minutes until thickened, then add one-fourth cup grated cheese, one-half teaspoon salt, dash of pepper, and the carrots. Mix well together, pour into a buttered baking dish, cover the top with buttered crumbs and bake until well heated throughout and browned on top.

Buttered Crumbs

Dry in the oven all small pieces of bread or crusts. When thoroughly dried roll fine, then mix with melted butter in the proportion of about one tablespoon butter to four tablespoons crumbs.

ARGUMENT CLOSED

Jackson and Johnson are not on speaking terms. It all arose as the result of an argument which required some mental calculation.

"I tell you," said Jackson, "that you are altogether wrong in your conclusions."

"Pardon me, but I am not," replied Johnson.

"Didn't I go to school, stupid?" almost roared his opponent.

"Yes," was the calm reply, "and you came back stupid."—Tit-Bits.

UGH!

"Here's something queer," said the dentist. "You say this tooth has never been worked on before, but I find small flakes of gold on my instruments."

"I think you have struck my back collar button," replied the victim.—Buffalo Commercial.

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(Signed) Charles H. Wheelock
Battle Creek, Mich.

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¾ cup Ghirardelli's Ground Chocolate; ½ cup sweet milk. ⅔ cup brown sugar; yolk of one egg. Beat all together; Soft boil until like a custard; set to cool. This is the cream. Take 1 cup brown sugar; ½ cup butter; ½ cup sweet milk. 2 eggs, 2 cups sifted flour. After the cake is mixed then stir in the above cream. Then add 1 teaspoon soda dissolved in a little warm water. Spread white boiled icing over and between the layers.

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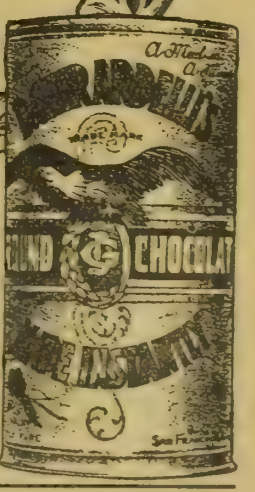

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San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, March 10, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade 4 cents above following quotations:

Creamery Extras ... 24
Firsts ... 22
Country ... 20
Ladle ... 18@20

CHEESE

Prices to trade, 1 and 2 cents higher:

California Fresh ... 15@15½
Cheddar ... 20@21
Domestic Swiss ... 20@21
Eastern Daisy ... 18½@19
Oregon Triplets ... 16½-18
Longhorn ... 18½@19
Imported Swiss ... 32-@34

EGGS AND POULTRY

Prices to trade, 3 cents higher than following quotations:

Fresh Ranch, case counts ... 18½
Candled ... 20½-22½
Northern case counts ... 21
Petaluma-Santa Rosa ... 22

Prices to producers:

Hens, lb. ... 14@18
Roosters, old ... 8@9
Broilers, lb. ... 26
Fryers ... 22
Roasters, lb. ... 17
Turkeys ... 17@21
Ducks ... 19
Geese ... 16
Squabs, doz. ... 3.00

LIVE STOCK

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs., per cwt. ... 7.40
Prime Steers ... 7¼@7½
Heifers ... 6¼@6½
Calves, lb. ... 8½@9
Sheep—
Ewes, head ... 4.50
Wethers ... 5.00
Lambs, head ... 4.50@4.75

POTATOES

Wholesale selling price:

Idaho Russet ... 1.50@1.60
Idaho Rurals ... 1.20@1.25
Early Rose Seed ... 2.25@2.50
White Rose Seed ... 1.50@1.60
Sweets, lug ... 70@80
New Potatoes, lb. ... 6@8
Northern Burbanks, cwt. ... 1.40@1.45
Salinas ... 2.00@2.10
Shimas ... 1.55@1.65
Lompocs ... 2.00@2.10

ONIONS

Wholesale selling price:

Australian Brown, cwt. ... 85@1.00
Oregon Globes ... 1.35@1.50
White Globe ... 4.50@4.75
Yellow Danvers ... 85@1.00
Sets—
Yellow ... 9
White ... 20@25
Garlic ... 25@28

VEGETABLES

Wholesale selling price:

Asparagus—
White ... 18@22
Green ... 25@30
Artichokes, Northern, doz. ... 65@80
Brussels Sprouts, lb. ... 8@9
Beets, doz. ... 30@35
Cabbage sack ... 65@75
Carrots, doz. ... 30@35
Cauliflower, doz. ... 80@85
Celery—
Local ... 3.25@3.50
Northern, crate ... 3.75@4.00
Chicory ... 35@40
Cucumbers, Hothouse ... 75@3.50
Egg Plant ... 20@25
Escarole, doz. ... 40
Horseradish, lb. ... 10@12
Leeks, doz. ... 35@40
Lettuce, crate ... 90@1.00
Mint, doz. ... 35@40
Mushrooms, Outdoors, lb. ... 35@50
Onions, Green, doz. bunches ... 15@20
Oyster Plant ... 35@40
Peas—
Telephone ... 11@12
Small ... 9@10
Parsnips, doz. ... 35@40
Peppers—
Bell, lb. ... 30@40
Chili, lb. ... 25@30
Pumpkins, lb. ... 1½@1¾
Rhubarb, box ... 75@85
Spinach, doz. ... 20@22
Squash, Hubbard, lb. ... 1¼@1½
Crook-neck ... 50@60
Turnips ... 25@30

FRESH FRUIT

Wholesale selling price:

Apples—
Bellflowers ... 50@85
Jonathans ... 1.60@1.75
Rome Beauties ... 1.25@1.75
Pearmains ... 75@1.00
Spitzenbergs ... 1.35@1.65
Pippins ... 75@95
Avocados, doz. ... 4.00@8.00
Bananas ... 4@4½
Berries—
Strawberries, basket ... 12@25
Guavas, basket ... 4@6
Pears, Winter Nelis, lug ... 1.50
Pineapples, lb. ... 5½@6
Pomegranates, box ... 1.75@2.00

CITRUS FRUIT

Wholesale selling price:

Lemons ... 1.00@2.00
Grapefruit, Seedless ... 1.85@2.25
Navels ... 1.25@1.85
Tangerines ... 1.35@1.75
Limes, basket ... 1.00@1.10

DRIED FRUITS

Wholesale prices to retailers are:

Evaporated Apples, Fancy, lb. boxes ... 6½@8½
Apricots ... 8¾@11½
Nectarines ... 12½
Peaches ... 5¾@6¾
Pears ... 10@11
Prunes ... 5¾@16
Plums ... 10

HONEY

Wholesale selling price:

Comb, Fancy, Water White ... 14
White ... 12
Light Amber ... 11
Extr. Water White ... 7
White ... 6½
Light Amber ... 5½
Beeswax ... 32

NUTS

Prices named by California Walnut Growers' Association are:

No. 1 ... 16½
Budded Walnuts ... 20
Jumbos ... 19
No. 2 ... 12
Culls ... 9

Prices fixed by California Almond Growers' Exchange, f. o. b. California.

Almonds—
Nonpareil ... 21@22
I X L ... 20@21
N P U ... 19@20
Drake's Thinshell ... 17@18
Pecans ... 17
Peanuts—
California, Raw ... 6
Japan ... 7½
Eastern ... 7½
Rice Corn ... 5.00@5.25

RICE

Wholesale selling price:

California ... 4.75@5.00
Broken ... 3.75@4.00

BEANS

Wholesale selling price:

Producer's price not far from one dollar under these quotations:

Limas ... 6.35@6.50
Bayous ... 6.00@7.00
Lady Washington ... 6.00@6.10
Pinks ... 5.65@5.75
Black Eyes ... 6.75@7.00
Lentils ... 10.00@12.00
Small White ... 6.00@6.10
Garbanzos ... 7.25@7.50

HAY

Buying prices f. o. b. cars Los Angeles:

Barley Hay ... 10.00@11.00
Wheat Hay ... 10.00@11.00
Tame Oat ... 11.00@13.00
Alfalfa ... 9.00@11.00

GRAIN

Wholesale selling prices f. o. b. Los Angeles:

Corn, Yellow ... 2.10
Corn, White ... 2.20
Wheat ... 2.65@2.70
California Red Oats ... 1.95
Cal. Seed Oats ... 2.10
Texas Seed Oats ... 2.50
Oats, White ... 2.15
Oats, Hulled ... 2.60
Millet ... 3.75
Popcorn ... 4.75@5.00
Egyptian Corn ... 2.20
Barley Seed ... 1.70
Barley, Hulled ... 2.05
Milo Maize ... 2.00
Rye ... 2.40
Sunflower Seed ... 7.50

FEED STUFF

Wholesale selling prices f. o. b. Los Angeles:

Bran, Heavy ... 1.70
Alfalfa Meal ... 1.20
Alfalfa Molasses, per cwt. ... 1.25
Beef Scraps ... 3.00
Beet Pulp ... 1.25
Cracked Corn, cwt. ... 2.15
Cracked Wheat, cwt. ... 2.80
Cotton Seed Meal ... 1.80
Bloodmeal ... 3.45@3.55
Bone Meal ... 1.95
Meat Meal ... 3.00
Bone, Green ... 1.65
Charcoal ... 2.00
Oil Cake Meal ... 2.50
Fish Meal ... 3.15@3.25
Rolled Oats ... 2.20
Middlings ... 2.00
Rolled Barley ... 1.65
Feed Meal ... 2.20
Scratch Feed ... 2.30@2.50

San Francisco Market

SAN FRANCISCO, March 9, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade, 4 cents above following quotations:

Extras ... 25
Prime Firsts ... 24½
Firsts ... 24
Seconds ... 22

CHEESE

Wholesaler to retailer.

Oregon Y. Am. ... 16
Young America ... 13½@15½
California Flats ... 8@12
Cheddar ... 20
Oregon Twins ... 14

EGGS AND POULTRY

Prices to trade 3 cents higher than following quotations:

Extras ... 20½
Select Pullets ... 18½

Price to producer:

Hens, lb. ... 15@18
Fryers ... 24@26
Roosters, old ... 10@12
Roosters, young ... 18@20
Broilers ... 29@31
Squabs ... 3.00@4.00
Ducks ... 15@18
Geese ... 2.50@3.00
Belgian Hares, lb. ... 8@10
Turkeys, live, ... 16@17
Dressed ... 18@20

LIVE STOCK

San Francisco prices, gross weight:

Steers ... 4@7¼
Cows and Heifers ... 3@6¼
Calves, lb., live weight ... 6@9½
Hogs ... 5@7¼
Wethers ... 6½@6¾
Ewes ... 5¼@5¾
Yearling Lambs ... 7½@7¾

POTATOES

Wholesale selling price:

Idaho Rose ... 90@1.00
Idaho Russet ... 1.15@1.30
Delta Burbanks ... 1.10@1.25
Lompoc ... 1.65@1.75
Salinas Burbanks ... 1.40@1.50
Oregons ... 1.40@1.50
Washington ... 1.25@1.40
New Potatoes, lb. ... 4@5
Sweets, cwt. ... 2.25@2.50

ONIONS

Wholesale selling price:

Yellow, cwt. ... 65@85
Garlic, new ... 17½@20

VEGETABLES

Wholesale selling price:

Asparagus, lb. ... 12½@17½
Beans, string ... 10@12½
Brussels Sprouts, lb. ... 3@5
Celery—Delta ... 2.25@3.00
Cucumbers, Hothouse, doz. ... 90@1.10
Egg Plant, lb. ... 4@5
Lettuce—
Sacramento ... 1.50@2.00
Southern ... 1.00@1.25
Peas, lb. ... 9@12½
Peppers—
Bell, lb. ... 7@25
Chili, lb. ... 9@15
Rhubarb—
Winter Crimson ... 1.00@1.50
Strawberry ... 1.75@2.00
Alameda ... 2.50@2.75
Tomatoes, Mexican ... 1.25@2.00

FRESH FRUIT

Wholesale selling price:

Apples—
Newton, Pippins ... 40@80
White Winter Pearmains ... 50@75
Bellflowers ... 25@50
Bananas, Hawaiian, bunch ... 75@1.50
Pineapples, doz. ... 1.00@2.25

CITRUS FRUIT

Wholesale selling price:

Grapefruit, Seedless, new crop 1.50@3.00
Lemons ... 1.50@2.50
Lemonettes ... 1.00@1.50
Navels ... 1.00@2.25
Tangerines, halves ... 75@1.75

DRIED FRUITS

Wholesale prices are:

PRUNES—1914 crop, bulk basis: 30-40s, 7c; 40-90s, 6½c; 90-100s, 6c. The above are for both Santa Clara prunes and stock from outside sections.

Other Fruits. 50-lb. boxes—	Standard	Choice	Extra Choice	Fncy
Ev'p'd Apples		7¼c	7½c	8 c
Peaches	4 c	4¼c	4½c	5¾c
Apricots	9 c	9½c	10 c	11 c
Pears	7 c	8 c	9 c	10 c

RAISINS

RAISINS—The following prices are f. o. b. Fresno, as given out by the Associated Raisin Company, for immediate shipment, and are guaranteed against a decline till April 1st: Fancy seeded, 16-oz., 7¼c; 12-oz., 5⅞c; bulks, 6c; choice seeded, 16-oz., 6⅞c; 12-oz., 5⅝c; bulk, 5½c; Thompson seedless, No. 1, 16-oz. pkgs., 7⅝c; 12-oz., 6¼c; 50-lb. cs., 6½c; loose, Muscatels, 1-crown, 5½c; 2-crown, 5½c; 3-crown, 5⅞c; 4-crown, 6c; Sultanas, 50-lb. cs., 5¾c; bulk, layers, 50-lb. bxs., $2.75; in 20-lb. bxs., 6-crown, $2.75; 5-crown $2.25; 4-crown, $160; 3-crown, 5-lb. bxs., $1.50; on all bulk stock, 50c additional Cartons—Clusters, 20 to cs., No. 1, $1.70 No. 2, $2.10; No. 5, 4 to cs., $2.25. Local representatives of the association are asking about ¼c higher, while several of the largest independent packers are quoting ½c under these figures.

NUTS

ALMONDS—Prices fixed by Almond Growers' Exchange to the trade, f. o. b. California:

Nonpareil ... 2
I X L ... 2
Ne Plus Ultra ... 1
Drakes ... 1

Wholesale selling price:

Peanuts—
Unpolished ... 5@
Polished ... 6@6½
Shelled, Jap ... 6¼@6
Italian Chestnuts ... 6½@

BEANS

Wholesale selling price:

Limas ... 5.75@5.8
Pink ... 4.60@4.7
Black Eyes ... 6.00@6.2
Cranberry ... 5.00@5.2
Small White ... 5.50@5.6
Garbanzos ... 6.25@6.7
Large White ... 5.30@5.4
Bayou ... 5.40@5.6
Manchurian Speckled Bayous 4.00@4.2
Manchurian Butters ... 4.50@4.7
Red Mexican ... 5.40@5.5
Red Kidney ... 6.00@6.2
Horse Beans ... 4.00@4.

HONEY

Wholesale selling price:

Comb, Water White ... 14@1
Amber ... 10@1
Dark ... 7@1
Extracted White ... 7@
Light Amber ... 5½
Dark ... 4@5½
Beeswax ... 27@3

HOPS
1914

Wholesale selling price:

Sacramento Valley ... 11@1
Sonoma-Mendocino ... 12½@1
Oregon Clusters ... 12@1

HAY

Fancy Wheat Hay (light bales) ... 11.00@12.0
No. 1 Wheat or Wheat and Oat ... 9.00@10.5
No. 2 Wheat or Wheat and Oat ... 6.00@8.5
Choice Tame Oat ... 10.50@11.5
Other Tame Oat ... 6.00@9.0
Barley ... 5.00@8.0
Wild Oat ... 6.00@8.0
Alfalfa ... 6.00@9.0
Stock Hay ... 4.50@5.0
Straw, per bale ... 30@4

GRAIN

Wholesale prices.

Alfalfa Seed ... 14@1
Wheat, Cal. Club ... 2.40@2.4
Corn, Eastern Yellow, blk. ... 1.72½@1.7
Corn, Egyptian White ... 1.85@1.92½
Barley, Feed ... 1.47½@1.5
Oats, Red, Feed ... 1.50@1.5
Millet ... 3@3½
Flax ... 6@6½
Rye ... 2.10@2.2
Sunflower ... 5@5½

FEED STUFF

Wholesale prices.

Alfalfa Meal, car lots ... 16.00@16.5
Bran, ton ... 29.00@30.0
Feed Cornmeal, ton ... 40.0
Cracked Corn ... 40.0
Rolled Barley, ton ... 30.00@31.0
Rolled Oats, ton ... 37.00@37.5
Middlings ... 33.00@35.0
Shorts ... 31.00@32.0
Oilcake Meal ... 38.00@39.5
Cocoanut Oilcake Meal ... 24.50@25.0

Citrus Fruit Market

LOS ANGELES, March 10, 1915.

The orange market seems to be in condition of "getting no better fast. This is not peculiar to California citru fruits; it is true of Florida and imported fruit, and even apples are go

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ing begging. A condition prevails which only time can correct. Something better than a half of California's navels has gone forward. The northern districts of the state are yet shipping, but only in very small quantities. Florida still has a fourth of its crop on the trees. Its finest of grapefruit is going begging, and it has been estimated that less than half of the fruit now held by the growers will ever be marketed. Nearly all California packing houses are running light-handed and some are closed. About one-third of the fruit going forward is being iced. Ventilated fruit is decaying very badly and probably will for the next two or three weeks.

The lemon market is generally depressed and will probably experience no material uplift for several weeks to come.

Shipments

Shipments of oranges to date from Southern California since November 1, 1910, 9,772 cars; lemons, 1233; total, 1105. To same date last season, oranges, 9,836; lemons, 642; total, 10,-528. From Tulare County this season, oranges, 5,104; lemons, 164; total, 5,268. To same date last season, oranges, 4,505; lemons, 30; total, 4,535. From northern counties, oranges, 624; lemons, 1. To same date last season, 392 cars oranges; lemons, 5. Total of all citrus fruits from the state to date: Oranges, 15,500; lemons, 1,398; total, 16,898. As compared with last season same date: Oranges, 14,733; lemons, 677; total, 15,410.

NEW YORK, March 8.—Twenty-eight cars navels, one navelencia, one tangerine, five mixed cars navels, bloods and tangerines, and two cars lemons sold. The market is steady on strictly fancy navels, other grades lower. The market is unchanged on lemons. Weather, fair.

PITTSBURG, March 8.—Eleven cars sold. Market is steady.

ST. LOUIS, March 8.—Market is lower.

KANSAS CITY, March 8.—Two cars sold today by Kansas City Fruit Auction Company.

DRIED FRUIT MARKET

SAN FRANCISCO, March 4, 1915.—The dried fruit market is firm and steady but business is not particularly active. While sales are being made, orders are not coming with any regularity. Many of the trade have supplies still on hand and for their immediate requirements are filling their wants from supplies on hand in their various markets. Steamer space for export business has been hard to get and on account of recent developments in Europe, war risk insurance has advanced, which along with other things increases the cost of shipping.

The demand that we looked for on peaches has not materialized but we are hoping for a better market later. Sales of this variety are being made at prices at which we do not want to sell until forced to. Advices have been received of sales of choice Muirs having been made by others as low as 3¼ cents packed in 50s. We have only a small quantity of peaches left which we hope to work off in mixed cars at much better prices.

There is practically no change in prunes and while prices are being held strong the price in some instances is being shaded by outsiders. Many small packers are anxious to clean up so are making prices with this object in view, a little under the quotations held by the larger operators.

Apricots are strong and cleaning up and the market inclined to advance. We think there will be no difficulty in cleaning up our holdings in a short time.

There is very little doing in pears, but this variety also will have a better demand before long and prices will be dependent upon the grade.

Raisins are about the same as last report. There is very slight demand for figs, but a better one is looked for before very long.

Considerable export business has been done by everybody, but the European war has increased the risk and the cost to such an extent that it is those who are willing to take the biggest chances are handling the most business.

Inquiries are being made for prices on 1915 crop prunes and we understood that as low as 3¾ cents base has been offered and some sales, we are informed, have been made at 4½ cents base on 60-70s. But this is an uncertain and dangerous business as no one can tell what the future will bring forth. It is a gamble pure and simple on the prices prunes will sell for when dried and ready for consumption. The buyer is taking his chances of the market later being higher and giving him a profit; the grower, when he sells, practically says the market will not be higher. It is a pernicious practice; aside from the moral aspect of crimes of this kind, which are bad enough, the effect upon the growing of fruit cannot help being injurious, and it is injurious. Growers as a rule know how this works out, if the market is lower they will nearly always have trouble in making their deliveries and those buyers who do accept the goods will be much more exacting in their requirements. If, on the other hand, the market is higher deliveries of nearly everything that looks like fruit, whether in good or bad condition, may be admitted. Whichever way it goes either one side or the other is dissatisfied. We are all familiar with the means employed by buyers of dried fruit to bid down the market price in California if they are still short at a lower price than they can buy for, which is also another feature of the gamble that loses to the growers of prunes and other fruits, and to the state also, a large amount of money year after year. It is much better not to speculate but to take the average of the markets, which the owners can do by cooperation and marketing their own fruits. No one is able to tell when the lowest point in the market has been reached. No one can tell when the highest has been reached. Bq cooperation and pooling the fruit you always get an average and do not have to worry as to when is the right time to sell.

Not long ago in San Francisco ex-Governor Martin H. Glynn of New York, gave a talk and described the system of the Land Bank in New York state. He stated that this system brings about a saving of $240 on every $1000 in ten years. On their farm indebtedness of $100,000,000 it saves $2,400,000 a year. How much this would save for California farmers you can figure out by applying this ratio to their mortgaged indebtedness. This system is worked out in France and Germany and it will work in New York and California. It not only saves money for the farmer but encourages people to go on the farm and till the soil. A bill for a proposed land bank law has been introduced in the California state legislature and will be considered at this session. (Statistical figures give the farmer's debt in the United States at approximately $5,000,-000,000.00, and while it is estimated that such accommodation to a large extent carries with it usury payments for exchange and commission, authoritative figures give the average limit for loans of this nature at nine and ten per cent per annum).

By such statements it is readily conceived that the existing system by far fails to satisfy the great needs of agriculture. Furthermore only a small portion of the farmer's credit is bankable, notwithstanding the fact that a federal reserve bank provides that any national banking system not situated in a central reserve city may make loans secured by improved and unincumbered farm lands within its federal reserve district, but no such loans shall be made for a longer time than five years nor for an amount exceeding fifty per cent of the actual value of the property offered as security.

Cooperation on the part of the growers will very much help to work out all of these matters and many abuses which the farmer now has to put up with can be done away with as soon as the farmers realize that by standing together and forgetting their own individualism they gain strength and with strength almost anything within reason can be accomplished.

Under the head of "Fundamental Principles of Cooperation in Agriculture," Dr. G. Harold Powell of the California Fruit Growers' Exchange, a cooperative organization which has proven a great success and which has been of great assistance and good to the farmers, states:

"A cooperative organization of farmers must be founded upon economic necessities if it is to be successful and must have strength enough to live in the face of the competition to which it will be instantly subjected. It must compete with existing organizations and this competition will be directed towards eliminating it. It will be viciously attacked and every conceivable form of misrepresentation will be leveled against it; the officers will be attacked by insidious rumors concerning their ability or integrity; the banks established in the nearer sections may be controlled by competitors and may refuse to advance the necessary credit, and every weapon known to competition, either legitimate or disreputable, will be used to put it out of business. The average producer is not a business man nor is he skilled in the arts of competitive business; he is naturally a strong individualist; he is slow to delegate authority over his affairs to any one and when he is face to face with the skillful arguments of those who desire to break an organization and keep him working as an individual, he is likely to weaken and finally leave the organization unless he has felt the effect of hard times and helplessness arising from the competition of those who buy and sell his product, or other forms of oppression. It is an historical fact that the investment of a farmer must have been threatened by existing conditions before he has been able in the past to overcome his individualism sufficiently to work with his neighbors in cooperative harmony. Cooperation to be successful must be founded not only on economic necessity, but it must grow through actual evolution. It must have a simple beginning and grow in strength through experience step by step. The fundamental mistake that is being made in many localities is to form a farmers' organization all at once on the plan of the organization that has taken years to develop. The plan may be sound but a cooperative organization can only exist when given the unflinching support of the members, who, through years of experience have acquired an appreciation of the fundamentals that underlie a successful association of its kind. The success of any organization depends on its members, not on its form."—California Cured Fruit Exchange.

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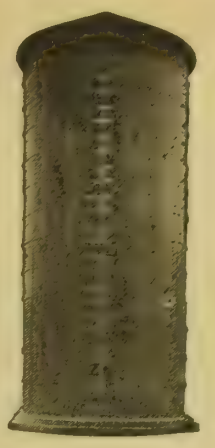

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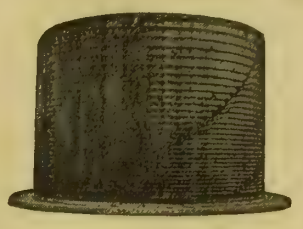

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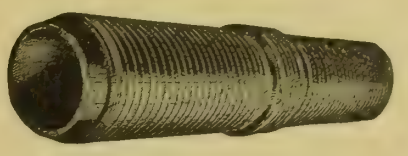

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See Yuba Tractor Advertisement on Page 320

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Rural Californian combined with California Cultivator

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California Orange Day March 20

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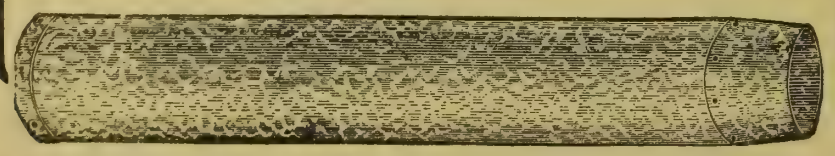

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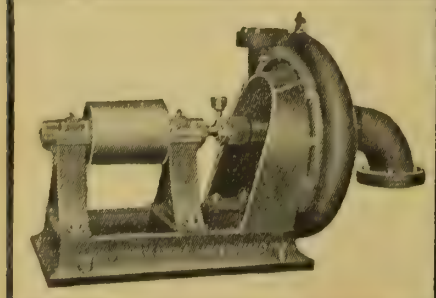

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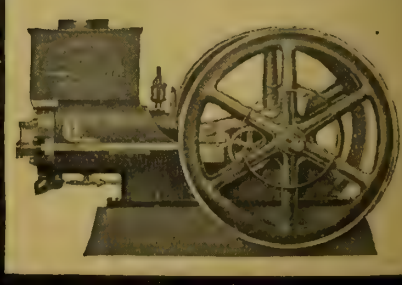

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California Cultivator

Rural Californian combined with California Cultivator

Vol. XLIV No. 11 LOS ANGELES: THURSDAY, MARCH 18, 1915 One Dollar Yearly

Value of Careful Handling of Citrus Fruits

Prof. J. Eliot Coit Writes for Cultivator Readers, Giving Information as to Experiments Performed at the State University

THE lemons shown in the accompanying illustration were picked in December, 1913. They were photographed in March, 1915. They are still in excellent condition, juicy and of good flavor. They might be easily sold on the market today. The acid test shows that the juice contains 5.7 per cent of citric acid, while fresh lemons bought on the market the same day tested 6.3 per cent, a difference of only six-tenths of one per cent. These lemons have not been in cold storage. On the other hand they have been on a table in an office room which is steam heated more than half the time during the year.

This result has been accomplished by preventing decay and keeping the fruit from drying up. The decay has been prevented simply by handling the fruit carefully and not allowing the skin to be scratched or broken, thereby admitting the almost ever-present spores of decay-producing fungi. The juice has been retained by keeping the fruit under a glass moist chamber just as the lunch counter man keeps his sandwiches moist and fresh.

This experiment was begun for the purpose of demonstrating to students the value of careful handling, but it was not thought at the beginning that the fruits would remain in good condition for so long a time.

The oranges shown in the illustration had been in the bell jar about four months, and though they settled a good deal and sweated continually they showed no fungus decay.

LEMONS FIFTEEN MONTHS AFTER PICKING

After citrus fruits are picked from the trees they are not to be regarded as so much dead matter. They are still alive and continue to respire for an indefinite time. In the event that a parasitic fungus gains access through some abrasion or through the button, they are soon reduced to a disorganized mass by the growth of the mold plant. If we accept the definition of "weed" as a plant out of place, then the decay molds may be regarded as weeds. If they are not inoculated but are left in contact with dry air they will gradually lose moiseure until they dry up into brown balls as hard as wood. If they are protected from both evaporation and fungi they will live a long time, as the experiment shows, but will eventually become so weakened by the loss of carbon dioxide, which is continually given off as a result of the life processes going on, that they will finally succumb to enzymatic fermentation.

While the healthy unbroken skins of citrus fruits are resistant to the spores of blue, green, and some other molds, it should be remembered that some fungi (notably the citrus brown-rot fungus), are able to infect and cause decay in perfectly sound fruit. The reason for this is that the brown-rot spores are motile and, being capable of swimming about in a film of water, are able to enter the natural breathing pores and start decay. To succeed therefore in keeping fruit it is necessary that it be freed from the spores of this fungus, which is easily accomplished, where necessary, by dipping the fruit in a dilute solution of copper sulphate.

What is known as the sweating of fruit is nothing more than the condensation of the moisture which is given off as water vapor together with carbon dioxide in the process of respiration. Such condensation takes place whenever the temperature falls below what is known as the "dew-point." Sweating in itself is not injurious and does not cause decay as many people think. All the fruits in the experiment were kept in a saturated atmosphere, and the condensed moisture dripped down over the oranges continuously.

While unbroken skin is resistant to blue and green molds, which are the parasites responsible for most of the decay in transit to market, the buttons, which are in all cases on the fruit, are not long resistant. When the fruit begins to age after several months' storage, the buttons, which were at first fresh and green, turn brown and succumb to various fungi. Often the withertip fungus causes decay of the buttons after they have become weak. In this case tiny salmon-colored spore masses appear on the buttons. After the withertip, or simultaneously with it, other fungi such as botrytis and alternaria begin growth. Usually they get no farther than the button for many months, but in case the fruit is weak, as is the case when lemons are allowed to ripen on the trees, they grow from the buttons into the lemons and, following the fibrovascular bundles which radiate from the stem through the spongy tissue under the skin, produce a slow decomposition and browning of the tissue. Usually the central core is affected also and the lemon becomes soft and structureless on the interior before there is any exterior indication of decay. In some packing houses this is known as "old age decay." There are not as many lemons in the experiment now as there were in the beginning. A few have recently gone down with alternaria core rot, which gained access through the dead button. When the lemons are picked just as they change from green to silver and properly stored they are most resistant to this type of decline, and as the experiment shows, may be kept a year or more. When, however, the trees are used as storage houses and the winter crop left on until it is tree ripe, the fruit loses in keeping quality. Often lemons are left on the trees in the hope that the undersized ones will grow even after they are fully colored. While this is to a certain extent true, it should be remembered that such fruit is short lived and should be hurried into consumption as fast as practicable.

CAREFULLY PICKED ORANGES FOUR MONTHS IN SATURATED AIR AT ROOM TEMPERATURE. NO DECAY.

No one should conclude from the experiments that fruit must be kept at room temperatures for best results, for it is well known that the life processes of the fruit are slowed down by temperatures a few degrees above the freezing point and the final weakening of the tissues considerably postponed. The fact that the fruit in the experiments was kept at living-room temperatures was simply an extra handicap which served to emphasize the value of careful handling.

In conclusion, this is the point to be emphasized: Outside of a possible infection with brown rot, careful handling is the most important factor in the control of fruit decay. Refrigeration should not be expected to take the place of it. When citrus fruit is properly picked at the right stage of maturity and carefully handled, it has truly wonderful keeping qualities.

Marketing Citrus Fruit

Written for California Cultivator by Geo. W. Waterbury

Is Our Present System of Marketing Adequate? Growers Call for Consideration of Methods

AT the present time I believe there is no phase of the citrus business in which orchardists are so vitally interested as in the marketing of their fruit. Many a minor controversy has been lost in the one big, pertinent question just now, how to make fruit raising pay better, or to even pay. I doubt if even the determination of deep or shallow plowing can be brought back to its former prestige until prices received by the growers are improved.

Nor is the present unrest confined to the citrus growers of California and Florida. During the first of the year the Yakima Valley Fruit Growers' Association met and unanimously passed the following resolution:

"Resolved, that this meeting express its hearty approval of every effort which has been made in the past to build its own marketing agency whereby the products of our orchards are brought direct to the wholesalers and the retailers of the country, and to secure for these products the widest sort of distribution; and

"Resolved, that we instruct our representatives to do everything in their power to hasten the time when all of our products shall be offered direct to the trade without the intervention of brokerage firms, commission houses and commission men."

The Covina local exchange of the California Fruit Growers' Exchange recently adopted resolutions calling upon the latter to take up the question of selling direct to the consumer, and the Orange Heights association at Corona, I understand, is to frame a somewhat similar petition. All this is but the forerunner of more agitation of a similar nature which is bound to come.

In the early days of citrus growing in California the first products were all sold locally, usually at very good prices. Then with more groves coming into bearing and improved railroad service to the eastern states California oranges commenced to flow gradually in that direction until the local consumption was a small affair. The coming of the Washington navel and the big freeze in Florida of 1896 all gave new leases of life and added impetus to the industry in California.

Meanwhile Florida went to work to rebuild her shattered industry which again looms large on the horizon; shipments from there at the present time totaling about 17,000 cars of oranges and 4,000 cars of grapefruit, a little over three quarters of her season's output.

Planting in California, both in Southern California and in the Porterville region, has been heavy, rather too heavy, during the past ten years. It seems to be an infallible rule in human nature to plant whatever fruit trees are paying best at the time of planting, irrespective of the one paramount question as to whether that particular fruit tree is best fitted for the exact location in which it is to be placed. It is surely going to be a survival of the fittest in the end. Six years later those newly planted trees are bearing a little and who can tell six years in advance what particular article of commerce is going to pay the best?

Fruit growers first marketed through consignment to eastern fruit firms and by selling for cash on the trees to local investors. The abuses under these respective systems were many. Under the first too much of the growers' time was consumed [illegible] trips to the east to ascertain [illegible] freight rates should be paid at

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California end and in the local sales way why so many land and crop mortgages were held by so few men.

The rise of the California Fruit Growers' Exchange seemed to mark the beginning of a new era, where waste in handling and selling would be cut to the bone and the growers get at least one hand on the whip end. This system did bring order out of much confusion, improved selling conditions immensely and gave new hope to the industry. Unfortunately it has no power to fix new acreage to be planted yearly nor establish lowest prices in selling.

In our growing the greatest care has been exercised to eliminate chance; it has been marvelous, this elimination of uncertainty in production. Our trees are fed scientifically, more scientifically than the human race; they are watered and warmed with precision and pruned with the utmost skill as to ultimate needs. Nowhere on earth has such skill been exercised as in the mutual prevention of scale and insect injury, and yet when we come to planting and selling our fruit order vanishes; it is a case of chance from beginning to end.

Let me illustrate. If prices were good this year and returns liberal, speculative companies could be formed to plant out 100,000 acres. This acreage is much too high, and in a few years, if these trees are any good, will flood and break the general markets, whereas, say, an annual increase of five or ten thousand acres might be just right to supply the natural increase in demand. Public sentiment, or a general unit control of marketing California fruits, could prevent overplanting, if such would be allowed by our government. Tobacco planters in Kentucky eventually cured the overproduction problem in tobacco, but it took a good deal of night work to accomplish it, and the manner, though effective, was rather strenuous.

In marketing, our fruit is started out in big volumes at this time of the year, some of it on orders and the rest to land where it may and when it may. There is no accurate way of determining what the price is going to be on a car of oranges or lemons when shipped unless consigned on a definite order, and then if the market breaks in the meanwhile the quality is bound to be found defective upon arrival.

But in selling for cash conditions are no better at this end and the quantity offered is surely going to affect the price unless control of that selling price is made and kept by an organization big enough to do so. To accomplish this it seems to me that eventually the citrus fruit industry of California must take a hand in passing it on to the consumer. I do not believe the jobber or wholesaler's prices for handling are unreasonable, but when the retailer has added his final toll the last straw has been added to the fruit grower's shoulders and the banks must help him out plentifully in the fall of each year.

Now what is the matter with the retailer? Is he making too much profit in his business? If you ask him he certainly would say, "No," and I do not believe he is. If we think prices have been low on California oranges this winter we have but to turn to Florida grapefruit growers for sympathy and the consolation that misery is supposed to love. Florida pomelo raisers have not been paying freight rates, let alone taxes and shoes for the baby. And why? Because of too great haste in recent plantings and the general tendency of a rather practical public to consider grapefruit at 20 cents apiece or $2.40 a dozen in the nature of a luxury. The Florida pomelo men could not very well dig up their orchards, but they could go for the big dining car systems, and they did, forcing a decent reduction in price.

We know that as the price drops more fruit is called for, thus increasing demand. But to return to the retailer who is not growing unduly rich. The California Fruit Growers' Exchange estimates that he makes over 30 per cent profit on our fruit, and we have often noticed in our eastern papers that first grade California oranges rarely sell for less than 40 cents per dozen, no matter what our price is, and the Boston Transcript's quotations usually call for 60 cents per dozen, equivalent to, say, 100 per cent on their purchase price. The California grower is probably averaging around 15 cents for the same.

The grocers who are handling our fruits at such enormous profits are not getting rich quick because they are not making such enormous profits on other lines of merchandise; a considerable quantity of which is handled at about cost. This is due to the wise policy of the trusts in accurately keeping prices as low as possible for the consumers, thus enticing them to buy more, and to the trusts' principle of taking all the profits in sight. Why not make the sugar sales, the tobacco sales, the kerosene sales and other trust sales carry their proportion of the grocer's revenue? We are told there are no trusts now, so thus their power over the retailer must be no more than that of the California Fruit Growers' Exchange, admittedly not a trust.

I have found oranges selling from retail stores at 30 cents a dozen right in our San Joaquin towns. If a proper local transportation service can be estalished I believe the consumer always likes to deal more direct with the producer. Eight years ago I purchased kerosene from the grocer at 31 cents per gallon; now I get it on my ranch at 10 cents per gallon, delivered in 50-gallon lots direct from the producer; I use more and am better satisfied.

A few years ago the largest coffee wholesale house in the United States decided to sell direct to the retailer from its Boston warehouses. The matter was gone over thoroughly in advance; every move was calculated and possible defects provided for. The firm then was doing a business of about $10,000,000 a year, but selling conditions were not right, too many had a hand in the profit bag.

At a predetermined time the firm sent out its announced policy of selling direct to the retailers of the whole United States, and salesmen went out to deliver the goods. The plan proved a success from the very start, and the same firm is now doing a business of $20,000,000 a year instead of $10,000,000. The United Cigar stores is another instance where distributing houses in each large center of population sell goods of well-known quality direct to the consumer. Five and ten cent stores in the United States and the large Rochdale stores in England are models of low-priced distribution.

The California Fruit Growers' Exchange is a well organized, well governed institution, but the present plan of distribution will probably not be the one in use 10 or 15 years from now. When large numbers of growers are running behind on their expense accounts they are surely going to demand that the very best and most economical system possible be used in securing a large proportion of the total sales from their fruit.

BEET PULLING AND TOPPING MACHINE

Some years ago the Western Sugar Company at Denver offered a $10,000 prize for a machine which would pull and top beets. We doubt not this offer has resulted in much investigation to invent such an implement. A Californian entered this competition and has secured a patent on such a machine. From the letters patent we quote:

"My invention relates to beet pulling and topping machines wherein converging wheels, rotated by the traction of the vehicle and provided with cushioned rims, are adapted to engage and pull the growing beet from the ground after the ground has been broken by a ground breaker on the front of the vehicle, after which the beet is carried to a blade which cuts the top therefrom and deposits the top in one row and the beet in another, and the objects of my invention are, first, to provide means for breaking the ground on both sides of the beet row; second, to provide converging wheels having cushioned rims adapted to engage and pull a beet without injuring or fracturing the skin; third, means for cutting off the tops of the beets; fourth, means for controlling the space between the converging wheels, and fifth, means for elevating and partially rotating the ground breaker."

California Fruit Growers Exchange

The Citrus Growers Organization

Handled for the Growers Through Their Own Representatives

Insures the grower the full market value of his product, less only the actual expense of handling.

And through the

Fruit Growers Supply Co.

the minimum cost of all supplies.

Comprising 150 Citrus Organizations in California—6,500 Growers.

Salaried representatives in every jobbing center, devoting their time and energy exclusively to the interests of the Exchange Grower.

Shipments **1913-14 28,186 carloads—11,262,185 boxes.**
Returns **1913-14 $19,246,757.00 f.o.b. California; delivered value $29,434,402.40**
Losses **1913-14 through bad accounts $355.00; $\frac{1}{524}$ of one per cent.**
Cost **1913-14 5 3-4 cents per box—2.2% on gross sales.**

Cost Includes:

National advertising campaign to increase the consumption of California Citrus Fruit.

Inspection service along the various routes, insuring proper handling by carriers.

Maintenance of Traffic Department and Collection of Claims.

Legal expenses and share of maintenance of Citrus Protective League which handles the rate and tariff and other matter of general interest to the industry.

Complete telegraphic market reports from every important district in the United States and Canada.

And every other expense of the Organization.

The most efficient and most economical sales and market news service in the world.

The organization that made the present development of the California industry possible and to which the industry must look to work out the problems of the present and the future.

California Fruit Growers Exchange

Main Offices: Consolidated Realty Bldg., 6th and Hill Streets, Los Angeles, Cal.

Cost of Distributing

G. Harold Powell Before the Western Fruit Jobbers

The following address made by Mr. Powell, presenting the matter of marketing citrus fruits, was made to a convention of fruit jobbers. Therefore it is a presentation of facts as the jobber and retailer should see them. It has much of value however for the producer. A serious problem is before business men of any calling with trade conditions as they are today; the orange grower is no exception. It is well for him to look at the problem from all sides before present methods are set aside. Mr. Powell is a thorough going representative of the producer and for that reason has made a thorough going study of conditions in the Eastern markets as well as of conditions in California.

THERE are approximately 200,000 acres of citrus fruits in California, representing an investment of $200,000,000. Eighty-three per cent of the total acreage in 1913 were oranges, and 17 per cent lemons. Two-thirds of the groves were of bearing age in 1913; 85 per cent of these were oranges and 15 per cent lemons. There are now 32,556 acres of lemons in California, 14,500 of which are of non-bearing age. When the non-bearing lemon groves come into bearing the lemon production of the state, even with a moderate yield, will exceed the present total lemon consumption of the United States and Canada.

Increase in Acreage

There has been a steady increase in the acreage devoted to citrus culture in California since the introduction of the Washington Navel orange in 1873. In the ten years from 1903 to 1913 the citrus area increased from 83,657 to 191,357 acres, an increase of 128.9 per cent; oranges increased 138 per cent and lemons 82 per cent during this period. In the five years from 1908 to 1913 the total area increased 29.1 per cent, the increase for oranges and lemons being 23.3 and 67.6 per cent respectively.

Increase in Shipment

The shipment of citrus fruits has also increased rapidly. The increase in five year periods in the number of carloads of oranges and lemons is as follows: From 1895 to 1900, 225 per cent; 1900 to 1905, 71.5 per cent; 1905 to 1910, 10.9 per cent; and 48.5 per cent from 1910 to 1914. A normal crop now is 50,000 carloads, one-seventh of which are lemons. Of the oranges approximately 63 per cent are Washington Navels, 27 per cent Valencias and 10 per cent miscellaneous varieties. The Valencia shipments increased 60 per cent in 1914 and will increase rapidly in the near future.

Increase in Consumption

There has always existed a fear since the beginning of the California citrus industry lest the increase in production outrun the increase in consumption; or, to state it differently, that there might be more citrus fruits produced than the people could consume at a price that would pay the producer. The total consumption of citrus fruits is increased in two ways: First through the increase in population, and second in the increase in the per capita consumption. The increase in population is not rapid enough to absorb the increase in the production of citrus fruits. The population of the United States increased 20.7 per cent from 1890 to 1900; the shipments of citrus fruits increased 195 per cent during the same period. From 1900 to 1910 the population increased 21 per cent, while the shipments increased 292 per cent during the same period. The consumer is using more fruit than in former years, and is using it more and more as an article of food, rather than a luxury. It is through the increase in fruit eating habit of the people that the enormous increase in fruit production is taken care of.

In order to stimulate consumption and to insure a fair return on the investment the industry has been obliged to eliminate speculative distribution by placing its own agents in the different markets of the United States and Canada, through whom the grower sells the fruit to the jobber after the latter determines its condition, or sells it to him subject to condition on arrival. In some markets the fruit is sold on an f. o. b. California basis. The industry is creating a public consciousness of the food value of citrus fruits by advertising on a national scale; it is stimulating the sale by cooperating with the retail dealers and with the jobbers and traveling salesmen by furnishing them with display and advertising material and information on the citrus industry.

Investigations of the California Citrus Industry

The industry has also made a searching investigation of the cultural and labor costs of production in order that it may better understand its problems; it has organized on a co-operative basis the purchase of materials used in the packing houses and in the groves, and it has secured the aid of the state and federal government in order that its business may be conducted economically and the cultural and fruit handling difficulties that confront it may be solved by scientific research. Through better handling methods the industry has lessened decay and has thereby reduced the risk of the jobber and retailer.

There are few American industries that have been benefited more by the application of systematic, organized business methods to its problems than the California citrus industry. Until recently its investigations ceased with the production of the fruit and with its distribution to the jobbers of the country. But as the prosperity of the industry always waits upon the increase in consumption of the fruit at prices profitable to the producer, the industry has undertaken an investigation of the distribution after the fruit reaches the market in order to see how the handling of its own problems can be improved and how its cooperation with the jobber, the retailer and the consumer can be made more effective, its advertising more direct, and the wastes of distribution can be eliminated. The distribution of the nation's food supplies is far more complex than the problems of production, because of the intricate, interwoven relationships of transportation, finance, the assembling and distribution to the consumers after a product reaches the market, and the safeguarding of all the factors involved in the highly complex industrial process. The standard of living of the American consumer has changed radically in the last generation, and the demands of the consumer impose a series of conditions upon the distributing agencies that are increasing in complexity.

AVOCADOS

Bring $40 to $50 a Box In Los Angeles

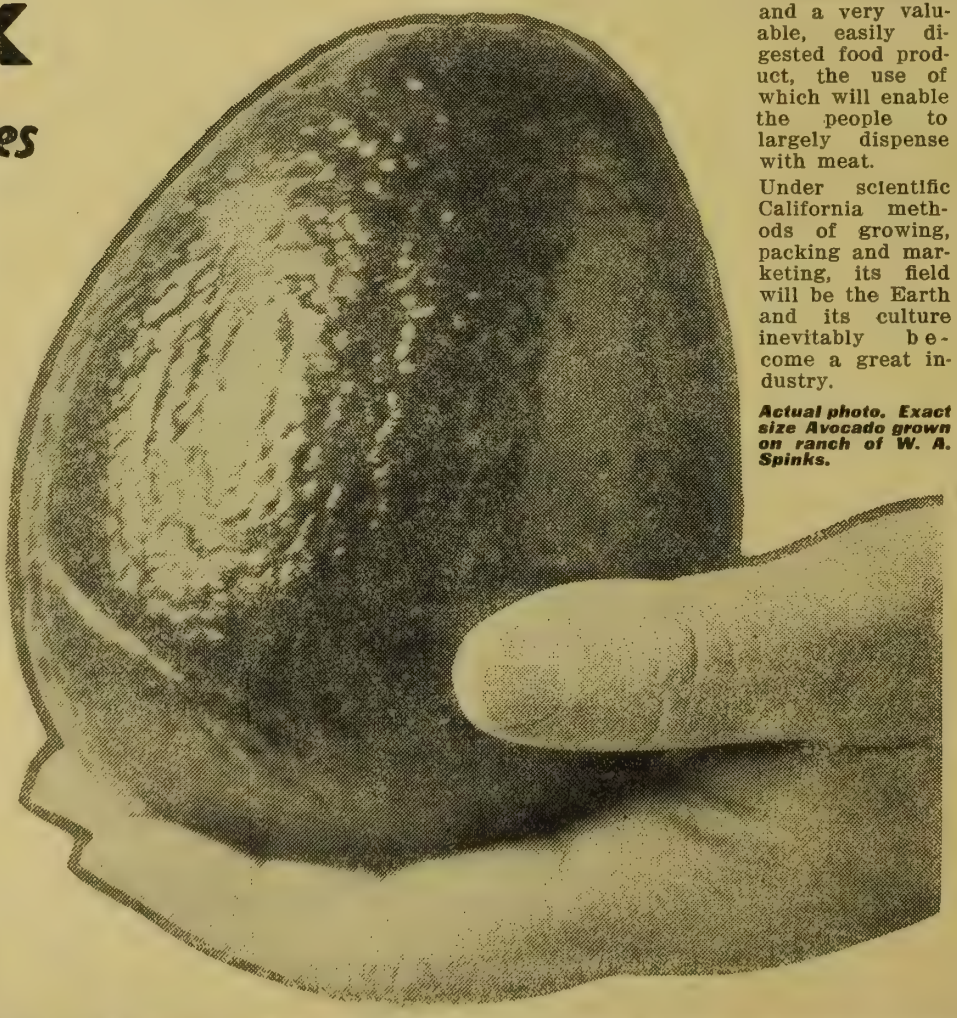
—the great future fruit industry of California—

FACTS YOU OUGHT TO KNOW

Avocados will grow and thrive in California. Properly selected varieties will stand more cold than oranges, require no more water nor general care, do not so readily harbor pests, make nearly twice the growth per year, eventually produce several times the number of fruits per tree, and make most beautiful ornamental trees. The fruits grown in California are entirely superior in richness and flavor to those grown in the Tropics, and find ready sale at fabulous prices.

The Avocado is the most important fruit in the world, being at once an unrivaled delicacy and a very valuable, easily digested food product, the use of which will enable the people to largely dispense with meat.

Under scientific California methods of growing, packing and marketing, its field will be the Earth and its culture inevitably become a great industry.



Actual photo. Exact size Avocado grown on ranch of W. A. Spinks.

"As to the value of the Avocado fruit, no one on earth can question that. It is the most nutritious, easily digestible and delicious of all fruits and if it can be purchased in quantity will sooner or later be eaten by everybody everywhere."—Luther Burbank. Extract from letter of Feb. 20, 1915.

Vigorous field grown trees, 2-year-olds from the bud—of rapid-growing, cold resistant and prolific variety 1¼ inches in diameter or larger, $2.00 each. Will bear fruit in from two to three years. Lower prices on quantities. Take advantage of the times and buy at these low prices. Write for complete literature.

Keep this ad in your scrap book and look at it in ten years from now.

W. A. SPINKS

Duarte, (Los Angeles Co.,) Cal.

Write for a copy of **Morse's 1915 Garden Guide** Just off the press **Mailed Free**

C. C. MORSE & CO.

GARDEN-FIELD AND FARM **SEEDS** 749 FRONT ST. SAN FRANCISCO

Every packet of **Morse's Seeds** Vegetable or Flower, are dependable seeds. Fully tested before packed. **For Sale Everywhere**

Distribution

The investigation of the distribution of the citrus fruit crop has been made in the principal cities of the United States and Canada through the cooperation of the jobbers and retailers with agents of the industry located in these places. It has not yet been extended to the rural districts. The method of investigation, so far as it relates to the costs, follows: Beginning in January, 1914, the agents, starting with the delivered price of oranges to the jobbers of the 126, 150, 176 sizes, and of the 300 and 360 sizes of lemons, determined the price which the leading jobbers in each place charged the retailers on the same grades and sizes and then determined the retail price to the consumer, both on the box and dozen basis. The data were accumulated every two weeks on the same grades and sizes during the entire year, thereby giving a large number of consistent reports from many places.

To illustrate the results of the investigation, 30 representative cities and towns are selected. There are 5485 reports on oranges from jobbers and retailers. By taking the average price paid by the consumer it is possible to make a distribution of the consumer's dollar back to the grower and to show the different factors which enter into the consumer's price.

Taking 30 representative markets as a whole, including the 5485 reports extending over the year 1914, the factors entering into the consumer's dollar are as follows:

	Per Cent of Consumer's Dollar
Retail distributing cost (gross)	33.3
Grower's selling cost	1.5
Jobber's distributing cost (gross)	8.2
Freight and refrigeration	20.5
Packing house cost	7.4
Cost of picking and hauling to packing house	2.4
Proportion returned for fruit on the tree	26.7
Total	100.0

Summarizing, the data show that 36.5 per cent of the consumer's dollar is returned to the grower in California, of which 9.8 per cent represents the proportion alloted to picking, hauling and packing; 20.5 per cent represents the allotment to transportation; 1.5 per cent, the grower's cost of selling the jobber, and 41.5 per cent the proportion represented by the jobbing and retail gross distributing cost, the latter representing four times as much as the former.

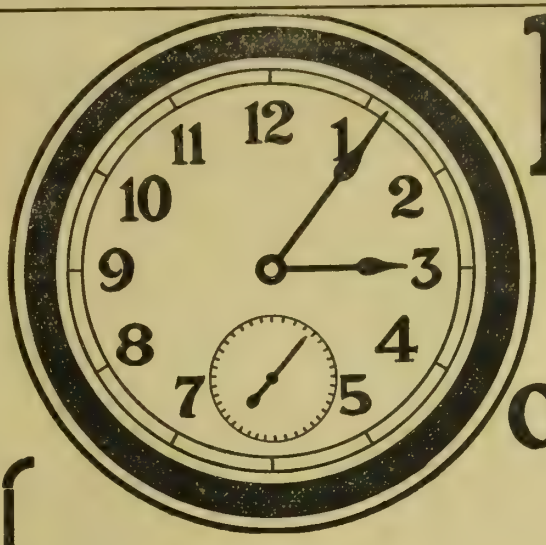
The amount of the consumer's dollar allotted to each factor referred to in the table should not be confused with the cost of handling each of these items. The average cost of picking and hauling a packed box of oranges from the grove to the packing house is 10.5 cents; the average cost of packing and loading on the cars is 32.4 cents per box; the average cost of freight and refrigeration is 90.7 cents a box; the average grower's cost of the cooperative method of selling, including advertising, is 6.6 cents per box; the average mark-up of the Jobber is 14.2 per cent on the purchase price; the average mark-up of the retailer is 49.8 per cent on his purchase price, both of the latter figures including the loss from decayed fruit.

Variations in Distributing Costs

A considerable variation has been found in the proportion of the consumer's dollar that goes to the jobber and retailer in different parts of the country. West of the Rockies and in Canada, for example, the jobber's costs are higher than in the East or in the Mississippi Valley, on account of higher labor costs, higher rents, higher interest and larger geographical distances to be covered by the traveling salesmen of the jobbers. These costs are reduced in the older, more densely populated parts of the country where interest rates are lower and where the various costs of distribution are more economically accomplished. The jobbing costs of the Eastern half of the United States are often not more than one-half the corresponding costs in the West.

There is an equally wide variation in the distributing margins in different cities, sometimes due to the efficiency of the men engaged in the jobbing business, sometimes to natural local conditions, and sometimes to understandings between different jobbers through which a minimum margin is established. The record shows that in one city the average mark-up of the jobbers is approximately 10 per cent. There is the most active competition there, turnovers are quick, the margin on each transaction is small and the per capita consumption is high. In another city, in one of the richest, most fertile states, where a few friendly jobbers work together, buying cars of fruit jointly and selling at a high margin on each turnover, the average mark-up for the year is 22 per cent. The consumption there is restricted, sales are slow, and the business is transacted on an artificial competitive basis.

There is apparently a considerable variation in the margins, due to the number of times a jobber or a retailer turns over his capital. Quick sales at a small margin of profit is the policy usually followed by those who specialize in the citrus fruit business. They make their annual profit on a large, steady volume of business. They attract the consumer with fruit that is always fresh and attractive at reasonable prices. They stimulate consumption by advertising and in other ways. Others, especially among the country retailers, or among jobbers who carry citrus fruits as a side line, do not specialize or push sales. Their losses from decay and off condition are large and their margin on each turnover must necessarily be



Don't Delay -Send in your order for TREES now

This is going to be a season when planting can be done successfully throughout March and April ——— but if you don't want to be disappointed in securing the varieties you want---we urge you to get your order in NOW.

We have had an enormous season thus far and a splendid stock to meet the demand with, but orders are coming in very fast and we don't want to disappoint any of our past customers or any new ones who are counting on setting out the famous "Roeding True Trees."

Our stock still includes all the best varieties of—

APPLES PECANS PRUNES LEMONS
OLIVES APRICOTS ORANGES FIGS
PLUMS CHERRIES PEACHES PEARS
WALNUTS POMELOS

As well as many other fruit trees, vines, shrubs and plants.

Surplus Stock—Special Prices

We have heeled in at our packing grounds a complete line of deciduous fruit and ornamental trees, small fruits, grape vines, and roses. Write us at once for our Surplus List and Special clean-up Prices on this stock. The trees are in perfect condition and ready for immediate shipment.

OLIVES

We have a fine stock of Mission and Manzanillo, and every prospective planter should get in touch with us before placing his order. Trees can be delivered either from our Fresno or Los Angeles Nurseries. Special quotations for stock in any quantity.

Our Book for Planters

"Roeding's Practical Planter's Guide, the Result of 30 years' experience in California Horticulture," contains complete cultural instructions with illustrations showing "before" and "after" pruning. The regular price of the booklet is 25c, but if you send us your list for prices and suggestions, we will send you a copy free. Write us today.

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for the season 1914-1915 is FREE, fully illustrated. Contains 60 pages and briefly lists and prices all stock carried by us, consisting of over 2000 varieties of trees, vines and plants. A copy will be sent free to any address upon request.

Fancher Creek Nurseries, Inc.

Paid Up Capital $200,000.00 Geo. C. Roeding, Pres. & Mgr.

Box 12 ——— FRESNO ——— CALIF.

LILLY'S Soluble Sulphur Compound

The Sulphur Spray in Dry Form

Manufactured on the Pacific Coast Under Niagara Patents

This is the Soluble Sulphur Compound tried and proved by three years use throughout the United States and Canada, and particularly in Oregon and Washington.

Attempts are being made to use the reputation of our compound to market a crude substitute—a caustic soda compound of low sulphur content—under a similar name. Beware of such inferior products.

LILLY'S, the only authorized and genuine article, will be placed on the California market through San Francisco and Los Angeles.

The Chas. H. Lilly Co.

Portland **Seattle**

North Whittier Heights Citrus Nurseries

— HOME OF —

High Grade Citrus Trees of all Varieties at Reasonable Prices

20 Years Experience Growing Nursery Stock

Our nursery is located in a clean district, therefore our trees are absolutely free from insect pests.

These trees are excelled by none, for the reason that our stock of one-year-old buds are grown on new soil, and the greatest of care has been taken in the selection of buds which were taken from our own groves.

Lemons, Oranges and Grapefruit ⅝ and up, guaranteed to be true to name.

If it's Citrus Trees we can supply your demand. Before buying write or call and inspect our stock.

POLLARD & MARTIN, Puente, Cal.

No Matter What Crop You Grow

YOUR SOIL MUST BE RIGHT ALWAYS

California's great soil need is Phosphorus. The most economical and logical source of Phosphorus is

Finely Ground High Grade
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Phosphate Rock

The Phosphate of Lime

Efficiency and Economy are Inseparable Everywhere.

United States Phosphate Co., 405 Marsh-Strong Bldg. Los Angeles, Cal.

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IF YOU ANTICIPATE PURCHASING ANY KINDS OF NURSERY STOCK by all means write for our Beautiful Free Catalog. Contains many helpful suggestions. We carry full lines of very best Planting Trees, Plants, Shrubs, Roses and other first-class stock. Unsurpassed packing and shipping facilities.

CLAREMONT NURSERIES, Inc.

1200 Indian Hill Blvd. Claremont, Cal.

large to protect themselves against fluctuation in prices. These dealers are not important factors in increasing the per capita consumption. The margins charged by the retailers may run as high as 75 per cent above the cost in some cities, while in others it drops as low as 20 per cent.

Fluctuation in Carlot Jobbers' and Retailers' Prices

We desire to bring out another phase of the orange distributing business. It relates to the fluctuations in the jobber's, retailer's, and consumer's prices. The impression is widespread that the consumer's price does not fluctuate with the retail purchase price, and that the jobber's price to the retailer does not fluctuate with the price paid the producer. In order to determine the facts we have taken the carlot, the jobber's and the retailer's prices in 12 representative cities for one year and have charted the fluctuations in the respective prices.

The three prices taken as a whole do follow each other with almost exact regularity, and this must necessarily follow where the competition between the different wholesale and retail dealers exerts itself naturally. There are many exceptions to the general rule where the retailers or the jobbers maintain a somewhat uniform price throughout the year and especially where the jobbing and the retail prices are held abnormally high after the producer's delivered price has been reduced. This is especially true where the fruit is carried as a side line to meet the ordinary demands of the customers of a store. It may be more true in the country districts where there is not so active a competition in the sale of fruit and in markets where the forces of competition do not operate naturally. When the producer's price is low the consumer reaps a benefit only when the price of the jobber and retailer is reduced correspondingly.

No attempt will be made to interpret these figures at the present time except in a general way. The industry is vitally interested in seeing the cost of production and the costs of distribution reduced to a minimum by a more efficient organization of every distributing process and by a better understanding of the problems of each factor, to the end that a more effective cooperation between them all may be brought about. The industry recognzes that the distribution of a food product is a series of complex operations; that the railroads, the jobbers and the retailers, each perform a vital economic and social service in bringing the producer and the consumer together; that each should receive a fair return for the service he performs, and that a more efficient and direct service should be the aim that each should strive for if the basic factor, the industry which furnishes the fruit, is to prosper: It also recognizes that many of the conditions under which food supplies are distributed in the cities are created for the jobbers and retailers by large economic forces and by the requirements of the consumer, which are beyond their power to influence or control. But if the producer, as well as the distributing agencies, the railroads, the jobbers or the retailers are not effectively organized, or if they are not following sound merchandizing practices, their overhead costs are excessive and they impose an undue burden on both the producer and the consumer, consumption is restricted, the investment of the producer is jeopardized, and the stability of the industry is threatened.

We may suggest in a general way some of the conditions which seem desirable to be brought about.

Conditions Which the Producers Must Meet

First, on the part of the producer it is essential that he furnish the jobbers and retailers a uniform supply of citrus fruits of dependable grade and pack and of good keeping quality if a staple merchandizing business is to be developed by either. Variable grades, packs, and keeping quality increase the hazard of fruit merchandizing, and the jobber and retailer must necessarily add a margin large enough to cover these risks. Uniformity in grades and supplies stabilize trade and the margins naturally adjust themselves on a lower level. This is a fundamental requirement in fruit merchandizing often overlooked by the producer, difficult to handle on account of the large number of groves involved, but one in which progress is being constantly made. The producer must utilize every known agency under his control to produce a higher grade of fruit at a lower cost. To this end he is also making progress with the aid of the state and federal governments, though there is no immediate prospect that the cost of production will be reduced. Rather are they growing higher on account of the higher costs of material and labor. It now costs the producer an average of $1.29 per box for oranges and $1.90 per box for lemons to produce the fruit, handle it, and place it on the cars for shipment.

Transportation Conditions

Whether the cost of transportation will be reduced only the future can develop. At the present time the industry is shipping the fruit under rates established by the railroads and sustained as reasonable by the interstate commerce commission. They represent $1.00 per 100 pounds on lemons and $1.15 per 100 pounds on oranges. The orange rate represents 20.5 per cent of the consumer's dollar based on the representative prices of 1914. The average haul of oranges is approximately 2,500 miles, absorbing thereby a higher proportion of the consumer's dollar than other products contribute where the sources of production and consumption are closer together.

Position of the Jobber

The position of the jobber in the distributing system is widely misunderstood. To the so-called middleman the high cost of distribution is popularly ascribed, and there is a widespread agitation that he be eliminated. This investigation shows that 8.2 per cent of the consumer's dollar, or a mark-up of 14.2 per cent, represents his margin and that he is not the leading factor in the cost of distribution. The jobber performs a distinct function that must be performed by someone in assembling the fruit in the towns and cities, in developing trade with the countless retail dealers in the rural districts and cities, and in blanketing the credit and other distributing risks for the producer. His function is somewhat similar to that of the banker, who furnishes the money through which trade can be conducted, except that his business is not so highly organized, it is not under state and federal direction and control, the abuses are not so easily corrected, and they are therefore featured in the popular mind out of proportion to their true relation to the business of the middleman as a whole. The jobbing interests of the country owe it to themselves to see that the unprincipled middleman is eliminated; that practices of every kind that are unfair to the producer are cut out—that any ractice that slows down the natural forces of competition and thereby reduces consumption be brought under strict regulation. In no other way can the legitimate function of the fruit jobber in bringing the producer and retailer together be properly developed anl safeguarded against radical legislative action that may in the end be undesirable for both the producer and the consumer alike.

We would suggest that the jobbing interests of the country seek the cooperation of the bureau of markets of the United States department of agriculture to the end that a cooperative systematic investigation of all the conditions surrounding the functions and the practices of the jobbing trade be made. This investigation would reveal the waste in the wholesale distributing system and it would furnish the basic facts on which the jobber's relationship to the public and to our modern industrial life could be more clearly understood.

Other industries, such as the cold storage interests, the railroads, the handlers and shippers of fruit, poultry and eggs have been greatly benefited by cooperative investigations with the constructive branches of the federal government. It is too much to hope that such a cooperative investigation would have a far-reaching influence on the economic phase of the wholesale relationship of the jobber to the producer, the retailer and to the public at large.

Retail Cost of Distribution

This investigation brings out clear-

San Dimas Citrus Nurseries

Citrus Trees Exclusively

For 25 years we have been growing citrus trees exclusively and successfully. The fact that we are and have been for many years the largest citrus nurseries in the world would seem to be sufficient proof that we know how and do grow better trees than anyone else.

That our trees are giving the greatest satisfaction is evidenced by the large and increasing number of people who insist on Teague trees—and will plant nothing else. Our success is due to quality—the result of concentration upon one subject. We ship to all parts of the world—one of our largest and most recent shipments being to South Africa.

It Pays To Buy Teague's—The Best Trees

In buying any kind of a tree it is of the utmost importance to buy the best and this is if anything more important with citrus trees because they cost more. There is more money involved, and a few cents on the first cost of a tree is of very little consequence when you take into consideration its future care and future yields.

Buy your trees from those who have spent years in the business, and who are in a position to back up their guarantee.

We Grow All The Standard Sorts

It doesn't make any difference how large or small your order may be, we can take care of it in good shape. We can supply all the standard sorts in Oranges, Lemons and Pomelos—as well as many specialties that are in limited demand. Write us about what you are planning on setting out and get our suggestions. We are always glad to advise with prospective planters free of charge.

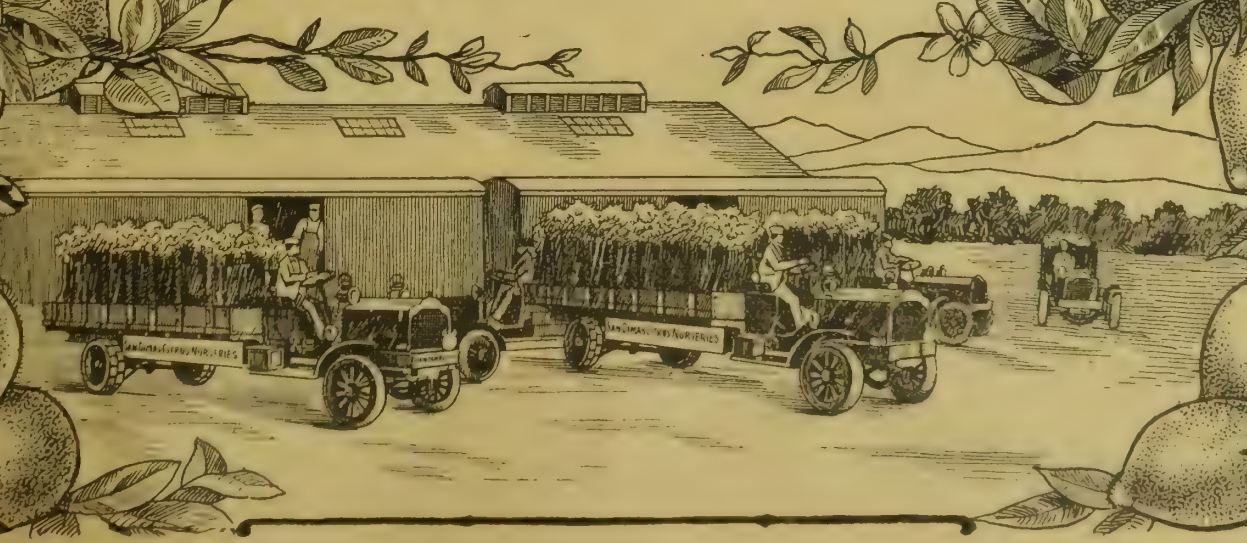
Write for Our Book, The Principles and Practices of Citrus Culture—Price 25c

It is handsomely illustrated and deals exhaustively with the subject from seed to market. Describes methods of propagating, budding, cultivating, irrigating, packing and shipping. The expense of getting out this book is so great as to prohibit free general distribution. It is worth several times the price, but will be sent postpaid to any address upon receipt of 25 cents in stamps.

San Dimas Citrus Nurseries

Incorporated *Founded 1890 by R. M. Teague*

San Dimas, Cal., U. S. A.



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A BIG HOT SPARK
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RESULTS

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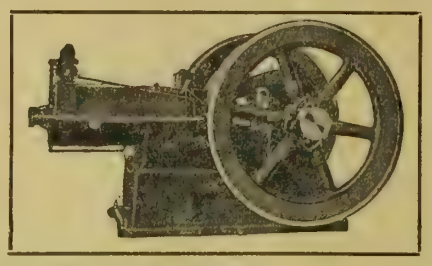
Equipped with a built-in, gear-driven, gear-timed magneto, which is guaranteed for the life of the engine.



The Viking Rotary Pump

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ly that the most important factor in the cost of distribution, next to the cost of transportation, is the retail distribution, which represents one-third of the consumer's dollar. The amount of the consumer's dollar represented by the gross retail cost is four times the amount represented by the jobber's cost. It is more than the proportion absorbed by the cost of transportation and the jobber's cost combined. It is nearly equal to the amount returned for the fruit on the tree, which includes the cost of production and grower's profit and the cost of picking, hauling and packing.

There are several classes of retailers engaged in the fruit business; the fancy fruit store, the high class grocery store, the average grocery store, the chain store, the fruit stand and the fruit vender. The present retail system is largely the result of the demands of the consumers which each class serves. A retailer's overhead charge includes store rent, salaries and wages of employes, interest on capital, cost of purchasing, resorting, displaying, storage, and delivering goods, taking of orders, telephone, light, heat and other store expenses, losses from decay and deterioration, taxes, insurance and other necessary expenses. Most of the expenses are also included in the jobber's overhead costs. Where the fruit is sold from push carts and street stands, some of the expenses are eliminated or are reduced. In the fancy fruit stores and in the large grocery stores which cater to the well-to-do, these overhead charges are naturally larger. They make up the cost of the service which the consumer demands, and the cost of the fruit is only one of the factors in the consumer's price. The simpler the service, the less the overhead cost, and in those cases the consumer pays primarily for the fruit with only a comparatively small overhead charge added for service and profit.

The retail distributing business is a vital line in the chain between the producer and the consumer. The desire for fruit is awakened by suggestion, by seeing attractive displays of fresh, luscious fruit in the windows of the store, on the counters, or in other forms of display. It is stimulated by the attractive fruit stands and by the push carts laden with golden oranges, by advertising in the magazines, the newspapers, street cars and other advertising mediums. It is promoted by prices which bring the fruit within the reach of the average consumer. The retailer, more than any other factor, creates this appetite appeal, because he comes in direct contact with the consumer, and he stimulates or retards it by charging reasonable or exorbitant prices.

The retail dealer must therefore know how to make artistic fruit displays if he is to catch and sustain the interest of the consumer. The fruit must always be fresh in appearance, free from decay and appetizing in every way, and the price must be reasonable. If the appeal to the consumer's appetite is not strong and continuous, the retailer does not increase the consumption. If the price is not reasonable it cannot be purchased by the average consumer. If the sales are not rapid, the fruit wilts, loses color, decays and is a drag on the hands of the retailer. Under these conditions the retailer, unless he is a fruit specialist, does nothing to encourage sales. The unattractive fruit is destroying the desire on the part of the consumer, the losses from bad condition are excessive, and the retailer must add a margin large enough to cover these losses and risks. Attractive displays and quick sales, at a reasonable margin of profit on each transaction, increase the per capita consumption and make a satisfactory profit for the dealer at the end of the year. Any other system jeopardizes the interest of the producer, reduces the volume of business of the jobber, and keeps the net profit of the retailer below what it otherwise might have been.

The retail fruit business needs the same careful investigation as that suggested for the fruit jobber, with a view to improving the entire retail business system, to developing better methods of creating an increased consumption, and of putting the entire retail system on a basis which will make it the most vital factor in handling the rapidly increasing fruit crop. To accomplish this end the average retail fruit dealer needs the coopera-

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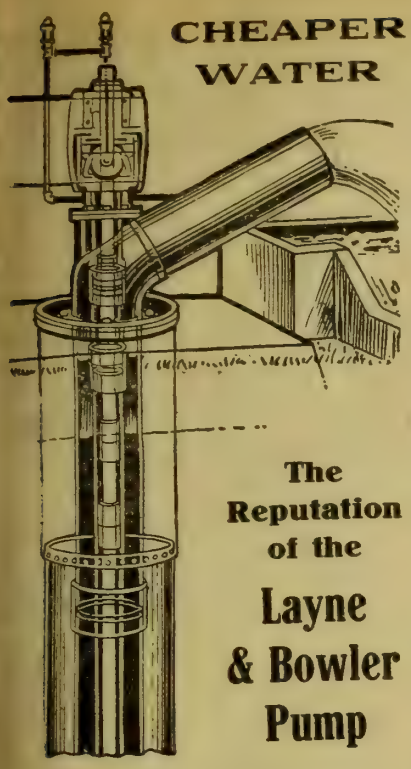

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tion of the producer and the jobber. The consumer demands a service that imposes a heavy overhead charge on the retailer's operations—a condition which the producer does not usually appreciate. In all of these operations the consumer is king. By gaining his confidence and serving his best interest the interest of the producer, the jobber and the retailer are assured. Without the interest of the consumer, all merchandizing efforts must fail. The aim of every factor in the fruit business should be to stimulate the desire of the consumer for fruit, and then to give him an attractive, fresh, wholesome supply at a price which pays a reasonable profit to every factor involved, and yet be well within the consumer's reach.

Whether the jobbing and retail fruit business is organized along economical and efficient lines, whether the purchasing, the deliveries, the credits, and other features of the business are handled with the fewest number of steps and with a minimum of economic waste, and whether the handling of the business by the producer, jobber and retailer serves the best interest of the consumer, the author is not prepared to say. It is recognized that both the wholesale and retail systems are products of modern industrial and social life and that changes in the system must progress slowly. The facts outlined in this discussion are not presented in a spirit of criticism, but in the hope that they may lead to investigation and to a clearer understanding of the different phases of distribution, that they may induce the jobbing and retail fruit interests, the railroads and the producer to study his own problem more carefully, and to study problems of every other factor as well, to the end that the fruit distributing system from the producer to the consumer may be made more stable, more direct, more efficient, with every wasteful step and process eliminated and all handled to gain the confidence of the consumer and to serve his best interests.

COIT'S BOOK

The Macmillans announce that Professor Coit's "Citrus Fruits" will be ready during the present month. We have waited long for a manual of citrus culture which would be of value to California's greatest industry. Professor Coit and the publishers have been working on this book for the past two or three years. The Cultivator has arranged to supply this book. Announcement will be made within a short time as to its price. The book has 186 illustrations and touches upon the history and development of the industry, especially in Southwestern United States, citrus geography, botany, varieties, nursery stock, improvement by breeding, sites and planting, cultivation, fertilization, cover crops, and in fact general cultural directions. It is a complete treatise on citrus fruits.

"ANYWAY, GO"

One thing which California is getting out of its expositions is a mass of advertising. Every magazine is giving pages to illustrations and well written articles. Every paper is calling attention to it and urging its readers to attend. From The Farm and Home, published at Springfield, Massachusetts, we quote:

"Simply marvelous is the San Diego Exposition which opened New Year's day. Even greater in its wonders is the magnificent San Francisco Exposition. Both run through the year. Don't miss them. Go out one way and back another. Get acquainted with your own land and its people. No effort or sacrifice is too great for this trip. Make it before spring's work comes on, if possible. You may be too busy or unable to go later. What an auto ride! Two boys will go from Massachusetts to California and return by motorcycle. One of my friends plans to walk from Chicago to Frisco! Anyway, go!"

WAR

Here's one the Gower (Missouri) Enterprise borrowed somewhere and forgot to return: "A Western farmer went and sowed a field to German millet. The Russian thistle crossed the road and started in to kill it."

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IF you are going to plant ORANGES, LEMONS or POMELOS this year you owe it to yourself to get the best stock obtainable. "R. & W." trees ARE the best and will probably not cost you but a very little more than inferior trees NOW and in the long run you'll find them much cheaper because of the QUALITY and QUANTITY of fruit they will bear.

YOU CAN AFFORD to discriminate in order to secure results like those obtained by Dr. DUNGAN. He is only one of thousands of satisfied "R. & W." customers.

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Mr. Geo. C. Roeding,

Dear Sir: In 1905 I purchased from the Roeding & Wood Nursery Co. 2000 Washington Navel Orange Trees to plant on my ranch one-half mile north of Exeter. I consider my orchard one of the best, if not the best for its age in this locality. The trees have made a remarkably fine growth, and all of a uniform size. The quality of the fruit has been exceptionally fine. I know of none better anywhere around here. Of the 2000 trees there is not one but what is the best type of Washington Navel, in fact I am continually being asked by nurserymen, if they cannot cut buds from my orchard.

The orchard began bearing at three years of age and each year since has shown a substantial gain over the preceding year. I estimate my crop this season at 4000 packed boxes.

(Signed) DR. J. F. DUNGAN.

WRITE US TODAY, stating what you are thinking of planting and we will be very glad to advise with you fully free of charge. Being in close touch with market conditions we are in a position to counsel with our customers as to the best varieties of not only citrus but deciduous fruit trees to plant.

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Our new book "Roeding's Practical Planter's Guide" is the result of over 30 years' experience in California Horticulture. It tells how and when to plant all kinds of fruit and ornamental stock and gives complete instructions on pruning. The price of the book is 25c postpaid.

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A Money-Maker for the Citrus Grower

It pays to spray. Orange and lemon growers have proven it beyond a doubt. And it pays to spray right. That means a big, powerful outfit that will cover the grove quickly and drive on the spray at effective pressure.

For downright dependability—of efficient work—high pressure—ease and economy of operation—low cost of maintenance—strength—durability—and all round merit, the Bean Giant is in a class of its own. It is preeminently

The Sprayer for Southern California

Study the illustration. Note the complete, balanced, mechanically perfect appearance of the Bean Giant. It's built as carefully as an automobile. It's not simply an assembled outfit—a conglomeration of parts made in a dozen or twenty factories. The Bean is built complete under one roof—with the exception of the engine—and no sprayer factory could build a better sprayer engine than the Novo, with which all our power rigs are equipped.

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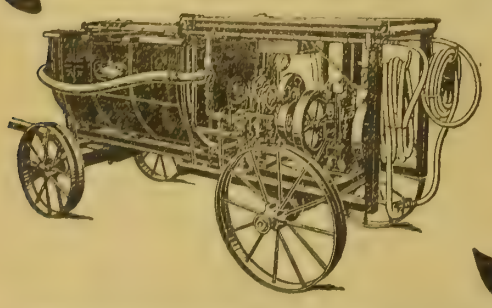

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The Joys and Trials of Ranching

By Mrs. J. R. Moles Before Claremont Pomological Club

THE subject of this paper as it was given to me being "The Joys and Trials of Ranching From a Woman's Standpoint," I judge it is conceded that ranching by a woman is somewhat different from the same occupation indulged in by a man.

You will pardon me if I seem too personal in my remarks, since I have been but one woman. Others with different ambitions and desires and dispositions and with different experiences may hold views differing materially from my own.

Occasionally one hears a remark from a woman on the unfairness with which our sex must make their choice of a life occupation. Having in fact no choice, if she marries, she must always accept that which comes to her, usually that of housekeeping, while men may select the work toward which their hearts incline and for which nature has best fitted them. But I feel safe in saying that nine women out of ten prefer homes, and children to care for, to a business career. The hearts of most normal women incline toward that one occupation. For such women, what is commonly known as men's work comes hard.

We are handicapped in the business world, both by inheritance and by training, and in the business of ranching, by our skirts. You will not all agree with me. Some of you think women are as sharp in business as men, that in fact if the men had followed our advice things would have turned out much better. But as a matter of fact, because for generations we have thought in spoonsful and cupsful, we must naturally now think in small figures and because we are everlastingly looking for dirt—we have grown petty along some lines.

The business training which most women in ordinary circumstances receive in the home consists of the management of the small household economies. We plan to buy three cans of coffee instead of one, because by so doing we save ten cents on the three. We usually make one can of corn by taking a dozen. Our wildest flights in speculation consist of buying a bag of sugar at the time it is just on the point of going up. We darn and patch and turn and stitch. We use so much time and strength to save a few pennies to help the good man along. All this makes good women of us, it's fine for our character. But when by circumstances we are forced out into the business world to look after our own and care for those dependent upon us, we are timid and fearful and ignorant in dealing with large issues and large sums of money.

I do not say but that by nature some are better fitted to cope with the problems of finance than others, but to the majority of women who spend a number of years caring for husband, children and home, and then suddenly find themselves obliged to do double duty, to such women business comes hard.

I speak as though it were always a woman of middle life and with a home of her own still to care for who takes up this business of ranching. It is usually so. I can recall no instance where a young woman, single, just out of school and ready for her life work has chosen the occupation of ranching.

I suppose no one thing is harder for a woman, in search of her bread and butter for the first time, than meeting men in a business way. From our little girlhood we are kept in the home, off the streets, out of offices, kept away from any place where men congregate. Most of us remember we were not to play with rough boys, because we would become rude. If we were sent to the store we were to do our errand and come home. A railway station was no place for a little girl by her self, and so on, until we instinctively draw back when having dealings with the masculine part of creation.

We also have a foolish notion they are amused at our ignorance and mistakes. I want to say right here that in my own case, had it not been for the unfailing courtesy, generosity and kindness of men as I have met them in my business, I should have been lost. This is a common remark heard by all of us: "It is so hard for a woman alone, men take such advantage of her." I do not believe it. I have never failed to receive from men the utmost courtesy and fair dealing except when I so far forgot myself as to misuse my privilege as a woman and demanded more than my right.

There are objections to ranch life for a woman, that do not hold in some other business pursuits. We are not dressed for it, our skirts impede us and in wet weather become dirty, bedraggled and uncomfortable. Our flimsy hats and long hair catch in the branches and harrow our feelings. Our strength is not equal to most of the tasks. In our homes we are accustomed to smooth floors on which to walk. We plan our homes to avoid as much lifting of our bodies as is possible. We have as few stairs as possible. Every convenience for lightening our labors is ours. Then to tramp over the uneven and soft ground of a ranch, up and down rows of trees, back and forth, and under trees, becomes unutterably wearisome.

Our strength then being unequal to the many tasks, we must turn to outside help for each little thing, and finding help being a real difficulty for men, becomes at times almost an impossibility for women. So often the men who care for our places desire to keep their teams busy and do not wish to do the hand work, and no man can afford to wait on these little scattering jobs, so it means that if we can find help at all that it is unskilled labor that we must depend upon for such work. Many a little job that we could very well do for ourselves, because of lack of strength and household duties, must be turned over to some boy or inexperienced man. The work then is not always done satisfactorily because of our inability to stay by it.

Adhesion

Dip a glass rod into a beaker of Zerolene. See how Zerolene clings to the rod. This is ***adhesion***—the quality that enables Zerolene to cling to the bearing surfaces under all conditions, protecting the parts from rub and wear and grind. Zerolene lengthens the life of your car. It keeps down repair bills.

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I once heard a rancher say, "In order to make a ranch successful a man needs to go out every day and ask the trees if there is anything they want." In other words one needs to live with the trees, to know each one individually, to know its history, watch for symptoms and for effects of treatment. Whatever we are looking for is what we see, and ranchers' eyes should be trained to see and know scale and all injurious insects, however minute. And how can women do this, with home duties calling? And it is rare when hired help will take an interest. A man who is hired to plow at 50 cents an hour, plows. What does he care for the happenings of a certain tree? How easy it would be for the general man of the place to stop his team to examine a doubtful tree or watch for developments while his team is resting, but usually he feels he cannot spend the time. Because of her limitations it is impossible for a woman to carry on a ranch as economically as can a man.

The smudge pot also has come, which makes our task the harder. While it is possible to get reliable men who understand the business to attend to the work of firing, yet in many cases they are young men, in our case students, and it does not seem to me fair or right to throw the responsibility of several thousand dollars worth of property wholly upon their shoulders. That means that we go with them, and stand around in the cold or do what light work we are able. Because we have been favored in our lives this too is hard.

I could string out our trials endlessly I suppose, but I think I will lump the rest. These are not peculiar to women, but because we are women perhaps they are harder to meet. The floods for instance, when the men are digging to stem the tide and dragging stone and trees and working night and day to save us all, we stand helplessly by unable to take our share, or at best only able to carry coffee and food to them, a very easy task. Then there are the floods and drouth, the hot winds and cold, Santa Anas, and northers, freezes, hardpan, plow sole, root knot, gum disease, dieback, mottled leaf, gophers, scale—black, white, brown, grey, yellow, purple and those of the remaining hues of the rainbow, and the fear of the mealy bug—all these and many more.

It is with pleasure that I turn from this dark picture of ranch life to the other view of it.

After all some of the very things that make this life hard for a woman act as a tonic and educator to her. To woman as to man orange ranching is healthful, interesting work. An orange tree is a very wholesome companion, teaching us many lessons, both moral and educational.

One of the distressing things about housework is its habit of never geting anywhere. We never seem to arrive.

An orange tree responds so cheerfully and quickly to good care and advice that a woman finds encouragement that she does not always get in her own work at home. The fresh air, and blue sky, the birds and the growing things inspire the soul that has grown morbid and despondent from grubbing too long after dirt. Because she has become petty from dwelling so long on her own little affairs in the home, from being shut up with her own little self and her own little thoughts within her four walls, because of this—this ranch life is refreshing, invigorating and broadening, wholesome alike to body and soul.

It has been said that women have no sense of proportion. There again are the four walls responsible; they destroy our perspective. But out in God's world, out among the growing things, there is the only place to strike a true proportion. The little annoyances that seemed so big and of such portentous consequences in the less pure air of the more or less darkened house, assume their right level and significance. What does it matter if the cake did fall? One doesn't really need cake anyway, and the smell of the mellow earth is so wholesome. What matters it if a bit of work in the house got crowded out? There is always tomorrow and all the time there is out among the trees. An orange tree is such an honest old soul. It never cheats, is always grateful and appreciative and is always cheerful, bobs up serenely after every blow and keeps a smiling front to the world. I find myself becoming reconciled to all mankind through association with these trees.

Besides our association with these good characters, we also must associate more or less with men. It is good for women to be obliged to come into contact with good, strong, intelligent men. We need to; we become too effeminate when left to oursleves; we shrink too much from hardships and it toughens our moral fibers to do some of the things men do and to meet them in a business way. There are many moral lessons to be learned in the business world, and we need to learn them. I have often heard that men dislike to do business with a woman. And why? Because we aren't honest to deal with. We have been taught the small end of the load is for us, since we are women. And we are surprised when dealing outside of our own little world that we do not by rights have the best end of the bargain. Our own husbands and fathers and brothers make things easy for us, let us have the easiest jobs and the biggest rewards and it is hard outside of our homes to adjust ourselves to strict business principles. We labor under the delusion that to be courteous to us all men should give us more than half. Both in the actual growing of products and in all money transactions connected with ranching do women learn that most wholesome lesson of giving value received.

One of the pleasantest by-products of orange ranching is our Pomological Club where we meet men and women with one common interest and where we women hear ranch and business talk that we are unable to hear elsewhere.

Again, think what branches of education we take up in studying conditions on a ranch; botany, chemistry, biology, zoology, geology, we made a fine stone fence of some of our geological specimens), astronomy (studied on smudging nights between acts), mathematics, philosophy (we made quite an ardent study of that branch after the freeze), and yes, I think I may say we have touched on theology. Quite a liberal education is it not?

Take it all in all, probably there are no more trials in ranching than in many another business, and surely a more joyous occupation would be hard to find.

John Deere Implements

John Deere Syracuse Hillside or Swivel Plows

Nos. 821, 822, 823, 824 and 825

The plows with ample throat room and close fitting joints to prevent clogging. Do equally good work on hillsides or level land. Moldboards of new design, turning furrows smoothly up or down on hillside land. Long moldboard—a clean furrow slice. Option of white iron or tempered steel moldboards.

Write us for information on the Syracuse Hillside or Swivel Plows Nos. 821, 822, 823, 824 and 825. We will send it to you free.

John Deere Spreader

The Spreader with the Beater on the Axle

The beater—the business part of a spreader—and all its driving parts, is mounted on the rear axle. This is a patented feature. You cannot get it on any other spreader. Here is what the beater on the axle means to you:

It means: No clutches to give trouble—all taken off.

It means: No chains to break or get out of line—all thrown away.

It means: Less than half the parts heretofore used on the simplest spreader—some two hundred parts are done away with.

It means: Manure is not thrown on the axle—straw and trash cannot wind around it.

It means: You get big drive wheels and a low down spreader, without stub axles—that means traction and strength.

It means: Drive wheels back out of way when loading—you see where you place each forkful.

The John Deere Only Hip High

The top of the box is only as high as your hips. The John Deere Spreader is easy to load. You see where you place each forkful.

To start spreading, you pull back the lever at the driver's right—that's all. A boy can operate it.

Call on nearest John Deere dealer and see the spreader with the beater on the axle. Write for "Farm Manures and Fertilizers", a valuable text book free.

R. & V. Gasolene Engines

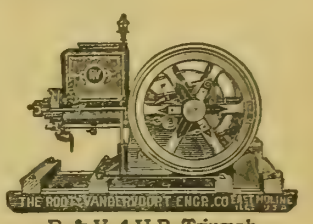
New Triumph One Horse Engine. Just the engine for light work about house and barn, such as running washing machine, pumping water and operating other small machines. Saves every member of the family work and worry.

A reliable, efficient, low priced but high grade engine. Easy to start, smooth running, requires no attention when in operation, economical in use of fuel and perfectly safe in and around buildings. All working parts are back of the fly wheel out of the way—a neat outfit in every respect.

R. & V. Triumph Engines for All Farm Machinery

The R. & V. Triumph line of engines is also made in 2, 4, 6, 8, 10, 12 and 16 H.P. sizes, stationary and portable. Every farm can use one or more of these engines to advantage.

They are dependable gasolene engines—always develop rated horse power.



R. & V. 4 H.P. Triumph

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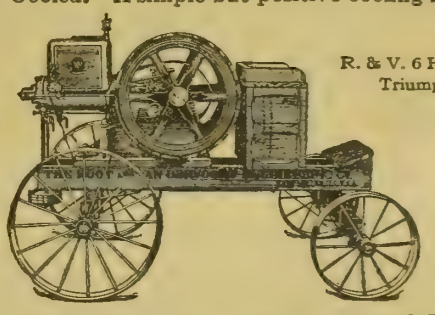

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The gasolene tank for every R. & V. Triumph Engine is most conveniently and safely located—on practically all of the stationary engines it is in the sub-base.

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FREE BOOK Illustrates and describes the most complete line of farm implements. Tells how to adjust and use farm tools under varying conditions. It is a practical encyclopedia of farm implements worth dollars to you—a 168 page text book.

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MOLINE, ILL.
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Established 1888. Twenty-seventh Year.

The California Cultivator

Rural California Combined with the California Cultivator

A Journal of Horticulture and Agriculture

By
THE CULTIVATOR PUBLISHING CO., Inc.
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Thursday, March 18, 1915

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

COVER CROPS

This is a good season of the year to consider cover crops. It is some months before planting time, but this is plowing under time, and it is a good time to gather information which will be of value next September. Note we say "September," for this year has proven more than ever before that it is the early planter who secures the heavier crop. The citrus experiment station has shown this most emphatically this year. It has plots planted the last of September, the first of October, in November and in December, and the earlier planted seed which secured good root hold during the warm fall weather show many times the tonnage of the later planted. As to the best crop to use for green manuring, that depends so much upon the soil and other conditions that each one must work out his own problem.

LIVE STOCK MEN TO MEET

The American National Live Stock Association, of which H. A. Jastro of this state is president, will meet in San Francisco next Wednesday,Thursday and Friday, March 24-26. This is the 18th annual convention of this association. The membership is made up of cattlemen west of the Mississippi. This association has been a great factor in securing the rights of the cattlemen. One of the principal discussions in the San Francisco meeting will doubtless be of the national quarantine and the work of the department of agriculture in connection with the foot and mouth disease. The department has been severely criticised by many live stock associations, and it is presumed the matter will be threshed out at San Francisco.

March 23, the day preceding the opening of the national association, the California Cattlemen's Protective Association will hold its annual. A banquet will be held on the evening of the 23rd at the Palace Hotel. Secretary F. J. Sinclair, 628 Montgomery street, is now making reservations for members and others who wish to attend. The banquet is informal and all are requested to come in business suits. All railroads have made a fare and a third rate to these conventions.

SIXTEEN TO ONE

It was our pleasure this week to have a few minutes conversation with Geo. T. Powell of Ghent, New York. For many years Mr. Powell has grown apples and other fruits in the Hudson River Valley. He has not only grown apples; he has grown good ones; this through bud selection. Of course bud selection is a modern term, at least we have generally so regarded it, and perhaps as used in California it is modern. The principles which many are now working upon have been recognized for years, in fact, Mr. Powell told us that more than 30 years ago he made an effort to produce apples, everyone of which would be the equal of one particular tree in his orchard. This apple was the Southern Beauty. He cut his own scions, delivered them to his nurseryman and asked for particular care of those particular trees in grafting stock. A few years later when that nurseryman was in charge of the horticultural division of the state fair he ruled out the fruit of those particular trees because they were too large and too fine looking to be Southern Beauties. In other words, he thought they were some other variety. He was forced to readmit the fruit and they won the premiums in their class. Mr. Powell remarked that most fruit growers at that time considered a bud a bud.

The same is true today at least as to a limited number of our fruit growers. If a bud is taken from a Southern Beauty, a Spitzenburg, or Bellflower, the fruit will ordinarily come true to variety, but the keeping of records has shown that we do not always get productive trees.

Another thing Mr. Powell referred to is the fact that these more productive trees as a rule are the thrifty growing trees and the most resistant to insects and to unfavorable weather conditions.

Mr. Powell's observations not only cover apples, but many other fruits, including currants of which he has produced great quantities. From a plantation of 20,000 bushes, averaging about one quart of fruit per bush, proper selection produced a plantation which averaged over 16 quarts per bush. From these facts and others connected with the cultural side of orchard work Mr. Powell enforces the lesson that greater economy of production means greater profit and his idea is that the farmer's profits must be secured largely through these small economies.

Mr. Powell is the father of G. Harold Powell who is manager of the California Fruit Growers' Exchange and who has done such magnificent work in giving aid to the citrus industry of this state through his citrus investigations while connected with the department of agriculture.

CONSIDER CAREFULLY

When the Civil war began in 1861 trade conditions the world over suffered. Of course the United States, especially its southern war zone, suffered most, but as one example of the suffering caused by this war in Europe may be mentioned the fact that owing to the destruction of commerce and the inability of the cotton mills of Lancashire, England, to secure supplies for their mills, other portions of England were compelled to raise $9,500,000 to feed the starving mill operatives. The European war now in progress is causing untold suffering in the war zone, and to a degree the interests of this country are taking their share of the losses. This is especially true again in the cotton industry. The deepest suffering is felt by the producers because of the cessation of commerce and the inability of the mills to operate, and use the products of Southern farms, but the point is that trade is affected.

Wheat growers, and perhaps a few of the large iron mills and ammunition factories, are prospering, but the unfortunate conditions generally are forcing many business men to look disaster in the face. The orange growers of the Mediterranean have their markets almost entirely closed. Even some of their fruit has been used as ballast in ships coming to this country to be returned with wheat and ammunition. Florida's fruit has almost been a drug on the market; grapefruit is not even returning freight charges. The Californian is little better off, though his fruit has been commanding longer prices than has that of any other shipper.

But the naturally low prices are causing much restiveness and the grower is asking why he is not receiving a greater proportion of the consumer's dollar. Even the trade must admit his proportion is too small. The table given by Mr. Powell in his address before the Fruit Jobbers, and published in this issue, shows that the producer is receiving 26.7 cents of the consumer's dollar and the retailer 33.3 cents. This the grower maintains is an unjust division. We believe he is correct and that the grower's percentage must be increased, and in order to do this the retailer's percentage must be reduced, thus inducing greater consumption.

But how may this be done? The asking is easier than the answering, and therein we hope the Cultivator may be pardoned for issuing just a word of warning. The world's financial condition, as pointed out above, has never been more strained. Is it wise then for California producers, 3,000 miles from their market, to upset existing conditions until they have reasonable assurance that they can be bettered?

The fruit grower is dealing with a product somewhat different from that of the tobacco trust, the Standard Oil Company, the breakfast food companies, and others handling products which have a general demand year in and year out and are, to a certain extent, non-perishable, also practically 100 per cent under control of one organization. At this time, and for the next three months, California will be shipping close to ten carloads of citrus fruits every hour, day and night and Sundays included. If the suggestion of some growers is accepted and a great distributing and retailing trade built up, how may business of such magnitude be handled during the eight or nine months of the year in which citrus fruits to be marketed will not be one-fourth the amount being marketed at the present time? It is possible also that a disastrous freeze might seriously affect such an organization. Presumably, as Mr. Waterbury says in his article on another page, we are now ready to maintain proper temperature in our orchards and we will never be affected as we were in the freeze of 1913, but trade conditions might be so upset that the great overhead expense of such an organization might be most embarrassing during such a year.

To meet this objection, it has been suggested that possibly a great federation of all California's cooperative associations, that is, in addition to citrus fruits, raisins, nuts, dried fruits, olives, etc., might be formed which could arrange for a great chain of distributing centers for California products. Their interests are very similar; the season could be covered and a 12-months' business could be developed. The magnitude of such a business would call for brainy men, and in this connection we may refer to the fact that a New Yorker told us within the last month that in the large trade centers California's greatest cooperative organization, the Exchange, has a reputation for keen business methods and a thoroughly organized working force, second to none, and this includes Standard Oil and other highly organized businesses. If California has done this with one organization, has she not the ability to do it with another?

The citrus growers of California have certainly shown their ability to finance a great producing organization. This has aided them in securing supplies used in producing fruits at such a price that even 26.7 cents of the consumer's dollar has enabled them to live. But the burden is becoming heavier as the producers' prices are lowered. Now, how will this burden be lifted? The Cultivator has no answer; we do not believe anyone else has yet, but it is the duty of all to look at the question squarely. Of course the jobber and the retailer and other connections of the fruit trade are inclined to say, "Let us alone." But the citrus industry is too great and the men engaged in it are too big to submit to unjust treatment. If the present methods of distribution are unjust or insufficient and will not permit the producer to secure a living wage, then he must either retire from business or revise his business methods. And this should not be along the line simply of "starting something."

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Order today.

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Agricultural News Notes of the Pacific Coast

Northern California

Sutter County will withdraw from the Anti-Debris Association.

The state engineer estimates that California has 24,589 irrigation pumping plants.

Antioch, Contra Costa County, shipped its first asparagus during the first week of March.

A fatal malady is affecting sheep on some of the ranches near Red Bluff, Tehama County.

The farm bureau of Yolo County is making an effort to stamp out hog cholera in that county.

Olive growers of California are making every preparation for observance of olive day, March 31.

Yuba and Sutter Counties will produce in excess of a half million dollars worth of wool this year.

A drainage project is being discussed at Dorris, Siskiyou County. It will reclaim 25,000 acres.

Humboldt County Dairymen's Association was addressed at its last meeting by Farm Adviser Christiansen.

An effort is being made to secure Champ Clark to deliver the principal address at the University Farm picnic.

At the last meeting of the Contra Costa County Poultry Association William Quental was elected president.

The largest irrigation project yet planned for northeastern California has been inaugurated at Calneva, Lassen County. The district proposed will embrace 200,000 acres, nearly all in Lassen County.

Irrigators of District 1500, located in Sutter County, are protesting against legislation which affects adversely the interests of their district. Mass meetings have been held in various parts of Sutter and Yuba Counties.

Central California

Maricopa, Kern County, reports heavy snowfall in the hills last week.

Orangecove, Fresno County, is greatly increasing its planting of orange orchards.

Wasco, Kern County, claims the record for largest rice field. One field has 1250 acres.

Melon growers near Turlock are making a general canvass for members of the new marketing association.

Monterey, San Benito and Santa Cruz Counties are uniting in their exhibits at the Panama-Pacific Exposition.

Peach growers near Kingsburg, Fresno County, are signing up contracts with the new cooperative cannery.

Monterey County is planning to invest $525,000 in state road bonds in order to encourage state road work in that county.

Tobacco growers near Fresno have contracted the first 75,000 pounds of tobacco to a new manufacturing plant to be established at Fresno.

Monterey County's gooseberries are becoming better known and if planting continues will make the county famous as a gooseberry center.

Because of the excessive rains of the earlier season farmers of Salinas, Monterey County, have been unable to plow until the last two days.

Corcoran, Kings County, is shipping cream to Los Angeles at the rate of $1000 per day or $365,000 per year, and new dairies are being started almost weekly.

Farmers near Turlock, Stanislaus County, are planning a cooperative marketing organization which shall be incorporated and organized with $75,000 capitalization.

Southern California

Walnut growers are already spraying for aphis.

Southern California's crop of lima beans is estimated to be worth $7,000,000.

Many Orange County sugar beet planters are replanting fields drowned out earlier in the season.

Brawley, Imperial County, reports very heavy shipping of peas. One day's shipments aggregated 325 sacks.

Citrus growers generally have planned a great day for next Saturday, which has been designated National Orange Day.

Lordsburg, Los Angeles County, has just installed one of the most complete warehouses for precooling oranges yet constructed.

A farmers' institute was held at Lancaster, Los Angeles County, last week. The principal points discussed were hogs and Sudan grass.

Santa Paula, Ventura County, is organizing a fair association and has arranged definitely for its first fair to be held during the present year.

Three cars of black eye beans were shipped from Puente, Los Angeles County, from Los Angeles harbor direct to the European war zone.

The first cotton from the Port of Los Angeles to be shipped direct to Europe went forward on the ship Moyune bound for Liverpool last week.

Citrus growers of Covina, Los Angeles County, are discussing the advisability of spraying trees to prevent black spot, which occurs in the navel end of much fruit.

The Santa Paula Walnut Growers Association held its regular annual meeting last week and elected Roger G. Edwards president, Mark N. Shedenhelm, manager and secretary.

The Coast

Eastern Washington pear growers are making a strong fight against blight.

The first county fair ever held in the Hawaiian Islands will be held at Hilo, November 26-28.

Estimates show Utah's output of wool at 1,170,000 fleeces, which will average close to seven and a half pounds per fleece.

Utah canners are reducing their contracts with growers for tomatoes because of holdover crop still on hand since 1914.

After years of contention over the waters of the Columbia River, Washington and Oregon have united in legislation which will protect the fish.

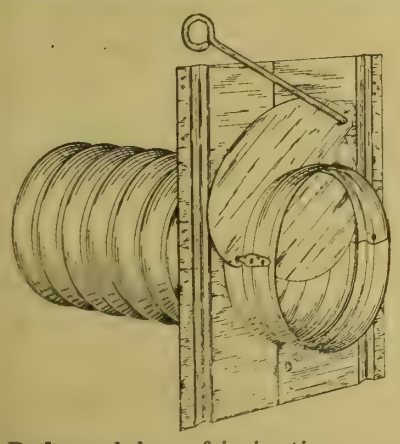
The Fifth Annual Pacific International Live Stock Exposition will be held at Union Stock Yards, North Portland, Oregon, December 6 to 11.

The Cow Testing Association of Pullman, Washington, recently met in annual session and decided to continue the organization, which has proved most profitable to dairying interests.

Washington live stock inspectors are instructed to notify railways that cattle, sheep and swine to be imported into the state must be accompanied by certificates of government tests for tuberculosis.

The dairymen of the Hawaiian Islands are making an effort to produce cleaner milk and all from healthy cows. The division of animal industry of the experiment station is aiding in the campaign.

The Utah experiment station has a White Leghorn hen which has been laying for five years. In that time she has supplied 816 eggs. This is the greatest number of eggs from one bird yet reported.



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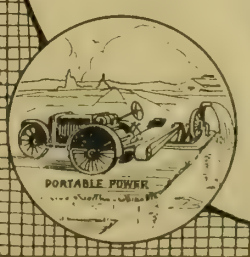
Call and let us demonstrate this Tractor —you'll be convinced it is the Tractor you should have.



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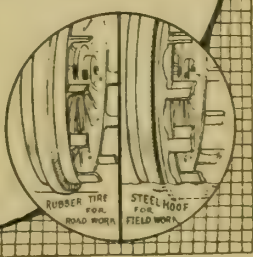

Studebaker

WAGONS BUGGIES HARNESS

HERE'S WHAT MR. McINTYRE HAS TO SAY

I purchased my Studebaker in 1874 from Henry Brown of LeRoy, N. Y., and paid for it in wood. cut by myself.

The wagon drew all the stone that was placed in my house and barn. It has never been idle.

All the heavy work that is done on the farm today is done by the old wagon.

It is just as good as it was the day I bought it.

Peter R. McIntyre,
Caledonia, N. Y.

As good as the day it was bought —39 years ago

"All the heavy work that is done on the farm today is done by my old Studebaker I bought thirty-nine years ago."

Is it possible to say more in praise of a wagon?

Doesn't it prove conclusively that the best material and workmanship went into it?

—and doesn't it also prove that it pays to buy the best?

The best investment lasts the longest

Suppose you buy a Studebaker Wagon today — and it costs you a little more — but lasts a lifetime — isn't it, after all, the cheapest wagon you can buy?

Studebaker wagons are honestly built of the very best material. Not with the idea of building a *cheap* wagon but the *best* wagon.

— and, owing to improved methods of manufacture, Studebaker Wagons are really better built today than they were when Mr. McIntyre bought his wagon — and they cost less.

Durability — long service — have been always the watchwords of Studebaker.

That is why, within the last sixty-three years, Studebaker has grown to be the largest wagon builder in the world.

Studebaker Harness and Studebaker Buggies are built with the same integrity as are Studebaker Farm Wagons.

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ESTABLISHED 1886

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An engine which will burn fuel costing three cents per gallon, and at the same time is an engine with 90 per cent less parts, is the engine for the rancher to buy.

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Gentlemen:

I bought the first NATIONAL Oil Engine sold in this State. Any one wanting an engine let them come and see my 15 H. P. pulling a 6-in. centrifugal pump lifting thirty feet throwing two cubic feet moving one foot per second, using low grade fuel. I will answer any letter.

Truly yours,
(Signed) L. E. HURLEY.

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Live Stock and Dairy

HOGS AND PIGS

Written for California Cultivator
By Sacramento Valley Contributor

EVERY farmer must figure out his plans to meet the requirements of his individual case, but frequently useful ideas may be gained from others.

In the Sacramento Valley is a farmer on a 40-acre irrigated farm who finds that after getting his alfalfa planted, his buildings made and other improving done, that hog raising seems best suited to his conditions. He has a number of hogs, and their increase during another year or so will be sufficient to make him a suitable income if he can grow feed for them and protect them from cholera. As to the latter, he believes in sanitary measures and vaccination if necessary.

And his scheme for the feed is to have alfalfa pasture available for hogs of all ages at all times, by fencing his alfalfa into fields that will permit some to be irrigated while others are pastured.

This makes alfalfa, gathered by the hog themselves, a sort of a base for the ration, but it is to be supplemented always by some grain to keep the growing pigs improving at all times, to keep sows with pigs giving the largest possible flow of milk and to keep all other classes of hogs in the best of condition.

Now labor costs money on this as on many other California farms. By this is meant that as far as the owner's family is concerned, "nobody works but father." It makes a big difference when a year's outgo for hired labor on a farm of this kind is compared to that where there are growing or grown children to do chores and other work at no cost but their board and clothes.

So in order to reduce the cost of labor it is planned to make the hogs gather as much of the grain they consume as possible.

A field of barley and wheat is growing now—and in April or May a field will be planted to corn and pumpkins. About the middle of May, or as soon as the kernels of the first grain sown are in the "dough stage," the hogs will be turned into this field, which will be planned to have enough grain to furnish them all they can consume, in addition to the alfalfa, until August or September when the first of the corn will be ripe and the hogs will be turned in to "hog down" or harvest this for themselves.

The grain field will be harvested in sections, woven wire fencing being used to divide the parts of the fields. This fence is put up in a temporary way so that it can be moved, if desired, when another part of the field is to be harvested. Posts for intermediates may be driven in the ground, or set shallow, and the staples tacked in about half their length, so they can be pulled easily. Only the posts at the ends of the fields need be set solid, and these are a part of the permanent field.

This makes it possible to irrigate and plow such parts as are fed off before July 15 and plant them to corn, to be fed after the early corn is gone.

This late corn can be fed off in the field well into the winter, even as late as January or February. It will not be well to pasture land that is heavy clay or adobe when it is wet because that will "puddle" it and tend to ruin its physicial condition, make it cloddy instead of "mellow" when plowed, but there are many days every average winter when hogs can gather feed in the field.

This system of hog raising will furnish feed in the field from May until February, or nearly all of the time during that period. This makes a very short time to feed grain that has been harvested, only a couple of months or so—March, April and a part of May.

As a protection from winter rain and from sun in summer, cheap A-shaped hog houses will be placed in the field. These are built with two by six pieces for runners so that they may be moved anywhere. Hogs will keep sleeping quarters like these clean, and the only reason for moving them is when the hogs are moved to another field or when the bed becomes dusty and causes coughing. This dust may be laid by sprinkling with crude oil. This oil serves also as a lice and tick destroyer.

With sufficient quantity of a balanced ration, such as grain and alfalfa, the quantity to be determined by the hogs themselves, plenty of exercise, and a good bed, which dry ground makes in California, hogs will grow and make money every day in the year.

A Pig Creep

It is doubtful if there is any one detail in the care of young pigs that is more essential to rapid gains and early maturity than the pig creep.

This is a place, or a pen, or a part of a pen, in or adjacent to that in which the sows and pigs are kept and fed, into which the young pigs can creep but from which the sows or older hogs are excluded.

For a few pigs, one or two litters, a panel across the corner of a pen will suffice. It may have the bottom boards far enough apart so that the young pigs may crawl through or the panel may be raised a sufficient height from the ground. If it is raised it

Economy Calves

You can now feed a calf for the first five months of his life for less than half the cost of the milk he would consume in the old way. Do this with

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This meal has been known as the complete milk substitute since the year 1800. Very easily prepared. It prevents scouring promotes a strong rapid growth and makes a better cow.

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Montana wool growers have been selling wool freely at 25 cents.

must be nailed or wired very securely or the sows will break it down, for a sow's nose is a very formidable lever for breaking down fences or doors when she wants to get out or in.

If many more pigs are to have advantage of the creep it may be a whole yard of pen in which the little fellows may lie and sun themselves after they get their fill.

It is important to have ample trough room for all the pigs to be served, for in every litter and in every lot of young pigs there are some much stronger than the others—and the "survival of the fittest" is a stronger part of a pig's make-up than brotherly love or the Golden Rule. If there is plenty for all the little fellows will get all they need.

Flat, wide troughs that can be cleaned easily with a shovel and washed out with a disinfectant solution, like Kreso or some other good dip, are very satisfactory for feeding young pigs in creeps. These can be made with 2x12 plank for a bottom and 2x6 for the sides. This makes a trough about four inches deep. If these troughs are securely nailed or bolted together with a one-half-inch bolt 16 inches long, one at each end and one in the middle of a 10 or 12-foot trough, they are very durable, and when one feeding place becomes muddy or dirty are easily moved.

Little pigs will begin to eat soaked grain and middlings and drink milk at a few days of age. A good combination is middlings and a little oil meal and barley and corn soaked in skimmilk or buttermilk or water. You can fairly see youngsters grow when they get all of a mixture like this they can eat, have access to alfalfa pasture and get a big feed every few hours from sows that are fed a similar ration to make a big flow of milk.

"Why not put these troughs in the same pen with the sows and not bother with a creep?" some one will ask.. And the answer is that it would be all right to do this and far better than to have too little trough room for both sows and pigs, for in this case the pigs get but little, but when "pigs of a size flock together at feeding time" the best results are obtained. When old hogs and pigs are fed together, no matter how much room there may be at the troughs, the young ones are rooted around and away as the older ones range up and down looking for the best of the feed, and the little fellows do not "do" and grow as they do when a creep is provided.

Then when pigs are fed in a creep, all they can eat, from birth to six weeks or two months, or whenever weaning time is, they pass through this critical time of having their mother's milk taken away from them with little, if any, shrinking. In fact when pigs are well fed in this way their demands on the sow are not so great as when they do not receive this special treatment, and there is a tendency for the sow herself to wean the pigs at an earlier date than otherwise.

This is not written for those who always provide "creeps" for young pigs but for those who have never done so. Let any such hog grower try it on one lot of pigs; he will then be a convert forever.

A REMARKABLE FOOD PRODUCER

The Guernsey cow, Murne Cowan 19597, makes a world's record. The former world's champion, May Rilma 22761, also a Guernsey, is surpassed by a liberal margin in both milk and butter fat.

Murne Cowan was bred by A. F. Peairs of Elizabeth, Pennsylvania, and was purchased three years ago by O. C. Barber, Akron, Ohio, together with her three-year-old daughter, four-months'-old son and six other heifers. The nine head cost $1100. An estimate of their present value would be a very difficult problem.

Under Advanced Registry test as a six-year-old, beginning her year's work three months after freshening, she gave 16729.30 pounds milk and 845.41 pounds butter fat. Her second record, completed February 19, 1915, of 24,008.00 pounds of milk and 1098.18 pounds butter fat, places her at the head of all competitors, regardless of breed.

Murne Cowan's average milk yield shows that every three weeks for a year this cow has given her own weight of the most perfect food

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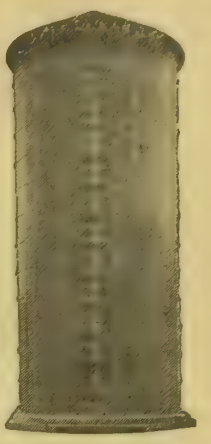

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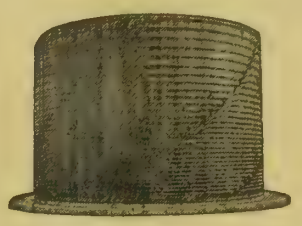

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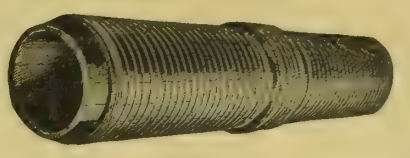

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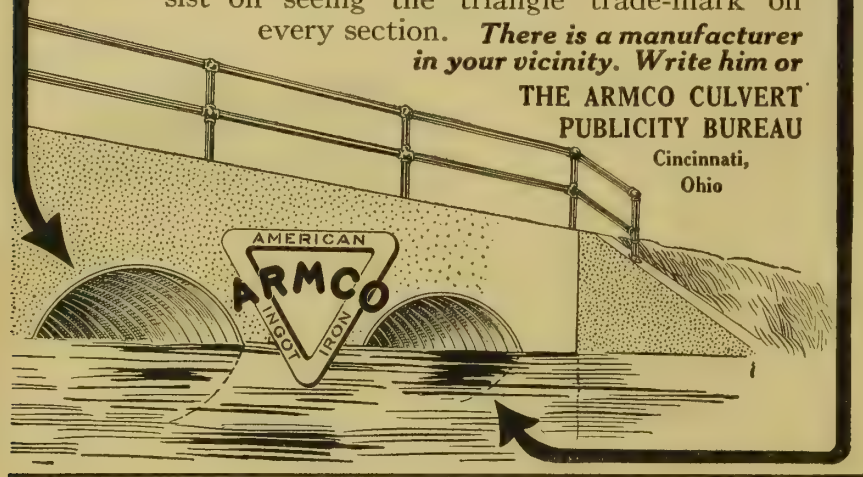

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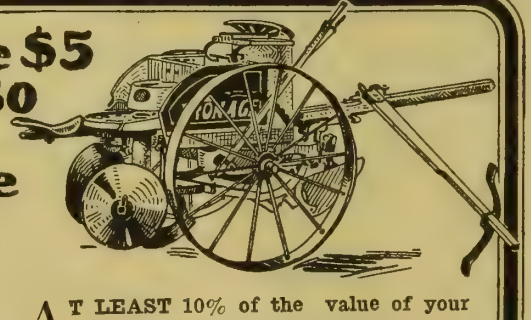

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Light weight—built low—with plenty of traction for the work it is meant to do.
In fuel economy none surpass Kelsey Orchard Tractor
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known, a superior quality of 4.5 per cent milk. The milk from the herd sells for ten cents per quart. Murne Cowan has thus produced three dollars' worth of milk daily throughout the year, with no Sundays or holidays for rest. She is a worker.

Guernseys have again demonstrated their ability as great producers among dairy cattle. Of even more importance to the practical man, they are most economical producers and profit makers. The total cost for food was 53.9 cents per day for the three dollars worth of milk.

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Bitter Milk

I have a cow whose milk and cream turns bitter and a foam gathers as if it were soapy. She will become fresh in May. Is fed alfalfa hay and bran. She eats well and is apparently healthy. Runs loose in a corral. What is the trouble?—Subscriber, Pomona.

Bitter milk may be caused by a microscopic fungus in the system that has been started from musty feed or stagnant water.

It can usually be remedied by a physic followed by an internal antiseptic. Get powdered aloes, two uunces; powdered nux vomica, one ounce; turpentine, three ounces; enough raw linseed oil to make one quart. Mix and shake well and divide into four doses. Give one dose every other day. Follow this by giving a tablespoon of bisulphide of soda once a day.

Kicking Cow

I have a heifer fresh now three weeks. She kicks so we can not milk her. Can you advise some way to milk her so she will not kick?—Subscriber, Dinuba.

Kicking cows can usually be broken by gentle handling but sometimes it is necessary to use more strenuous means. A strap about the hind legs just above the hocks, crossed between the legs and buckled pretty tight, will prevent kicking. Also a strap around the body just in front of the udder drawn tightly will cause partial paralysis and prevent the cow from using the limbs freely. The use of the strap in either way a few times will usually stop the trouble.

Thin in Flesh

My heifer three weeks fresh was on pasture and is quite thin in flesh. Am feeding alfalfa hay, once a day pumpkins and once a day bran and a commercial stock food. What shall I give her to improve the flesh?—Subscriber, Dinuba.

Good and liberal feeding will increase the flesh and to expedite matters add the following tonic to the feed: Powdered gentian, four ounces; powdered nux vomica, three ounces; bicarbonate of soda, six ounces; enough farina to make two pounds. Mix and give a large tablespoon in the feed twice a day.

Cracked Teat

My heifer fresh two days has a cracked teat. The crack is between the opening and the udder. When milking milk exudes from the crack. Kindly advise me what to do.—Subscriber, Glenn.

The teat must have been injured to cause a crack through which milk exudes when milking. A milk tube should be used until the teat heals. Also put on an ointment made of gum camphor, two drams; rosin, half an ounce; turpentine, one ounce; olive oil, one ounce; vaseline, three ounces. Mix these while hot and when cool use after each milking.

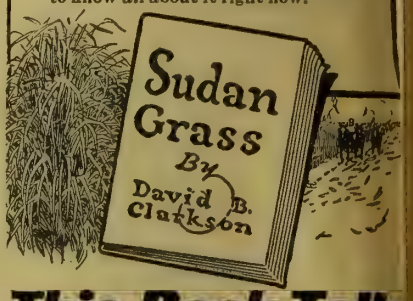
Garget

After milking several months cow

Continued on Page 346

SUDAN GRASS

has proved to be the most profitable forage crop ever grown in America. Farmers who have planted it are making $20 to $100 an acre on hay, and from $300 to $700 an acre on seed. It yields the biggest tonnage to the acre of any high-class hay known. If you plant Sudan Grass, you never have to buy feed for your stock. As a catch crop, it turns loss into profit by replacing crops that have failed because of drouth or flood. By rotating it with other crops, you conserve and increase the fertility of your soil. Sudan Grass is one of the big factors that are bringing prosperity to the South. You ought to know all about it right now.



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will clean it off without laying the horse up. *No blister, no hair gone.* Concentrated— only a few drops required at an application. $2 per bottle delivered. Describe your case for special instruction and Book 8K free.

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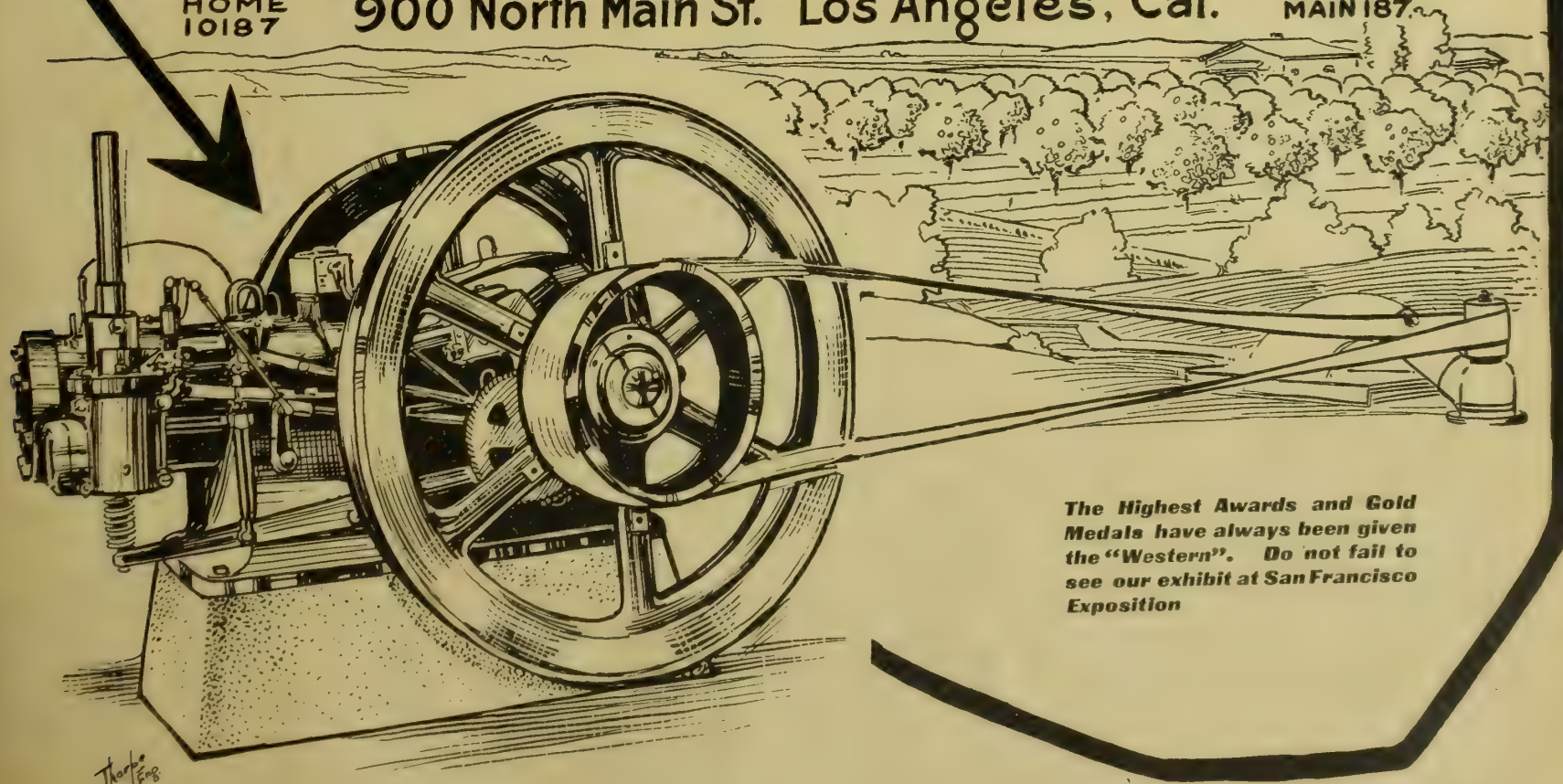

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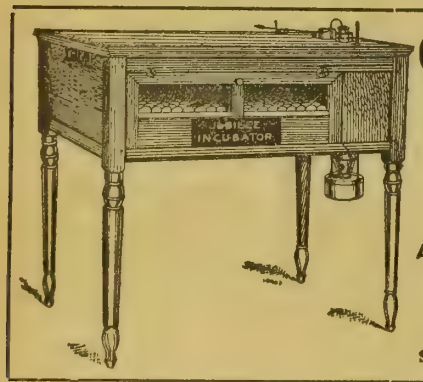

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Ask the poultryman who has one.

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Poultry for Profit

ANTI-CHINESE EGG LEGISLATION

Written for California Cultivator
By Geo. H. Croley

FOR the purpose of urging the passage of the Chinese egg bills introduced in the legislature by Knox Bonde, assemblyman from Sonoma County, a large number of poultry raisers from various parts of the state appeared at the joint session of the committee on manufactures and the committee on agriculture, held in the assembly chamber at Sacramento March 10. The showing made by these delegates seemed to favorably impress the members of the committees, and the indications point to a recommendation that the bill be passed.

Immediately following the adjournment of the committee meeting the poultrymen assembled to discuss the matter of a state wide organization to unify the influence of the poultry producers in all parts of California. Although it was considered only an informal talk the gathering appointed as chairman George H. Croley, president of the Federated Poultry Association of California, and as secretary C. A. Wilkins, secretary of the California State Poultry Association.

After considering many suggestions and plans the following resolution was unanimously adopted:

Whereas, on this day, March 10, 1915, a large number of poultry farmers from various parts of California assembled in Sacramento for the purpose of appearing before certain committees of the senate and assembly to request that these committees give their support to several bills affecting the poultry industry now under consideration by the legislature, and, this informal meeting of representative poultry farmers was called, at the adjournment of the committee meetings of the legislature, to discuss the general welfare of the poultry farmers of California; and it is shown that in this state over $90,000,000 is invested in this industry and that the annual sale of poultry products amounts to approximately $18,000,000, and owing to the apparent necessity of establishing a means to secure more united action on the part of those engaged in poultry culture in this state, and thus place the industry on a more substantial and dignified basis, be it,

Resolved, that it is the sense of this meeting that steps should be taken at once to call and hold a convention to be held in San Francisco for the purpose of bringing about a closer relationship between those interested in poultry culture in all parts of California, and be it further,

Resolved, that the chairman be, and is hereby authorized to appoint a committtee of 15 active poultry raisers in various parts of the state to formulate plans and provide ways and means to hold said convention.

All who are interested in the proposed convention are requested to send any suggestions or information that might be of value to George H. Croley, Room 316, 525 Market Street, San Francisco.

The agricultural bill has been amended in both the senate and assembly to include a division of poultry, and if the bill is passed the poultrymen of California will have a department of the state government to look after their interests, but it is possible the bill may not pass. In that case the poultrymen would have no department, but the other commissions already established would receive the state aid they have enjoyed in the past and continue as usual.

As a means of preparing for such an emergency Mr. Bonde has been requested to prepare a bill providing for a state commissioner of poultry. Even though only a small appropriation could be secured at first it was pointed out that much good could be derived from the efforts of a commissioner.

It is only necessary to point to the results obtained by the state dairy bureau to demonstrate the value of a central officer who has authority to direct and enforce proper regulation of an agricultural industry that is scattered about the state in small units.

Any of our readers interested in poultry, who favor the creation of a state poultry commission, are requested to make known their wish to his or her representative or to Mr. Knox Bonde, assembly, state capitol, Sacramento.

In a case of this sort the way to get what you want is to ask for it. The legislature now in session at Sacramento is honestly striving to represent the people of California, therefore it is the duty of the people to afford them an opportunity to carry out their wishes.

DUCK KEEPING FOR PROFIT

Comparatively few ducks are kept on the ordinary farm, as it is commonly supposed they eat more than they are worth. This idea is wrong, as it does not take any more grain to produce a pound of duck than it takes to make a pound of chicken. If ducks are taken care of properly and marketed at the proper time they are more profitable than chickens. A duck should weigh from four to six pounds at 10 to 12 weeks of age; whereas a chicken does not weigh that until four months old, and usually ducks are a few cents higher in price. We do not encourage duck raising on an extensive scale, but 25 to 100 can easily be raised and marketed on almost any farm at a profit. Many ducks are most prolific, laying an egg day after day for weeks together insuring a plentiful supply of eggs for hatching purposes and for table purposes if desired.

Swimming Water Not Essential

Ducks can be kept in healthy condition without a pond to swim in, provided they have plenty of good water for an occasional dip. They must have access to water deep enough to dip the whole head. If they do not they will have eye and nose diseases. They will lay freely in a small run, and ducklings can be reared in very limited quarters. Young ducks are more to be relied upon for eggs than old birds, especially in the winter, so it is advisable to make a start with March or April hatched ducks of the current year. The ducks should then commence to lay about November or December and continue throughout the winter.

The supply of eggs in the autumn and winter is greatly influenced by the mode of feeding. The ducks must be well fed, but not overdone with food or they will be too fat to lay. In the morning they should have a warm feed of barley or corn meal and middlings, equal parts, mixed with water, into a stiff paste. This can be varied with ground oats. If there is no grass run, plenty of green food, such as cabbage, must be allowed. A little chopped-up meat about three times a week helps greatly to stimulate egg production.

The ducks should have a good supply of sharp sand or grit. In the evening, before they are shut up, they should be given a good feed of oats thrown into a pan of shallow water. No food must be left lying about after meals, and all feeding utensils must be kept clean. A small house is necessary. If four feet long, three feet wide and three feet high it will be large enough for four or five stock ducks. During the winter three ducks will be sufficient for one drake. The

Tells why chicks die

E. J. Reefer, the poultry expert of 805 Main St., Kansas City, Mo., is giving away free a valuable book entitled "White Diarrhoea and How to Cure It." This book contains scientific facts on white diarrhoea and tells how to prepare a simple home solution that cures this terrible disease over night and actually raises 98 per cent of every hatch. All poultry raisers should certainly write Mr. Reefer for one of these valuable FREE books.

Conkey's POULTRY TONIC

Makes Chicks Healthy and Strong

Vim and vigor are necessary if the chicks are to thrive and mature quickly.

CONKEY'S gets them started right and keeps them growing. Package or pail, 25c, 50c, $1, $1.60 and $3.

CONKEY'S WHITE DIARRHEA REMEDY should be given in the drinking water from the start. It will help to bring your chicks through finely—25c and 50c. Send 4c for Conkey's Poultry Book—worth dollars to you.

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Don't Forget

That care in selecting the grain you are going to feed your baby chicks will save you lots of trouble and loss. The ingredients of

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Special Chick Food

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Only strong wheat, sound corn, kiln dried steel cut oats and carefully selected seeds are used in its composition.

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Send for our booklet, "White Leghorn"
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Free on request.
MUST HATCH INCUBATOR COMPANY (Inc.)
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The most palatable and digestable poultry food ever produced; made entirely of corn and good enough and clean enough to serve on your table. It is especially adapted for the health of

Baby Chicks

and develops them rapidly and safely into early layers.

Compare the analysis of Gluten Meal with that of other protein foods
Protein, 40% Fat, 1.5% Fiber, 4%
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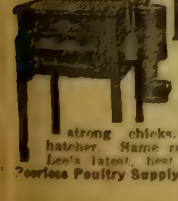

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Incubator measures and adapts heat, moisture and ventilation to each other. Gives definite proportions of each. Results, right conditions, big hatches, strong chicks. The one really scientific hatcher. Same results for all users. Investigate. Lee's latest, best poultry book free. Address

Peerless Poultry Supply Co., 409 E. 3d St., Los Angeles.

floor of the house must be littered with dry straw, often changed.—Farm, Stock and Home.

HENS AND FRUITS

I believe there is no better kind of a farm in the world than the one devoted to the production of purebred poultry and first quality fruits. I know from practical experience that poultry and small fruits work together to a nicety. Almost any fruit grower, I am quite sure, can make purebred poultry breeding pay well in connection with his fruitgrowing operations, provided he will give the matter careful study. The great majority of farmers keep mongrel poultry, and why this is so I am unable to understand. I am very well convinced that it is not because of lack of means to buy a pen or two of purebreds with which to start. When one feeds 10 bushels of grain to a flock of 50 mongrels that will dress an average of two to four or five pounds each, and to a neighbor feeds the same amount to a flock of purebred birds that will dress from six to eight or nine pounds, it can readily be seen without figuring it out who will make the most profit. Then between the purebreds and the mongrels there is the great difference in price of eggs and birds sold for hatching and breeding purposes. Let me say, however, that no one should take up the work of raising purebred poultry and expect great returns right at the beginning, for if he does he is mighty sure to be sadly disappointed. Like every other business under the sun, it is best to gradually grow into it, rather than jump into it, as one then stands a much better chance of success.—Rural New Yorker.

DAMP POULTRY HOUSES

Dampness in poultry houses is a common cause of trouble in the farm flock, says a writer in Farm, Stock and Home. It may be produced by a variety of conditions. Leaky roofs, poor floors, low floors, poor location, and other similar conditions may be wrong. Dampness invariably leads to disaster, for it brings on colds and roup or rheumatism.

Every poultry house should be tight, and it must be made tight before its use will be entirely satisfactory. Every fair, sunshiny day the doors and windows of the house should be thrown wide open and the interior given a thorough sunning and airing.

A tight roof and walls and a well-drained location are the most essential things for dryness in the house. With the many excellent brands of prepared roofing that are now on the market and which sell at reasonable prices, there is really no excuse for anyone having a leaky roof on his poultry house.

Floors that are lower inside than the earth on the outside of the house are liable to become damp and soggy. Houses that are built on damp ground seldom have a chance to dry out. A good board or cement floor is the best solution in such cases, but the trouble can usually be avoided by filling inside the house with sand or gravel until the floor is a foot or more higher than the outside ground level. Keep the floors dry by all means.

A VALUABLE BY-PRODUCT

We venture to say that few, if any, of our farmers attach any importance whatever to the manure from poultry, and in the majority of cases, it is a waste product. It should be borne in mind that poultry manure is very rich in nitrogen, due to the fact that all the excretion of the kidneys, given in the form of uric acid, is voided in a solid form with the droppings. One of the United States experiment stations reports that the roost droppings from 25 hens for six winter months amounted to 375 pounds, and on this basis each hen produced 30 pounds annually, and 100 hens should be credited with an amount equivalent to 250 pounds of sulphate of ammonia, 300 pounds of phosphoric acid, and 200 pounds of kainit, if the manure were all saved and properly cared for.

Under prevailing systems of poultry management much of the value of the droppings is lost. The nitrogen is easily converted into gas. Anyone familiar with a badly-kept and filthy hen house will also be very familiar with this gas. Nitrogen in this form

(Continued on Page 343)

The cheer-up wind of jimmy pipe joy

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is particularly for men who smoke and for men who want to smoke and have found heretofore they couldn't. So take this invitation and come on around and get acquainted with Prince Albert in the tidy red tin. Let real pipe and cigarette happiness break right into your life.

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Prince Albert is sold everywhere. Toppy red bags, 5c; tidy red tins, 10c; handsome pound and half-pound tin humidors; crystal-glass pound humidors.

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For deep lifts, as well as shallow lifts, combined with high heads above surface and through long pipe lines. No auxiliary pump needed for forcing water above the surface.

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Everything we offer has been government tested to make our assurance doubly sure, both as to germination and foul weeds.

We are actually offering California's best product.

If you are looking for cheap, unreliable stuff, you will have to look elsewhere, but if you want good seed at an honest price we can serve you.

Samples, prices, etc., on application.

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For Sale—10000 VALENCIA LATE
5000 MARSH SEEDLESS GRAPEFRUIT
8000 EUREKA LEMONS
12000 WASHINGTON NAVELS
Softland trees, perfect in quality, grown by us. Lowest price. Will plant if desired. Consider some exchange—now is most favorable time to make contract for next spring planting. Write or phone today for prices. Phone 559. Ward Realty Co., San Dimas, Cal.

1500 Eureka Lemons, one year; 500 Late Valencias, one year; 200 Washington Navels, two years; 400 Late Valencias, two years. Above buds are ⅝ up, splendid, thrifty, clean stock; 25c open root, 30c balled at nursery, and quality considered you cannot beat it. Grand year to plant. Call or write. Wilbur K. Howard, Loraine Ave. and Santa Fe crossing, Glendora, Cal.

Walnut Trees—Late blight resisting varieties grafted and budded on California Black and on FIRST GENERATION Royal and Paradox Hybrid roots, which are as much superior to the California Black root, as the California Black Root is to the English root—Eureka, Franquette, Mayette, Neff's Prolific, Concord and Placentia. Dr. W. W. Fitzgerald, Elks' Building, Stockton, Cal.

Home-Grown Fruit Trees—Largest assortment, including thousands of Royal Apricots, Tuscan and Phillips Cling Peaches, Pears, Apples, Figs, Grapes, etc., etc. Guaranteed true to name; strong, healthy and well rooted. Special low prices on application. Orange County Nursery & Land Co., Fullerton, Cal.

Cheap Reliable Trees—4,000 Phillips' Clings; also Tuscans, Fay Elbertas, French, and Imperial prunes, 10,000 Bartletts, 8,000 Gravensteins, Grafted Walnuts and other stock cheap. Write or wire for just what you want. Will save you money. Table Grove Nurseries, Healdsburg, Cal.

Avocados—Chappelow's only. This is the richest variety of avocados grown going over 29% fat. Trees from 1 to 5 feet. Write for price list. Chappelow's Nursery. Box 104, Route 1, Monrovia, Cal. Trees 3 to 4 feet tall, branched from open ground, F. O. B. Monrovia, $4.00 each.

For Sale—2000 Late Valencia Orange trees, two years from bud. 1800 Washington Navel, one year from bud. A1 stock. Address, H. H. Eshelman, Soldiers' Home, Cal.

Buy Fruit Trees direct from the grower. Finest Apricots and Pears, 12½c, 10c and 8c. Apples, 5c; Oranges, 25c. Let me quote you on everything you need. Julius Mayr, Tree Grower, Hemet, Cal.

100,000 Orange and Lemon Trees and spineless cactus. Luther Burbank and Mediterranean Spineless Cactus Plantations, Robinson Citrus Nurseries, San Dimas, Cal., R. F. D., 35-A.

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Seedless Grapefruit — Limited number of fine trees, propagated from a tree brought from Florida. A superior type of Marsh's Seedless. Send for circular. G. W. Sherwood, Fullerton, Cal.

For Sale—Budded Avocados. Large field grown buds of the Northrup variety; other varieties later. Prices right. Don't plant potted plants. G. W. Beck, La Habra.

Budded Avocados—All leading varieties, Feijoas, Guavas, Mangoes, Cherimoyas. Write for prices. Edgemont Avocado Nursery, R. F. D. 2, Box 213, Pasadena, Cal.

10,000 Valencia Orange Trees, ⅝ and up. Superior stock from carefully selected buds. These trees at your own price. Will trade. Twombly Ranch & Nursery Co., Fullerton, Cal. Phone 158-J3.

I Have Fine Seedling Stock, and will grow you from 2000 to 18000 good lemons or other citrus trees cheap for 1916 planting, or would let stock on shares if desired. H. Gregory, Redlands, Cal.

Eucalyptus—Orders filled by flat or carload. Correspondence invited regarding quantity and variety. Stratton's Nurseries, Petaluma, Cal.

Citrus Trees—Villa Franca and Eureka Lemons, Tangerines, Grapefruit and Standard varieties. Will consider exchange. O. E. Van Slyke, Azusa, Cal.

The Walnut Nursery still has a few Eureka, Chase and Mayette grafts. Order quick. W. A. Litten, Prop., R. F. D. No. 2, Whittier, Cal. Home phone 7863.

For Sale—Genuine Luther Burbank Spineless cactus, per thousand $150.00. Orders received now. Oscar Maurer, Del Mar, San Diego Co., Cal.

Walnuts—Choice seedlings, 10c up; also grafted Chase and Placentias. Now contracting citrus and avocados for spring planting. Magnolia Nursery, Whittier, Cal.

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A Bargain in first-class Navel, Valencia and Lemon trees. All strong, healthy, vigorous stock. Get my prices before ordering. A. G. Wright, Fullerton, Cal.

For Sale—Eureka Walnut Trees, budded on Native Black Walnuts. Choice stock. Order immediately. Don't delay. Wm. Holve, Fullerton, Cal.

For Sale—Budded and Seedling Avocados. Citrus Nursery stock. Nursery for sale. Cheapest proposition in the State. Martin Fesler, Covina, Cal.

For Sale—A few thousand Eureka Walnut Scions. Whittier phone 4721. Chas. Story, Rivera, Cal.

Nurserymen—Ornamental young stock for lining out. High quality, well packed. Ballou's Nursery, Pasadena, Cal.

TREES

Rialto Seedless Lemon Trees—Write or phone for Brief History and it will be mailed to you. The coming Lemon for California. Also Seedless Grapefruit—Valencias, Washington Navels—Eureka and Villa Franca Lemon—Mexican Lime—Ganter and Harmon Avocado Pears. We are making special inducements to planters. Prices on application. We have first-class stock and can make deliveries from San Bernardino, San Diego and Los Angeles Counties. We are not jobbers but selling our own grown trees. Buds selected from the best bearing trees. 25 years in Southern California growing and handling citrus trees. Yours for good business.
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Lease Expires Next Spring—Must sell. Have left about 3200 Eureka lemons, three-quarters inch and up, buds selected from trees producing heavy crops of fancy fruits. 2500 Valencia Late ⅝ in. up, 3000 Marsh Seedless grapefruit ⅝ in. up. These are stocky and especially adapted for desert planting. Will sell with loose roots or balled. Prices very reasonable. Small amount down and time on balance, or part trade. Reduction for cash. All information cheerfully given. E. T. Vander Sluis, Glendora, Cal.

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Olives—Mission and Manzanillo. We will save money for you. Large stock, stocky, straight, well grown, thrifty and clean. Come in and see the finest trees in the land growing in the nursery. Get our prices. Kavan Nursery Co., San Bernardino, Cal.

Citrus Trees—Have fine lot of Marsh Seedless Grapefruit, Eureka, Villa Franca and Lisbon Lemon, Valencia and Washington navel trees. Prices right. Budded on sour stock with carefully selected buds. John Shingler, Uplands, Cal.

Mission Olive Trees—Will be two years old next March. To be absolutely sure of getting Missions I only propagate from my own trees, raised thirty years ago. Also cuttings from same trees for sale. W. A. Hayne, Box 461, Marysville, Cal.

For Acacias, Avocados, Budded Loquats, Citrus trees, Evergreens, Feijoas, Palms, Roses and all kinds of trees, shrubs, vines, etc. Write for our new catalogue. Robertson Nurseries, Fullerton, Cal.

For Sale—Navel, Valencia and lemon trees, three-quarters inch and up, 20c loose root, 25c balled. Budded Avocados, 4 to 7 feet high. Address Box 54, Glendora, Cal.

For Sale—Grafted walnuts on black and soft root, oranges, lemons, apricots, peaches, everything in the nursery line. Get my prices. A. R. Marshall's Nurseries, Box 64, Santa Ana, Cal.

Apricot and Olive Trees—Royal and Tilton Apricots. Mission, Ascolano, Chemlaly olives. Choice stock. Correspondence solicited. C. E. Moyer, Hemet, Cal.

For Sale—Seed-bed and nursery stock. Will trade for city, beach or Covina property. Phone 357 Azusa Ex., S. N. Benton.

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100,000 Citrus Trees—Choice Seedlings and Buds. Wanted, a budder. Butler's Morning Side Nursery, Lamanda Park, Cal.

Before Planting Olives, Avocados, Feijoas, Rhubarb or Cactus, get my free booklet. Bishop's Nursery, Highland, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale: inspection invited

For Sale—The finest Valencia Trees in Tulare County. Threequarters up. C. H. Weed, 907 Mill St., Porterville, Cal.

2500 Grafted Walnut Trees—Still unsold. Whittier Nursery, 803 W. Philadelphia St., Whittier, Cal.

Cactus and Trees—Cash Nurseries, Sebastopol, Cal.

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For Sale — New Zealand Rabbits—"the best meat producers." Mature does and bucks $2.00 to $5.00 each. Halfgrown youngsters, buck and 3 does unrelated $5.00. Shipped anywhere. Standard Rabbitry, Santa Ana, Cal.

Leading Rabbitry in America—Flemish Giants a specialty. Prize winning and heavy weight stock. Scored and sold on their merits. Inquiry and inspection solicited. Catalogue on request. Empire Rabbitry, Empire, Cal.

Richey Reds are beauties; won 19 ribbons in one year. Fine bucks for sale and young stock reasonable. Mrs. C. A. Richey, R. 8, Box 557, Los Angeles.

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Baby Chicks—As good as the best regardless of price, for April, May, June. White Leghorn, $8.00 per 100; $76 per 1000. Brown Leghorn, $10.00 per 100; $95 per 1000. Leghorn chicks shipped each week. Book to order. R. I. Red, Barred Rocks, Buff and White Orpingtons, Black Minorcas, White Wyandottes; 50% deposit, balance C. O. D., and chicks must be first class or we will refund deposit on return of chicks. Hawkeye Hatchery, Turlock, Cal.

At Five California Shows I won 112 firsts, 55 seconds, four times best bird in show and many specials. Utility and show stock. Eggs and chicks of Black, Buff and White Orpingtons, Rose and S. C. Reds, White and Blue Leghorns, Silver Campines, Anconas, Salmon Faverolles, Polish and Cornish Games. Free mating list. Holman Poultry Farm, Stockton, Cal.

White Plymouth Rock Incubator Chicks—Also White, Brown and Buff Leghorn and Black Minorca, all from Standard bred Exhibition Stock, and Hoganized. Place your orders now for April delivery. Send for Booklet of prices. Mahajo Farm, P. O. Box 597, Sacramento, Cal. Hatchings from mature stock only—22,000 Incubator capacity.

S. C. White Leghorn Baby Chicks—From my pure-bred flocks S. C. White Leghorns, carefully selected for laying and Standard qualities, $9.00 per 100, $85.00 per 1000. A first class chick at a reasonable price. Eggs for hatching, $5.00 per 100. $45.00 per 1000. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

Make Money with our superb White Orpingtons; best breed for every need. Lay most when prices highest; make finest eating. 1000 grand range-raised birds, trap-nested and bred for heavy laying. Eggs, chicks, stock. Send for catalogue. Whitten Ranch, R. 5, Box 646, Los Angeles.

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Guaranteed to exterminate all lice, etc., in the nest, and on the hen. Will retain strength for months. Less trouble than Liquids or Powders. 10c each, $1.00 per dozen postpaid. Don't send stamps. I. H. Caister, 1309 Dewey Ave., Los Angeles.

Poultry Wanted — We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. National Poultry Co., successors to Allaway & Layton Co., 607 E. Third St., Los Angeles, Cal.

2 Doz. Thoroughbred Buff Leghorn Pullets and 2 ckls. for $24.00. Fine big White Minorca eggs $2.00 per 15. Pure R. I. Red eggs $6.00 per 100. White and Brown Leghorn chicks by 100 or 1000. James D. Yates, Poultry Judge, Modesto, Cal.

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Chicks! Chicks! Chicks!—No money down, terms C.O.D. Select Leghorns $8; Minorcas $12; R. I. Reds $12; Barred Rocks $12.50; Buff Leghorns $12, and Aconas $12.50 per 100. No less than 100 shipped. Can ship large numbers. Write C. A. Darwin, 709 S. Main, Los Angeles, Cal.

MacFarland Strain White Leghorn eggs, $1.50 per 15, $5.00 per 100; chicks, $10.00 per 100 from our thousands of heavy layers. Order now, any quantity. Big plant, lowest prices, best stock. Newton Poultry Farm, Dept. 3, Los Gatos, Cal.

S. C. White Leghorn Eggs, McFarland strain, bred for years from the best layers, on alfalfa ranch, perfectly vigorous, eggs $4.00 per 100, $35 per thousand; cocks $2.00. S. H. Johnson, Glenwood Ranch, Wasco, Cal.

Baby Chicks—White Leghorn, Brown Leghorn, R. I. Reds, Barred Rocks, Black Minorcas and Anconas. We guarantee satisfaction. Write for price-list. The ORLAND HATCHERY, Orland, Glenn Co., Cal.

S. C. White Leghorn Baby Chicks and Hatching Eggs that are Top Notch. Write for particulars. Prices reasonable. Ten years in business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

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Blue Ribbon Buff Minorca eggs and stock now on sale; also Indian Runner ducks; Rocks, Reds, Andalusians; reasonable prices. Cedarhurst Ranches, R. D. 2, Sacramento, Cal.

Petaluma and American Brooder Stoves with new and exclusive features. Write for free catalogue. American Brooder Stove Company, Oakland, Cal.

Rhode Island Reds—Great laying strain, baby chicks; reduced prices for rest of season. Rainescourt Poultry Ranch, Zelzah, Cal.

Baby Chicks—If looking for the best—get Golden Buff Leghorns or White Minorcas. Sandridge Hatchery, Kerman, Cal.

Barred Rock Eggs for hatching, $1.00—13. Brown Leghorn eggs, 75c—15. Mammoth Bronze Turkey eggs, $2.50 per doz. Massey Farm, Wilmington, California.

Prize-Winning White Wyandotte, Barred Rock and Pearl Guinea eggs, $1.50 per 15; $7.00 per 100. Buena Park Nursery, Fullerton, Cal.

Goodacre Blue Ribbon Strain of heavy layers. Send for 1915 catalogue. Twelve First prizes at Los Angeles show, Jan., 1915. Goodacre Bros., Compton, Cal.

Houdans—Males $2.50; females $2.00; eggs $2.00 per 15. Choice stock. Mrs. B. Hocking, Guasti, Cal.

Eggs for Hatching. R. I. Red $1.50 setting, 15 eggs. Free range. J. F. Mason, Route 1, Box 112, Watsonville, Cal.

POULTRY

Just Out—The Cultivator Poultry Book, "Poultry for Profit," by Jean A. Koethen. Published by the Cultivator Publishing Co. Highly endorsed by experts. Over 200 pages, 50 illustrations. Contains simple methods of avoiding and overcoming difficulties. A guide to poultry success under Western conditions—it tells what to do, why to do it, and how to do it. Nicely bound in cloth. Price $1.00 postpaid, or with Cultivator one year, $1.75. Send orders to Cultivator Publishing Co., 115-117 North Broadway, Los Angeles, Cal.

White and Brown Leghorns — Day-old chicks from healthy vigorous breeders. "Chicks well hatched are half raised." We will be pleased to send you circular and prices. San Jose Hatchery, 371 Meridian Road, San Jose, Cal.

Eggs and Chicks — From prize winning birds. Golden Buff Orpington and Barred Plymouth Rocks. Excellent winter layers. Settings of 15 eggs $2.00 to $1.50, $5.00 per 100. Chicks $15.00 per 100. K. L. Kirby, Oakdale Poultry Farm, Watsonville, R. D. 2.

Barred Plymouth Rocks—Winners at New York and California's leading shows. Laying strain unequalled. Eggs for hatching from seventeen Champion matings. Eighteen years breeding Barred Rocks exclusively. Write for catalogue. C. H. Vodden, Los Gatos, Cal.

Ancona Eggs—Select stock, $1.50 per 15, $6 per 100. Baby chicks 15c each. Mammoth Pekin Duck Eggs, $1 per 12, $6 per 100. Baby ducks 20c each, $17.50 per 100. J. P. Clough, 3980 Peralta Ave., Fruitvale, Cal.

Baby Chicks—Eggs for hatching. Pure bred, R. I. Reds, White and Buff Leghorns, Black and White Minorcas. Eggs $6.00—100; Chicks $12.50—100. White Wyandottes higher. Gem City Yards, Los Gatos, Cal.

Day-Old Chicks—From healthy, vigorous, heavy-laying, free range stock of S. C. White Leghorns. Price $7.00 per hundred. H. P. Hansen, R. 4, Box 177, Petaluma, Cal.

Hatching Eggs—Any quantity, any time; R. I. Reds, White Leghorns, $4.00 per hundred, $35.00 per thousand. All from good layers. Our baby chick prices will interest you. Write us. Roofden Poultry Ranch, Campbell, Cal.

Chicks, Hatching Eggs—R. I. Reds, White Leghorns. Settings, hundreds, 1000s, from selected heavy layers. Hatched right in our $60,000 Hatchery. Prices reasonable. Pebbleside Poultry Farm & Hatchery, Sunnyvale, Cal.

Selected Single Comb White Leghorn eggs for hatching that will improve your flock. All hens 220-egg type. $1.50 per fifteen eggs; $8.00 per 100. Jay Maxwell, Madera, Cal.

Barred Rock Eggs from Wagner strain; first-prize winners $1.00 per 15; cockerel mated pen $2.50. Roselle Jelly Plant seeds 10c per package. Mrs. C. A. Richey, R. 8, Box 557, Los Angeles.

Safety First — Feed your baby chicks Croley's Dry Mixed Chick Feeds manufactured by Geo. H. Croley Co. Inc., 631-637 Brannan St., San Francisco, Cal.

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Saanen Grade Swiss Goats—About 80 high grade to select from. Henry Siemer, 1213 W. 5th St., Los Angeles.

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250 Acres Near Sonoma City, large portion level (now in crop), balance rolling, fine pasture, some wood, well, never failing spring, etc. This is a particularly good location (42 miles from S. F.) for a whole milk dairy. Price, $12,500. Terms, $1,500 cash, balance in six years. R. C. Waller, 625 Market St., San Francisco.

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Berry Plants, Rhubarb, Cacti—It will be worth your while to send me a postal right now if you are interested. Louis F. Scribner, P. 2, Pasadena, Cal.

Giant Himalaya Blackberry Plants (one year old, not tips), doz. 50c; 100 for $2.50; 1,000, $15.00. Postpaid. David Bahrs, Box 25, Marysville, Cal.

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Catalogues for the seed and nursery trade. The live stock and poultry industries are a specialty with us. Two thousand illustrations to select from. Write for prices and samples. The Kruckeberg Press, 237 Franklin St., Los Angeles.

A VALUABLE BY-PRODUCT

Continued from Page 341

goes off in the air very raidly, in other words the manure has parted with its most valuable constituent. Again, if used alone on the soil, hen manure gives off its nitrogen too quickly; it does not contain enough phosphoric acid and potash. To get the best results from it, then, the poultry houses should be cleaned out regularly and the manure mixed with that of cattle or hogs, or it should be applied to the land at once, either as a top dressing or worked in. In any case effort should be made to follow out the best and most convenient system of saving this manure with as much care as is taken with other kinds. It is too valuable to lose.—Farm Stock and Home.

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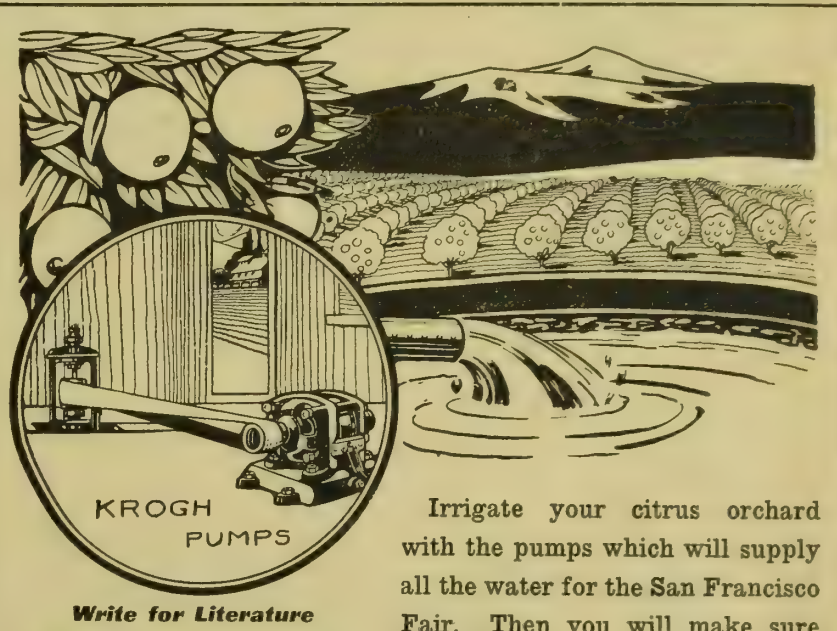

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Two interesting books are yours for the asking: "Trapshooting" treats of this delightful sport from the viewpoint of both the veteran and the beginner. "Hercules Sporting Powders" is of interest to everyone who owns a rifle, shotgun or revolver. These books are free. Write for them today.

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When writing advertisers, mention the Cultivator.

Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Anonymous

We are receiving so many unsigned letters and the department is becoming so filled that there must be some reduction, therefore we are again compelled to announce that anonymous communications will not be given attention. As soon as a letter is opened the signature is looked for, and if not found—no matter how helpful a question it may be—the waste basket will get it. This is an invariable rule and yet there is scarcely a day that unsigned letters are not received at the office. In some cases these letters have the full address of the writer on the envelope, and it is possible the envelope has been thrown away before this fact is observed, so it is best always, in addition to putting the name on the envelope, to attach it to the letter. We scarcely ever use the name, and certainly will not when it is indicated that name should be withheld.

Again, subscribers will send remittances in a letter and on the same sheet ask a question intended for the editorial department. It will expedite matters if the question or matter intended for the editorial department is written on a separate sheet with full name and address on it. It will then receive immediate attention.

Soil Analysis

Where may I obtain accurate soil analysis? Is such work done by the state university and what is the charge? How should one send samples of soil? — Subscriber, Yorba Linda.

The cost of analysis varies. We believe a complete analysis costs some $15 or more. However, there is a much simpler analysis or rather determination made which may be all that is required; that is, the soil chemists who advertise in the Cultivator will determine as to black alkali content of soil for two dollars, white alkali, three dollars; as to lime content, two dollars; potash, three dollars; nitrogen, two dollars, etc. The state university at one time made free analysis but it was found necessary to discontinue this work. We believe there is some advice given regarding general conditions but this is of a general nature rather than specific information in regard to a particular piece of land. As to method of taking the soil sample it would depend perhaps somewhat upon the crop to be grown, but for orchard work, for instance, usually to a depth of about four feet, being careful to secure proper proportions in each one of the four feet. The best method of securing sample is to make arrangements with the soil chemist and follow his instructions.

Strains of Poultry

What is the difference in the varieties or strains of the S. C. White Leghorns? Why is one any better than the other and how do they originate? Which is the best strain?—Subscriber, Earlimart.

There is no "best breed." Likewise, as to strains, it depends upon the ideal of the poultryman. One breeder will run entirely to form and feather, another pays no attention whatever to these points and will only breed from birds which are known to be prolific layers. This strain he may describe by calling it a 200-egg strain or Smith's or Brown's "High Producing Strain." The man who raises broilers again chooses an entirely different type of bird. These may possibly be all of the same breed but years of selection have made an entirely different class of stock. The poultry producer should choose his stock according to his own ideal and for the purpose for which it is to be used. If he wishes to win blue ribbons at fairs and poultry shows he must give attention to form and feather. He may, in addition, work for a producing strain. Of course, the more general the purpose the more diffcult the problem to meet all the requirements. Therein is the stimulus of the poultry industry. The problem is a big one and worthy of much study of both books and birds.

Oleander Wood

I recently cut an oleander tree of some size. I notice the wood does not check and is apparently hard and firm. Has it any commercial value?—W. L. T., Etiwanda.

We will pass this on to our subscribers. We have never heard of this wood having any use, probably for the principal reason that it is not produced in large enough quantity to be of value. However, it is worth investigating. Have our subscribers ever used it?

Sticktight Fleas

My chickens have sticktight fleas on head and comb, also close to the eyes. How can they be destroyed? What will kill them in the sleeping quarters? —Subscriber, Imperial.

From the Cultivator's poultry book, "Poultry for Profit," we quote: "For sticktight fleas and sand fleas spray or wash the houses with hot salt water and apply corrosive sublimate to the fleas found on the chickens. In handling corrosive sublimate care must be taken to keep it out of the chickens' or the attendant's eyes, for it is a very deadly poison."

Sapota Chica

Can you give me any information regarding the sapota chica? Is it cultivated and otherwise handled the same as an orange tree?—Subscriber, Pasadena.

The plant referred to is doubtless Achras sapota, the sapote chico or chicozapote of Mexico, known in the West Indies and Florida as sapodilla. This tree yields the chicle gum of commerce, which is the basis, or ought to be, of chewing gum; in addition it yields a fruit the size of a small apple, russet on the exterior, with a thin skin, soft, light brown flesh, and several hard, black seeds the size of a flattened bean. The flavor is very sweet, and it is much relished in tropical countries. The tree is common in the wild state in southern Mexico and is frequently grown in Cuba, other West Indian Islands, and throughout the southernmost part of Florida. It has been planted in California at various times, but so far as known has not yet come into fruiting in this state. There was formerly a tree five or six feet high on Dr. Franceschi's place at Santa Barbara, and Mr. Hart of Sierra Madre had a fine young tree on his place when it was cut down to the ground by the cold

Saving Time and Money on the Farm

HOW much do you personally know about the use of dynamite on the farm? Have you ever used it? If you have, have you used it to the fullest advantage? Have you made it do all the work of which it is capable?

With Hercules Dynamite you can plant trees, drain land, dig ditches, remove rocks, subsoil land, excavate cellars, cisterns, etc., and do many other things that space does not allow us to list, In the great majority of cases you can do all of these things more quickly, more thoroughly, and with less expense by the proper use of dynamite than by any other method.

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is not a Jack-of-all-trades. It will not always take the place of tools you are now using. Sometimes it can only be employed as a supplement to them. But most of the work usually done with a spade or an axe, a pick or a bar, can be done to better advantage with dynamite.

The place that dynamite is taking on the farm is growing bigger and more important every day. The man who is engaged in agricultural work and who has not thoroughly familiarized himself with this comparatively new factor in such work is not doing himself justice.

For your own benefit write for a book we have just published, called "Progressive Cultivation." It gives much information that many men now have at their finger tips and find almost invaluable in their daily work. It will help you in yours.

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weather of January, 1913. It makes very slow growth in California and is very susceptible to frost when young, so that it cannot be recommended as adapted to any but the most frostless and protected locations. Its glossy green foliage makes it a particularly handsome decorative plant and one which would be a welcome addition to our ornamentals.—E. O. Popenoe.

Black Scale

What solution may be applied to orange and lemon trees to kill black scale?—Subscriber, Watsonville.

It is now rather late to spray to secure best results. It will perhaps be better to wait until the fruit is of such size that it will not be injured, then either spray or fumigate. Fumigation accomplishes rather better results and is somewhat more expensive. The spraying may be done with kerosene emulsion or with commercial sprays, many of which are advertised. If the kerosene emulsion is desired, formula for its making is to be found in the special spray number of the Cultivator of September 11, 1914.

Gum Disease

How can I treat apricot trees affected with gum disease?—Subscriber, Hemet.

This exuding of gum on apricot trees is due to a physical condition of the tree or of the soil, or it may be due to a communicable disease caused by fungus. In the latter case removal of the diseased tissue, leaving only clean, healthy wood which is painted over with Bordeaux paste, is helpful. Ordinarily, however, curing unhealthful soil conditions will prove beneficial.

Horses Eating Wood

Commenting on answer to a recent query regarding horses gnawing manger, F. V. G. of Caruthers writes: "Try salt for the wood-gnawing horses mentioned in a recent issue. It stoped ours."—F. V. G., Caruthers.

Spots on Orange Leaves

What is the trouble with the orange leaves which I send, which are yellowed and have reddish brown spots?—Subscriber, Ramona.

These leaves were from trees suffering from chlorosis or yellow leaf. In addition they had bright red spots on the under side. They were referred to Prof. H. S. Fawcett, and he answers: "The reddish brown spots on the citrus leaves are something we know very little about. These are found quite commonly on leaves that happen to become turned over so their undersides are toward the sun. They are thought to be due largely to the burning effect of the sun."

Root Knot

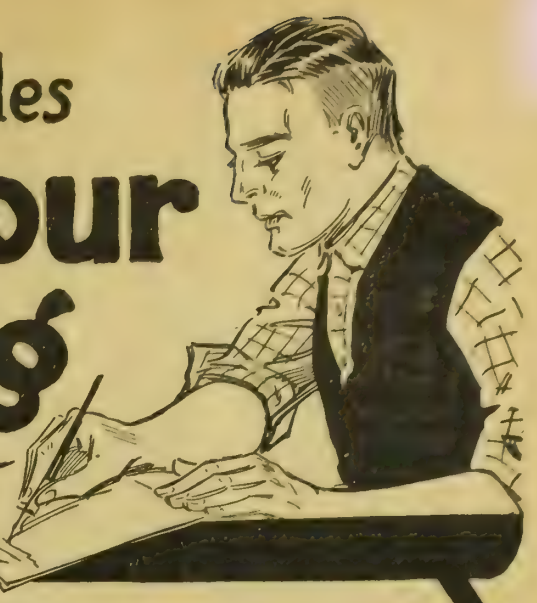
What is the best way to rid the soil of root knot disease? I did not think it possible my soil could be infected but find trees are suffering with it. Is it possible it may have been introduced from the nursery? The trees are almonds and apricots. Have been out two years. Have dug more than one-half of them up.—Subscriber, Coachella.

It is possible this trouble was introduced with the trees. It is a most prevalent trouble. Thorough examination of trees when setting and rejection of those which are infected is about the only remedy. There is no chemical treatment within economic bounds which can be given the soil, and rotation, that is the growing for a time of crops which afford no opportunity for the fungus to reproduce itself, is practically the only means of ridding the soil of this trouble.

Thrush or Canker

An inquiry appeared in one of the February issues of the Cultivator as

"Whiting Mead, Los Angeles
Send me your New Catalog
-I wouldn't be without it!"



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This is what one of our customers writes. Are you convinced? Send coupon below for our 1915 Catalog and save money.

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Above prices include cement and nails ready to lay. Send for samples.

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Per hundred lbs. (catch weight reels)..... $2.75
Same as above—80 rod reels—per reel.. $2.25

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Light special galvanized barb wire in 80 rod reels—per reel. $1.75

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Special value—worth $22.50. Big values in High Tank Toilet Combinations. $10.00
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Look at this! Corrugated gavanized iron, 2-inch corrugations, from 6 ft. to 10 ft. long. This is in perfect condition and won't last long at this special price. Per 100 square feet..... $3.75

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The highest grade wallboard on the market; made of 3 layers of moisture-proof fibre, with asphaltum between each layer; or cream white fiber board.
Cheaper and neater than plaster or lumber, and any one can install it in one-quarter of the time. Per 1000 square feet..... $19.00
This is a $30.00 Value.

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Send us your list for our estimate. All lumber delivered to your nearest railroad station. Don't fail to get our prices. I will mean a big saving to you.

High Grade Building Material
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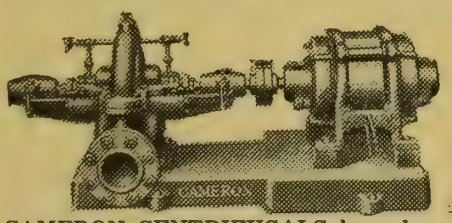
CAMERON IRRIGATION PUMPS



For the continuous and exacting work in irrigation pumping, you want pumps that are simple and dependable with the least attention.
CAMERON CENTRIFUGALS have been designed and built with the special aim of producing a combination of high working value and low operating cost. Simple and strong all through. Finest material and workmanship. Highest efficiency. Backed by an experience of over fifty years. Can be operated by motor, gas engine or belt.
Put your pumping problem up to us. No obligation.
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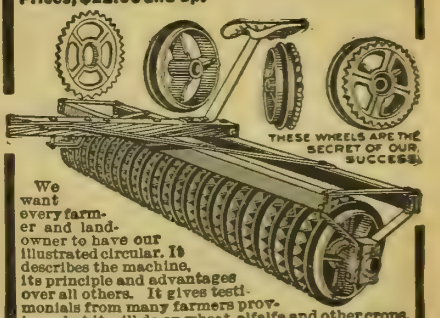
A perfect seed bed is as important as to sow or plant. The Western Pulverizer, Packer and Mulcher makes a perfect seed bed and leaves a loose mulch on top to retain the moisture in one operation. It will double profits on crops. Made in 8 sizes, 1 and 3 sections. Sold direct to you on one year's trial. Prices, $22.00 and up.



We want every farmer and landowner to have our illustrated circular. It describes the machine, its principle and advantages over all others. It gives testimonials from many farmers proving what it will do on wheat, alfalfa and other crops. It contains valuable information on how to prepare the soil for better results. Send for this circular today, whether you want to buy or not.
WESTERN LAND ROLLER CO.
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Deming Spray Pumps
DEMING PUMPS THE WORLD'S BEST
are as perfect as 30 years' experience can make them. They are made in the right way from the right kind of material. Deming Sprayers aren't in the habit of "getting out of order." They are always ready when you want them, and there are
Sprayers for Many Purposes
We make bucket sprayers and knapsack sprayers, barrel sprayers and strong power sprayers. There is a Deming Sprayer for every need. Whether you garden for pleasure or grow truck or fruit for profit—Deming Sprayers, Nozzles and "Deco" Hose will prove of great help.
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That's what it means to pump water with the world's strongest windmill, the long-lived, double geared, powerful
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"Let the wind pump your water for nothing"
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178 Samson Ave., Freeport, Ill.
Also Stover and Ideal Feedmills—Alfalfa Comminuters and Grinders—Pump Jacks—Ensilage Cutters. *Send for Catalogues.*

ESTABLISHED REX 1896

ARSENATE OF LEAD

UNEXCELLED IN ITS

FINENESS OF PRECIPITATION SPREADING QUALITY
MISCIBILITY ADHESION QUICK KILLING

REX ARSENATE OF LEAD

is made from the very best quality of raw materials, is processed in our own factory by our own chemists, who have had the experience of years. REX has demonstrated 100% efficiency in numerous orchards. Why not use it in yours?

WRITE FOR

REX ARSENATE OF LEAD BOOKLET

To

California Rex Spray Company

BENICIA, CALIFORNIA

MANUFACTURERS OF

REX LIME AND SULPHUR SOLUTION
REX IRON SULPHIDE
REX MISCIBLE OILS AND DISTILLATES
ETC. ETC. ETC.

Does It Pay to Raise Apples ?

Go to the nearby store, get the prices of first-class apples—

"The Big Red Apple"

the kind grown in the Yucaipa Valley—and figure whether growing the king of fruits is a paying proposition. After doing so write the **Redlands & Yucaipa Land Co.** and get printed matter explaining fully the best apple, pear and peach land in California. Or come to Redlands and let us take you to Yucaipa and show what we have.

Yucaipa is 2400 to 3000 feet above the sea, eight miles from Redlands. Land is selling at $285 per acre, on easy terms, one share of water stock in a Mutual Water Company goes with each acre. This is the time of year to plant deciduous fruits.

Redlands & Yucaipa Land Co.

DIKE & LOGIE, General Sales Agents

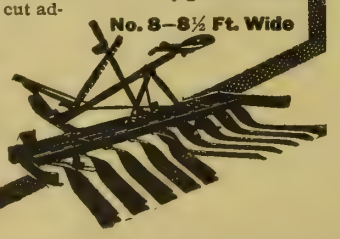
209 Orange Street REDLANDS, CAL.

ACME FOOT LIFT Weeder

A RIDING orchard cultivator and mulcher. Gets all the weeds—large and small. Used in orchards or for summer fallowing; keeps down weed growth and properly mulches surface soil.

Foot Lift Lever enables operator, on seat, to clear off weeds that may gather while working. All steel construction. Light draft. Depth of cut adjustable. Price right.

No. 8—8½ Ft. Wide



Your John Deere Dealer Sells It!

What a user says about it: Naches, Wash., Aug. 20th, 1914

Dear Sirs: —The Acme Weeder is the best weed killer I ever used without any exception. It works well in large and small weeds alike and is easily cleaned when clogged. No orchard man can afford to be without one. *(Name on Request)*

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to method of curing thrush in horses' feet. This is a difficult thing to handle and a good many remedies recommended have proven of no avail. Here is a sure cure that is economical. Clean the foot thoroughly and trim the frogs so the medicine will get to all diseased parts. Procure two ounces of butter of antimony and apply every day for a week. Do not allow it to get on the hair or it will blister. Keep the horse in a clean, dry place while treating.—W. I. Freeman, Orange.

Blackbirds a Pest

As a reader of your paper would like to ask regarding practical method of protecting maize from blackbirds. Noticed an item in your last issue regarding a bill introduced by a legislator for the purpose of discontinuing protection of blackbirds and robins. In this section the blackbirds are a serious manace to summer crops. Shooting has little permanent effect on them; scarecrows do little good. Some cheap method of using poisoned grain appears to be the only method. Have tried cyanide of potassium with barley but the birds would not touch it.—V. R. S., Calipatria.

Have any of our readers any suggestions to make as to control of this pest?

Olive Pomace for Fertilizer

Answering a request as to value of olive pomace for fertilizer, Prof. Charles B. Lipman of the University of California writes:

"The chief value of olive pomace for fertilizer is its value as a source of organic matter to the soil. It could only be of great practical value, therefore, if applied at the rate of at least five tons to the acre. The value from a plant food standpoint is very small. The value from the standpoint of availability of nitrogen I do not exactly know and should appreciate receiving a sample of the material from any one who is interested in order that we may make determination of the availability of its nitrogen. On a general basis, I am inclined to believe that aside from its value as above cited to supply organic matter in the soil, it is not to be considered important among our fertilizer resources."

VETERINARY QUERIES

Continued from Page 338

suddenly became lame and one quarter of the udder became hard and the milk stringy. Veterinarian advised poulticing. She recovered, but lately I found her in the same condition but worse. Have been feeding alfalfa and oat hay and picketing her in green oats. She is much better but has a hard lump in that quarter and the milk is a little curdy at first. What would you advise me to do with her?—Subscriber, Rialto.

Garget or inflammation of the udder is usually brought on by an abundance of rich feed. The blood becomes thick and clogs in the udder. Thin the blood by giving the following: Mix three pounds of epsom salts, two pounds of common salt and six ounces of powdered nux vomica. Give a handful of the mixture once a day. If the cow is ever bothered again with the acute symptoms give her a dram of tincture of aconite on the tongue every six hours until she is relieved. Rub the udder carefully for half an hour at each milking time and you will probably be able to rub out the lumps and improve the flow of milk.

In the great exposition in San Francisco, in a location that at once commands the attention of the visitor, is a building unusual in appearance and of striking character. It is the exhibit palace of the D. Ghirardelli Co., the great chocolate firm of San Francisco. This exhibit is a miniature reproduction of the great chocolate mills of this company.

Visitors are very seldom permitted to see the process used by chocolate or cocoa makers, hence this exhibit will be a revelation—for the first time in a public exposition will the people be given an opportunity of seeing the process of transposition of the raw cocoa bean as it comes in sacks from the tropical plantation, to the finished food packages in which it is sold to the public.

FREE BOOK

Forty pages of information on soils, illustrated with many striking field photographs.

It is used in many leading agricultural colleges because of the practical common sense it contains.

A copy sent free to any reader of this paper. *Write for it.*

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20 choice registered, tuberculin tested Shorthorn Bulls, 14 to 20 months old; all are good individuals, some are of show class type and of fine breeding. Call or address

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Means One Less Man-

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Especially Strong for Alfalfa - Feed Hopper only 39 Inches from Ground - Largest Feed Opening -

Great Capacity Low Upkeep -

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Insure Your Crops

By inoculating your seeds. Crops of Alfalfa, Clover, Peas, Beans, Corn, Wheat, Potatoes and all Leguminous crops greatly increased by the use of **Legumogerm.** Makes poor soil rich, rich soil richer. **PRICE POSTPAID: one acre, $1.50; three acres, $3.50; five acres, $5.00; ten acres, $8.00; twenty acres, $15.00; fifty acres, $35.00.** Full directions with every package. Special discounts to Seedsmen and Agents. Cuts furnished for catalogues. Send for circular A. **"Soil Improvement." WESTERN LEGUMOGERM CO., Topeka, Kansas.**

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Send 10c. (at our risk) for Trial Bottle of SILVRON, the Silver Polish that cleans, polishes and PLATES WITH STERLING SILVER. Send 10c. stamps or silver *today.* BIG PROFITS FOR AGENTS

CARISA CO., 157c Cedar St., N.Y.

The Household Department

THE CALIFORNIA ORANGE SHOW

Written for California Cultivator for Orange Day, March 20, 1915
By Chris Haag

When you live in California, you are
feeling at your best,
With the rising sun to greet you,
from a night of gracious rest.
ou can leave the house bareheaded,
when you're going out to mow.
on't forget to do your duty.
Boost the Golden Orange Show.
Chorus
ing "Eureka, I have found it," Cali-
fornia first and last,
Where we shelter from the blizzard,
from the icy sleet and blast.
While the citrus fruits here ripen,
other states are full of snow;
Ve have sunshine of the brightest.
Boost the Golden Orange Show.

California is the grandest, with her
snow-capped mountain tops,
While the valleys for her people here
produce abundant crops.
In this golden sunset region there is
thrift where'er you go.
See the sights of California.
Boost the Golden Orange Show.

Why not live in California? From
her soil there's constant gain.
Juggle oranges and lemons, buy a
home and here remain.
Here are people from all nations,
picking flowers as they go,
In the wonder of her grandeur.
Boost our Golden Orange Show.

Celebrate Orange Day

Exhibitors at the Fifth National Orange Show at San Bernardino Give to Cultivator Readers Recipes of Prize Winners in the By-Products Division

ORANGE DAY is March 20 and the proper way to celebrate is to eat oranges. On this page the Cultivator has gathered together a number of attractive recipes for serving them. Many f these were received from exhibitors t the Fifth National Orange Show eld in San Bernardino, February 17 o 24, where citrus by-products were nade a special feature.

Manager F. M. Renfro of the National Orange Show writes:

"The National Orange Show did verything possible to encourage the se of citrus fruit by-products and to ducate the people along these line at he Fifth National Orange Show which as just closed. We were surprised urselves at the great number of good hings which can be made from citrus ruits. Next year we hope to make his department even more interesting nd attractive than it was at the 1915 how, but I can assure you it was one f the busiest spots in the big top and vas of great educational value."

Mrs. Reetta V. Hadden, chairman of he by-products committee, organized ier department in such a way as to nake it a center of attraction at the ig orange show, as she says "not only o the women who were charmed by lainty bits of culinary work, but to the nen who paused and looked. They saw ome things good to eat—that meant ollars and cents to them, the using of he culls.

"A group of prosperous looking range growers were standing near the ooth, where were displayed marmaades, jellies, preserves, pies, cakes nd conceits almost too numerous to mention, all made from the citrus fruits. One man, waving his hand above these cooked products, said, 'This department will revolutionize the orange industry of California; it means dollars and cents to us; it will use up our unmarketable fruit.'

"The men were as anxious to learn how the various things were made as the women, even more so, and wrote down many a recipe for their own trying out and to pass on to the housewife.

"The eagerness for knowledge along this line was manifested by the great majority of visitors. Everyone wanted to know how it was done and how it tasted, proclaiming their relationship to Adam and Eve of old."

Mrs. Hadden sends the following recipes:

Orange Paste—A Confection

Remove the yellow outer rind of three oranges. Cut in pieces, taking out the long inner core. Run these pieces through a coarse meat grinder, saving all the juice. Put ground mixture and juice and one cup of water in a granite vessel and cook until tender and quite dry. Stir all the time to prevent burning. When cooked tender and quite dry, to each cup of the cooked pulp add one cup of sugar and boil until it jellies, not too dry or it will candy. Pour out on marble slab or waxed paper, cool, cut in squares. Roll in sugar, chocolate, nuts; use in cake fillings or in sauces. Will keep indefinitely,—if locked up—otherwise it will disappear.

Orange Cake

1½ cups sugar, ½ cup butter, ½ cup milk, 2 teaspoons baking powder (rounding). Add to one-half of above 3 yolks. Add to one-half of above 3 whites, 2 teaspoons orange flavoring.—Reetta V. Hadden.

Orange Confectioner's Filling

2 egg whites (beaten dry), 2 2-3 cups powdered sugar, juice, grated rind and pulp of 1 orange.—Reetta V. Hadden.

* * * *

Orange Bread

Miss Florence L. Clark, in charge of the domestic science department of the Claremont high school, sends the following recipe for orange bread, which attracted much attention at the Orange Show:

One cake compressed yeast, one teaspoon salt, quarter cup lukewarm water, two tablespoons sugar, one cup orange juice, one egg yolk, grated rind of two oranges, four cups flour or less, two tablespoons butter.

Soften yeast in water, add butter melted, salt, sugar, egg yolk beaten light, orange juice and rind, then stir in flour for a dough. Knead until dough is smooth and elastic, then cover and set aside until double in bulk. Shape in a loaf.

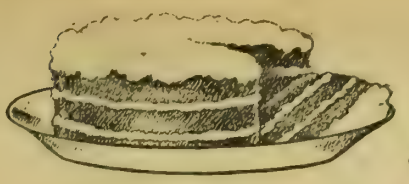
When nearly double in bulk bake one hour. Use with plain butter or any variety of cheese or sweet sandwiches, or to serve with cocoa or tea. The bread is good toasted and sprinkled with sugar, or spread orange bread prepared for sandwiches with orange marmalade worked with Neufchatel cheese.

* * * *

The domestic science department of the Covina High School, in charge of Miss E. L. Elliott, exhibited at the Orange Show eight glasses of jelly and 12 of marmalade. The display won a special award for jellies, and Miss Elliott has made public her recipes for grapefruit jelly and marmalades.

Jelly and Marmalade

For eight glasses of jelly and 12 glasses of marmalade.—Six grapefruit, three medium lemons. Remove and



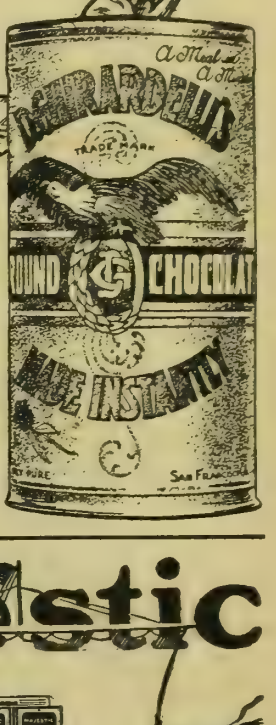
Ghirardelli's California Chocolate Cake

One cup of sugar; piece of butter, size of egg, creamed; two eggs; one-half cup of Ghirardelli's Ground Chocolate; one-half teaspoonful cinnamon; one-half cup of milk; one cup of flour; two teaspoonfuls baking powder; mix with flour, bake in layers, spread with either strawberry jam or white of egg beaten to froth with cup of sugar.

The making of dainty, tempting, delicious desserts is greatly simplified when

Ghirardelli's Ground Chocolate

is used. It is noted for its smoothness, and in the making of cakes like the above, it will give just the richness and flavor desired.



The daily use of Ghirardelli's Ground Chocolate as a beverage is to promote family health as well as to practice economy.

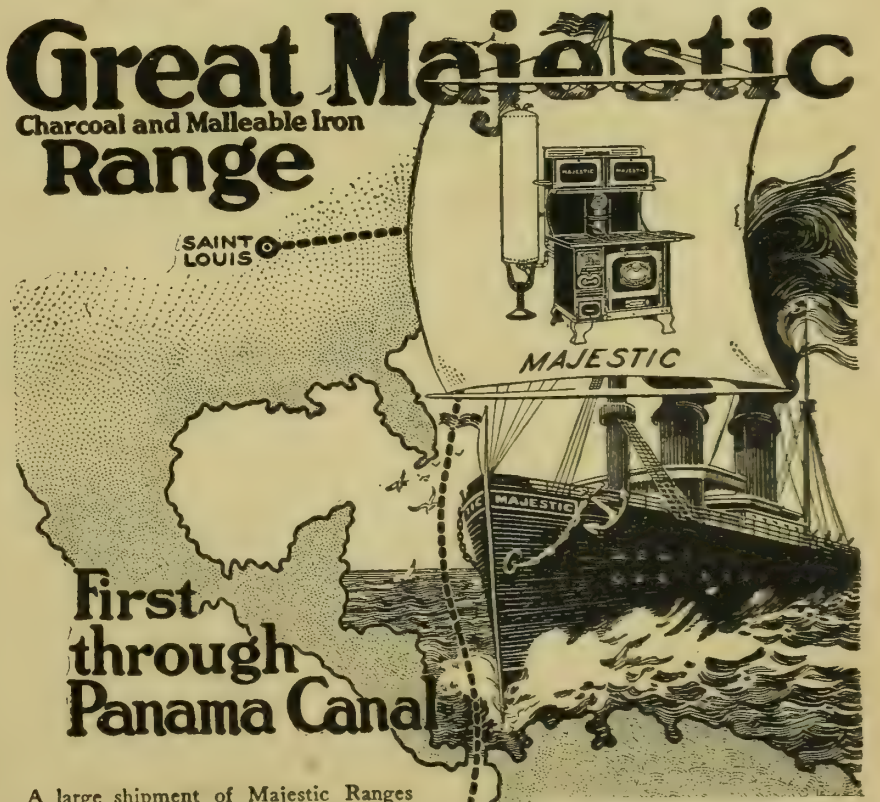
Sold only in hermetically sealed tins.

Order from your grocer to-day.

D. GHIRARDELLI CO.

San Francisco Since 1852 California

Great Majestic
Charcoal and Malleable Iron Range



First through Panama Canal

A large shipment of Majestic Ranges recently went to South America. They hold the honor of being the first to pass through the Panama Canal.

But that honor isn't half so interesting to you as the causes which led up to it:—

An exporter received orders from a firm in Chili to buy a quantity of ranges, the *best* made in America.

Many ranges were thoroughly investigated. The investigation proved that the Majestic gives the most economical and longest service, and the *best baking results* and it was **chosen to fill the order from Chili**

The Majestic does not compete in price with any range. Its sales depend solely on qualities which prove its economy in use. Its popularity in this country rests on the sound judgment of American housewives; who know the genuine economy of paying the Majestic price and getting a range that saves fuel and repairs and gives much better baking results — and much longer service than ordinary ranges. It's cheapest in the long run.

Send for "Range Comparison"

There is a Majestic dealer in every county in 42 states. If you don't know him write us.

MAJESTIC MFG. CO.
Dept. 203 St. Louis, Mo.

One Firm—One Service—One Guarantee
back of every J-M Automobile and Motorcycle Accessory

J-M (Mezger) Soot-Proof SPARK PLUG

A plug designed to give the biggest, fattest, hottest spark the current can create, and with unfailing regularity.

J-M construction is proof against short-circuit, compression leakage and break down. For 14 years it has held the preference of the hard-to-suit plug buyer. We absolutely guarantee your satisfaction. Sizes for all cars and motorcycles.

Ask your hardware or accessory dealer.

Price 75c

LONG HORN
INVENTED BY C.F. LONG

Model "J"

A thoroughly reliable, efficient automobile signal that is *always* heard and *never* ignored.

Nothing to get out of order. Positively the most economical horn you can buy because it requires no current to run. Is operated by hand.

We guarantee this Model "J" Long Horn to give *permanent* satisfaction. If at any time a part proves defective, we will do more than repair it, we guarantee to give you a *new* horn.

Ask your hardware or accessory dealer. PRICE $5

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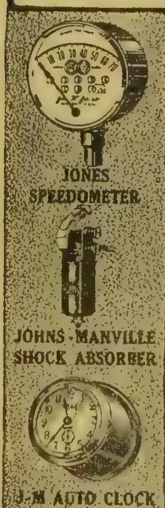

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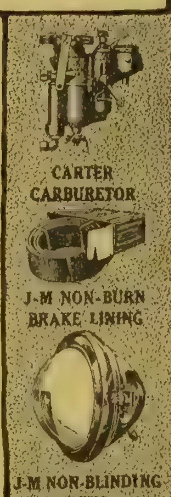
Write for booklets 2998



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322 Madison Avenue, New York
47 Branches *Service Stations in all Large Cities*

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discard outer yellow rind. Remove all white. Tie in a close-meshed bag. Shred pulp very fine. Add three times its bulk of water. Boil hard 45 minutes with the bag of white, which furnishes the pectin, immersed in the liquid. Skim frequently. Remove bag, throw contents away.

Strain off six glasses of clear liquid and let both pulp (which should also have sufficient liquid on it) and clear juice stand 24 hours. Carefully syphon off the top of the clear liquid, put to boil, boil 10 minutes, add equal quantity of warmed sugar and boil till it "jellies" (about five minutes). When the liquid "sheets" from the spoon it is jellied.

Treat the pulp the same way for the marmalade. Orange jelly and marmalade can be made similarly. Those who do not object to the orange peel and white may leave it in.

This process makes the clear amber jelly. The part which settled in the clear juice will make good jelly, but it is opaque.

* * * *

Kumquat Jelly

Mrs. H. J. Evans, Monrovia, an exhibitor at the Orange Show, gives her recipes for kumquat jelly and tangerine preserves.

Slice fruit (do not peel). Cover with water and cook to a pulp. Strain through a flannel bag. Take equal quantities of juice and sugar and cook till it jellies.

Tangerine Preserves

Peel tangerines. Remove all skin and seeds from sections. Add just enough water to keep from sticking and cook 45 minutes. Then measure fruit and add an equal amount of sugar. Cook 30 minutes longer.

* * * *

Mrs. William Starke of San Bernardino sends a few recipes from her list in the Orange Show exhibit.

Lemon Pie

Make pastry and bake crust first. Fill when cold.

Filling—A few gratings and juice of one lemon, 1 cup sugar, 1 heaping tablespoon of corn starch, mix with sugar; 1 pint hot water, pinch of salt; 2 eggs, whites for frosting. Cook in double cooker until thick and fill crust. Beat your whites very stiff and add one tablespoon sugar, beating again very rapidly for a few moments. Cover pie and brown lightly under blaze.

Orange Pie Filling

A few gratings and juice of two oranges, juice of ½ lemon, 1 small cup sugar, 1 heaping tablespoon cornstarch, 1 teacup hot water, salt, 2 eggs, whites for frosting. Method same as lemon pie.

Snow

To be served with lemon or orange sauce. 1 envelope gelatine. 1 cup sugar. 1½ pints water, pinch salt, whites of three eggs, lemon flavoring. Method: Put gelatine to soak in ½ pint cold water. Boil sugar and pint water and add gelatine and let all boil for five minutes. When cool add the stiffly beaten whites of eggs and beat very fast until it is very white and light. You can put in molds or let set in same vessel and when ready to serve pour your cold sauce over the snow. I prefer to dip it out with a spoon, as it looks then as near like spoons of snow as possible.

Orange Sauce—1 cup sugar, juice of 1 orange and teaspoon gratings, juice of ½ lemon, 1 tablespoon cornstarch, 2 tablespoons butter, 1 pint hot water.

Orange Tarts

Roll pastry and cut in squares. Place 1 tablespoon orange paste in center of each square and fold corners to center and bake. When cold, spread a powdered sugar icing with lemon flavor on each tart.

Orange Paste

Wash your oranges thoroughly and grind in coarse meat grinder until you have one quart of pulp and juice. Place in a vessel over fire with one quart water and cook slowly for 60 minutes, watching closely. Add one quart sugar and cook until it becomes very thick, stirring often. This is nice for short-cake by moistening with a little hot water and spreading between layers. Then serve with whipped cream. Or for stuffing dates, covering with fondant makes delicious candy. Will keep for any length of time, and you do not have to seal it.

Orange Puffs

½ cup sugar, 1 egg, 1 cup orange juice, 1¾ cups flour, 1½ teaspoons baking powder, 1 tablespoon melted butter, pinch of salt.

Method—Put all in mixing pan together and beat it quickly. Then steam in cups ½ hour. Serve hot with orange or lemon sauce. Have your sauce hot also.

Lemon sauce—1 cup sugar, juice and gratings of 1 lemon, 1 tablespoon cornstarch, 2 tablespoons butter, 1 pint boiling water.

Orange Cake

1 cup sugar, ½ cup butter, ⅔ cup orange juice, 2 cups flour, 2 teaspoons baking powder, 3 eggs, well beaten, leaving whites of two for icing.

Method—Cream sugar and butter, then add the rest of the ingredients and bake in two layers.

Icing—1½ cups sugar, boiled with ½ cup hot water until it threads. Pour over the stiffly beaten whites of eggs and beat until cool. Just before spreading on layers add one tablespoon dry orange gratings or ½ cup candied orange peel, cut very fine.

Lemon Cake

Any white layer cake will do.

Lemon filling for cake—1 cup sugar, 1 egg, 1 lemon, 1 tablespoon flour, 1 tablespoon water.

Method—Place dish in vessel of boiling water and let it thicken. When cold spread between layers. Use an icing for top.

Orange Omelet

Beat the yolks of four eggs, add four teaspoons powdered sugar, four tablespoons orange juice, one-half teaspoon salt, and the grated rind of one-half orange. Beat the whites until stiff, and fold into the yolk mixture. Turn into a hot buttered omelet pan, cook very slowly until browned underneath, then put into the oven to finish cooking. Care should be used not to burn the omelet, because the sugar will tend to make it scorch easier.

Baked Oranges

Select oranges of uniform size, cut slices from top, remove white core and loosen pulp from skin with a sharp knife. Place in pan, fill part way up on oranges with warm water, and boil until skins begin to get tender. Pour off and renew water and continue cooking until skins are thoroughly tender. Remove to baking dish. If the liquid around is at all bitter, pour most of it off and add fresh water; put on top of each orange a generous amount of sugar and a lump of butter and bake until somewhat browned over the top. Remove to serving dish and thicken syrup with one tablespoon cornstarch mixed with a little cold water. Pour over oranges when serving. These may be served hot with the meat course or cold as a dessert. Shephard's Inn, Carpinteria.

Orange Puffs

⅓ cup butter, 1 cup sugar, 2 eggs, ½ cup milk, 1¾ cups flour, 3 teaspoons baking powder. Cream the butter, add sugar gradually, and egg well beaten, mix and sift flour, baking powder and salt; add alternately with milk to first mixture, bake in buttered individual mold tins.

Orange Sauce

1 cup sugar, 2½ tablespoons flour, grated rind 2 lemons, ¼ cup lemon juice, 1 egg, 1 teaspoon butter. Mix sugar and flour, add grated rind, lemon juice, and egg slightly beaten. Put butter in saucepan; when melted add mixture and stir constantly until boiling point is reached. Serve cold or slightly warm.

Orange Hard Sauce

(For puddings.) Extract the juice of one orange; add half its measure of butter and sugar; cream well, add sugar gradually until no more can be worked in. Flavor with grated orange rind or orange extract.

Orange and Celery Salad

Clean thoroughly one bunch of celery, cut in one inch pieces and fringe; drop into cold water to make crisp. Add two oranges separated into sections and cut into small pieces. Dress with French dressing.

Orange and Mint Salad

Peel two large oranges, separate into sections and cut each section into thirds. Sprinkle with two tablespoons pulverized sugar, two tablespoons finely chopped mint, one tablespoon grape juice and one-half tablespoon lemon juice. Chill thoroughly with salt and ice, then serve in sherbet glasses or orange baskets, garnished with a sprig of mint.

Frozen Orange Souffle

1½ cups orange juice, 1½ cups sugar, 2 tablespoons lemon juice, yolks 5 eggs, 1½ teaspoons granulated gelatine, 3 tablespoons boiling water, 2½ cups cream, candied orange peel, pistachio nuts.

Mix fruit juice, sugar and yolks of eggs. Cook over boiling water until mixture thickens; then add gelatine dissolved in boiling water. Cool, freeze to a mush, add whip from cream, and continue freezing. Mould, and serve garnished with candied orange peel and pistachio nuts.

Orange Delicious

2 cups sugar, 1 cup water, 2 cups orange juice, 1 cup cream, yolks 2 eggs, 1 cup heavy cream, ¼ cup shredded candied orange peel. Boil sugar and water eight minutes, then add orange juice. Scald cream, add yolks of eggs, and cook over hot water until mixture thickens. Cool, add to first mixture with heavy cream beaten stiff. Freeze, when nearly frozen add orange peel. Pack in salt and ice and let stand 1½ hours.

Orange Ice

4 cups water, 2 cups sugar, 2 cups orange juice, ¼ cup lemon juice, grated rind of two oranges. Make syrup by boiling water and sugar five minutes, add fruit juice and grated rind, cool, strain and freeze.

Candied Orange Peel

Remove peel from four thin-skinned oranges in quarters. Cover with cold water, bring to boiling point, and cook slowly until soft. Drain, remove white portion, using a spoon, and cut yellow portion in thin strips, using scissors. Boil one-half cup water and one cup sugar until syrup will thread when dropped from tip of spoon. Cook strips in syrup five minutes, drain, and coat with fine granulated sugar.

Orange Marmalade

Thoroughly wash and wipe four large oranges and two large lemons, peel with a knife, being careful to only use the outer yellow rind. Put the rinds of both through the food chopper. With a sharp knife scrape every bit of the bitter white rind off, then cut the lemons in the thinnest slices possible. Divide the oranges into sections after cleaning off all of the white rind. Cut the sections up into thin slices and add to the rind that has been put through the chopper. Take just as much cold water as fruit and rind, boil slowly one-half hour, then add just as much sugar as there is of fruit and water and boil rapidly about three-quarters of an hour or until it jellies. Makes about 12 glasses.

Amber Marmalade

One grapefruit, one orange, one lemon, seven pints cold water, five pounds sugar. Wash and wipe the fruit with a soft cloth, cut each in quarters, then cut each quarter through peel and pulp into exceedingly thin slices, discarding the seeds. Pour the water over the prepared fruit and let stand over night. Cook until the peel is very tender; it will take four or five hours. Again set aside over night. Add the sugar and cook, stirring occasionally, until the syrup thickens slightly on a cold dish. Store in glasses, cover with paraffine.

Perfect Orange Marmalade

Sour thin skinned California oranges that are on the market between Thanksgiving and Christmas are best for marmalade. Acid oranges insure a marmalade that will jelly. The following recipe, carefully followed, will result in a perfect "show-window" marmalade, in which golden particles of the fruit float in a clear amber jelly:

Twelve oranges, 5 lemons, 8 quarts cold water. Slice very thin and cover with eight quarts cold water. Let stand for 24 hours. Cook one hour after boiling point is reached, stirring almost constantly. Put away for another 24 hours. Measure one cupful of sugar to each cupful of orange mixture and cook another hour. Put into jelly glasses or pint jars. This receipt makes two dozen glasses.

HOUSEHOLD QUERIES

Neighborly Helps

In response to requests in last week's "Household Queries" column we have received the following recipes:

Orange Marmalade

I am sending you a recipe for orange marmalade which we like better than any I have ever seen. Made of seedless navel oranges it is absolutely without a trace of bitterness.

One orange and one lemon. Quarter the fruit and shred with a very sharp knife. To each measure of shredded fruit allow three measures of water. Place in a preserving kettle and set away in a cool place until the next day. Boil hard ten minutes. Again set away until the next day. Measure the mixture and to every cup of pulp allow the same amount of sugar, and at the last add one measure extra. Cook until the ordinary tests show that it will jelly. From one orange and one lemon seven glasses of marmalade will result.—Mrs. C. G. Warren, Riverside.

Orange Marmalade

Take 8 oranges, 4 lemons, 2 grapefruit. Remove all seeds and pass through meat grinder. Add 6 quarts water and let stand till next day. Boil for two hours, then add 12 pounds sugar. Boil all together another two hours until it jellies. This makes eight quarts of marmalade. Some people object to a bitter flavor and prefer more oranges and less grapefruit.—Mrs. J. F. Price, Rivera.

Amber Marmalade

Shave fine two oranges, one lemon, rejecting nothing but seeds and core. Add juice of one grapefruit. Measure and add three times the quantity of water. Let stand over night. Next morning boil 10 minutes. Let stand another night. Then add pint for pint of sugar and boil till it jellies. Stir as little as possible. Will make nine or 10 glasses.—K. C. M., Los Angeles.

To Cook Belgian Hares

Clean and cut up in pieces, let drain, then salt and pepper each piece and roll in flour. Lay in a roasting pan and pour in a half cup of water. Cover and put into a hot oven for a half hour, then lower the gas, cook slowly an hour longer. This for a young hare; an old one will need a half hour longer. This is also a good way to cook chicken.—K. C. M., Los Angeles.

No man ever sank under the burden of today. It is when tomorrow's burden is added that it seems more than one can bear. Live, then, today, and tomorrow will always be bearable. —MacDonald.

Remember that to live is to move, and the power that moves us into hell has the power to move us out, for life has no stopping places.—X. Y. Z., Ohio.

Life is not really what comes to us, but what we get out of it.—Jordan.

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San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, March 17, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade 4 cents above following quotations:

Creamery Extras	.22
Firsts	.20
Country	.18
Ladle	.17@18

CHEESE

Prices to trade, 1 and 2 cents higher:

California Fresh	.13@13½
Cheddar	.20@21
Domestic Swiss	.20@21
Eastern Daisy	.19@19½
Oregon Triplets	.17@17½
Longhorn	.19½@20
Imported Swiss	.32-@34

EGGS AND POULTRY

Prices to trade, 3 cents higher than following quotations:

Fresh Ranch, case counts	.21
Candled	.23@25
Northern, case counts	.20½
Petaluma-Santa Rosa	.21½

Prices to producers:

Hens, lb.	.15@18
Roosters, old	.8@9
Broilers, lb.	.27
Fryers	.22
Roasters, lb.	.17
Turkeys	.17@21
Ducks	.19
Geese	.16
Squabs, doz.	.3.00

LIVE STOCK

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs., per cwt.	.7.50
Prime Steers	.7¼@7½
Heifers	.6¼@6½
Calves, lb.	.8½@9
Sheep—	
Ewes, head	.4.50
Wethers	.5.00
Lambs, head	.4.50@4.75

POTATOES

Wholesale selling price:

Idaho Russet	.1.60@1.65
Idaho Rurals	.1.25@1.35
White Rose Seed	.1.50@1.60
Sweets, lug	.70@80
New Potatoes, lb.	.5@6
Northern Burbanks, cwt.	.1.55@1.65
Salinas	.2.00@2.10
Lompocs	.2.00@2.10

ONIONS

Wholesale selling price:

Australian Brown, cwt.	.85@1.00
Oregon Globes	.1.35@1.50
White Globe	.4.50@4.75
Yellow Danvers	.85@1.00
Sets—	
Yellow	.10
White	.12
Garlic	.25@30

VEGETABLES

Wholesale selling price:

Asparagus—	
White	.12@15
Green	.15@18
Artichokes, Northern, doz.	.65@75
Brussels Sprouts, lb.	.10@12
Beets, doz.	.30@35
Beans, Green, lb.	.30@35
Cabbage sack	.65@75
Carrots, doz.	.30@35
Cauliflower, doz.	.90@1.00
Celery—	
Local	.3.00
Northern, crate	.4.00@4.25
Chicory	.35@40
Cucumbers, Hothouse	.75@3.00
Egg Plant, lb.	.17@20
Escarole, doz.	.40
Horseradish, lb.	.10@12
Leeks, doz.	.35@40
Lettuce, crate	.90@1.00
Mint, doz.	.35@40
Mushrooms, Outdoors, lb.	.35@50
Onions, Green, doz. bunches	.15@20
Oyster Plant, doz.	.35@40
Peas—	
Telephone	.8@9
Small	.6@8
Peppers—	
Bell, lb.	.30@40
Chili, lb.	.25@30
Pumpkins, lb.	.1½@1¾
Rhubarb, box	.75@85
Spinach, doz.	.20@22
Squash—	
Hubbard, lb.	.1¼@2
Crook-neck	.50@60
Turnips	.25@30

FRESH FRUIT

Wholesale selling price:

Apples—	
Bellflowers	.50@85
Jonathans	.1.60@1.75
Rome Beauties	.1.25@1.75
Pearmains	.1.00@1.25
Spitzenbergs	.1.50@1.75
Avocados, doz.	.4.00@8.00
Bananas	.4@4½
Berries—	
Strawberries, basket	.10@20
Guavas, basket	.4@6
Loquats, lb.	.12@15
Pears, Winter Nelis, lug	.1.50
Pineapples, lb.	.5½@6
Pomegranates, box	.1.75@2.00

CITRUS FRUIT

Wholesale selling price:

Lemons	.1.00@2.00
Grapefruit, Seedless	.1.85@2.25
Navels	.1.25@1.85
Tangerines	.1.35@1.75
Limes, basket	.1.00@1.10

DRIED FRUITS

Wholesale prices to retailers are:

Evaporated Apples, Fancy, lb. boxes	.6½@8½
Apricots	.8¾@11½
Nectarines	.12½
Peaches	.5¾@6¾
Pears	.10@11
Prunes	.5¾@16
Plums	.10

HONEY

Wholesale selling price:

Comb, Fancy, Water White	.14
White	.12
Light Amber	.11
Extr. Water White	.7
White	.6½
Light Amber	.5½
Beeswax	.32

NUTS

Prices named by California Walnut Growers' Association are:

No. 1	.16½
Budded Walnuts	.20
Jumbos	.19
No. 2	.12
Culls	.9

Prices fixed by California Almond Growers' Exchange, f. o. b. California.

Almonds—	
Nonpareil	.21@22
I X L	.20@21
N P U	.19@20
Drake's Thinshell	.17@18
Pecans	.17
Peanuts—	

California, Raw	.6
Japan	.7½
Eastern	.7½
Rice Corn	.5.00@5.25

RICE

Wholesale selling price:

California	.4.75@5.00
Broken	.3.75@4.00

BEANS

Wholesale selling price:
Producer's price not far from one dollar under these quotations:

Limas	.6.35@6.50
Bayous	.6.00@7.00
Lady Washington	.6.00@6.10
Pinks	.5.65@5.75
Black Eyes	.6.75@7.00
Lentils	.10.00@12.00
Small White	.6.00@6.10
Garbanzos	.7.25@7.50

HAY

Prices to producer f. o. b. Los Angeles:

Barley Hay	.9.00@13.00
Wheat Hay	.8.00@11.00
Tame Oat	.9.00@14.00
Alfalfa	.9.00@11.00
Volunteer	.5.00@7.00
Straw	.5.00@6.00

GRAIN

Wholesale selling prices f. o. b. Los Angeles:

Corn, Yellow	.2.10
Corn, White	.2.20
Wheat	.2.65@2.70
California Red Oats	.1.95
Cal. Seed Oats	.2.10
Texas Seed Oats	.2.50
Oats, White	.2.15
Oats, Hulled	.2.60
Millet	.3.75
Popcorn	.4.75@5.00
Egyptian Corn	.2.20
Barley Seed	.1.70
Barley, Hulled	.2.05
Milo Maize	.2.00
Rye	.2.40
Sunflower Seed	.7.50

FEED STUFF

Wholesale selling prices f. o. b. Los Angeles:

Bran, Heavy	.1.70
Alfalfa Meal	.1.20
Alfalfa Molasses, per cwt.	.1.25
Beef Scraps	.3.00
Beet Pulp	.1.25
Cracked Corn, cwt.	.2.15
Cracked Wheat, cwt.	.2.80
Cotton Seed Meal	.1.80
Bloodmeal	.3.45@3.55
Bone Meal	.1.95
Meat Meal	.3.00
Bone, Green	.1.65
Charcoal	.2.00
Oil Cake Meal	.2.50
Fish Meal	.3.15@3.25
Rolled Oats	.2.20
Middlings	.2.00
Rolled Barley	.1.65
Feed Meal	.2.20
Scratch Feed	.2.30@2.50

San Francisco Market

SAN FRANCISCO, March 16, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade, 4 cents above following quotations:

Extras	.23½
Prime Firsts	.23
Firsts	.22½

CHEESE

Wholesaler to retailer.

Oregon Y. Am.	.16
Young America	.13½@15½
California Flats	.8@12
Cheddar	.20
Oregon Twins	.14

EGGS AND POULTRY

Prices to trade 3 cents higher than following quotations:

Extras	.21
Select Pullets	.18½

Price to producer:

Hens, lb.	.16@17
Fryers	.23@25
Roosters, old	.10@12
Roosters, Young	.20@24
Broilers	.30@34
Squabs	.2.50@3.25
Ducks	.15@18
Geese	.2.50@3.00
Belgian Hares, lb.	.8@9
Turkeys, live,	.16@17
Dressed	.18@20

LIVE STOCK

San Francisco prices. gross weight:

Steers	.3¼@7¼
Cows and Heifers	.3@6½
Calves, lb., live weight	.6@9½
Hogs	.5@7½
Wethers	.6½@6¾
Ewes	.5¼@5¾
Yearling Lambs	.7½@8

POTATOES

Wholesale selling price:

Idaho Rose	.1.10@1.20
Idaho Russet	.1.15@1.30
Delta Burbanks	.1.10@1.25
Salinas Burbanks	.1.40@1.50
Oregons	.1.50@1.65
Washington	.1.20@1.45
New Potatoes, lb.	.4@5
Sweets, cwt.	.2.25@2.50

ONIONS

Wholesale selling price:

Onions, cwt.	.60@90
Garlic, new	.17½@20

VEGETABLES

Wholesale selling price:

Asparagus, lb.	.6@11
Beans, string	.10@12½
Brussels Sprouts, lb.	.3@5
Celery—Delta	.2.25@3.00
Cucumbers, Hothouse, doz.	.90@1.10
Egg Plant, lb.	.4@7
Lettuce—	
Sacramento	.1.50@2.00
Southern	.75@1.00
Peas, lb.	.4@9
Peppers—	
Bell, lb.	.7@20
Rhubarb—	
Winter Crimson	.1.00@1.50
Southern	.75@1.50
Alameda	.1.50@1.75

FRESH FRUIT

Wholesale selling price:

Apples—	
Newton, Pippins	.40@80
Bellflowers	.25@50
Bananas, Hawaiian, bunch	.75@1.50
Pineapple, doz.	.1.00@1.25

CITRUS FRUIT

Wholesale selling price:

Grapefruit, Seedless, new crop	.1.50@3.50
Lemons	.1.50@2.50
Lemonettes	.1.00@1.50
Navels	.1.00@2.10
Tangerines, halves	.75@1.75

DRIED FRUITS

Wholesale prices are:

PRUNES—1914 crop, bulk basis: 30-40s, 7c; 40-90s, 6½c; 90-100s, 6c. The above are for both Santa Clara prunes and stock from outside sections.

Other Fruits. 50-lb. boxes—	Standard	Choice	Extra Choice	Fncy
Ev'p'd Apples.		7¼c	7½c	8 c
Peaches	4 c	4¼c	4½c	5¾c
Apricots	9 c	9½c	10 c	11 c
Pears	7 c	8 c	9 c	10 c

RAISINS

RAISINS—The following prices are f. o. b. Fresno, as given out by the Associated Raisin Company, for immediate shipment, and are guaranteed against a decline till April 1st: Fancy seeded, 16-oz., 7¼c; 12-oz., 5⅞c; bulks, 6c; choice seeded, 16-oz., 6⅞c; 12-oz., 5⅝c; bulk, 5½c; Thompson seedless, No. 1, 16-oz. pkgs., 7⅝c; 12-oz., 6¼c; 50-lb. cs., 6½c; loose, Muscatels, 1-crown, 5½c; 2-crown, 5½c; 3-crown, 5⅞c; 4-crown, 6c; Sultanas, 50-lb. cs., 5¾c; bulk, layers, 50-lb. bxs., $2.75; in 20-lb. bxs., 6-crown, $2.75; 5-crown, $2.25; 4-crown, $160; 3-crown, 5-lb. bxs., $1.50; on all bulk stock, 50c additional. Cartons—Clusters, 20 to cs., No. 1, $1.70; No. 2, $2.10; No. 5, 4 to cs., $2.25. Local representatives of the association are asking about ¼c higher, while several of the largest independent packers are quoting ½c under these figures.

NUTS

ALMONDS — Prices fixed by Almond Growers' Exchange to the trade, f. o. b. California:

Orange Trees

Now is the time to plant your Orange grove while the trees are cheap. I have a large stock of extra fine trees for sale at low prices. Write for quotations stating how many acres you expect to plant.

Olive Trees

A large stock of Mission and Manzanillo in various sizes; prices on application.

THEODORE PAYNE 345 S. Main St. Los Angeles

STEAM PRESSURE CANNING OUTFITS

Can your Fruits, Vegetables, Corn, Meats, Fish, etc., for home use and for sale at a big profit. Outfit more than pays for itself the first year. 11 different sizes. Book of Canning Recipes free with outfit. Tells how to can everything. Write for Catalogue B.

Built by

Henninger & Ayes Mfg. Co.

47 First Street PORTLAND ORE.

Ideal Gopher Trap

Only Trap guaranteed to catch large or small gopher. Being round with thin edges gopher walks into trap before detecting anything in runway. Positive grip, jaws always hold. 100% efficient—catches gopher every time. Easiest to set. Far safer and surer than poisons or gas. Farmers say it's worth dozen other makes. Price 50c. If your dealer can't supply you, will be sent postpaid on receipt of 60c; two traps for $1.10; six for $3.00. Money back if not satisfied.

E. J. CHUBBUCK CO., Dept. A, 731 Market St., San Francisco, Cal.

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10 Years to Repay. Loan Can be Repaid Quarterly, Semi-Annually, or Annually.

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Patents that protect, careful honest work in every case. Patent your ideas, they may bring you wealth. 64 page book free. Including list of inventions wanted. Address FITZGERALD & CO., 880 F. Street, Washington, D. C.

Nonpareil	21
I X L	20
Ne Plus Ultra	19
[fl]akes	16

Wholesale selling price:

[Pe]anuts—	
Unpolished	5@8
Polished	6@6½
Shelled, Jap	6¼@6¾
[It]alian Chestnuts	6½@7

BEANS

Wholesale selling price:

[Li]mas	5.75@5.80
[Pi]nk	4.50@4.60
[Bl]ack Eyes	6.00@6.25
[Cr]anberry	5.00@5.25
[Sm]all White	5.50@5.60
[G]arbanzos	6.50@6.75
[La]rge White	5.25@5.35
[Ba]you	5.50@5.70
[M]anchurian Speckled Bayous	4.15@4.25
[M]anchurian Butters	4.50@4.75
[Re]d Mexican	5.50@5.60
[Re]d Kidney	6.00@6.25
[H]orse Beans	3.50@4.00

HONEY

Wholesale selling price:

[Co]mb, Water White	14@16
[A]mber	10@12
[D]ark	7@10
[Ex]tracted White	7@9
[Li]ght Amber	5½
[D]ark	4@5½
[B]eeswax	27@32

HOPS
1914

Wholesale selling price:

[Sa]cramento Valley	11@13
[So]noma-Mendocino	12½@15
[O]regon Clusters	12@15

HAY

Under date of March 13 Scott, Mag[n]er & Miller say:

Receipts of hay for the last week [w]ere 3309 tons, the preceding week, [..]08 tons. Offerings are very liberal [bu]t owing to the abundance of feed [de]mand is extremely light.

[F]ancy Wheat Hay (light bales)	11.00@12.00
[N]o. 1 Wheat or Wheat and Oat	9.00@10.50
[N]o. 2 Wheat or Wheat and Oat	6.00@8.50
[C]hoice Tame Oat	10.50@11.50
[O]ther Tame Oat	6.00@9.00
[B]arley	5.00@8.00
[W]ild Oat	6.00@8.00
[A]lfalfa	6.00@9.00
[S]tock Hay	4.50@5.00
[S]traw, per bale	30@45

GRAIN

Wholesale prices.

[A]lfalfa Seed	11@16
[W]heat, Cal. Club	2.37½@2.42½
[C]orn, Egyptian White	1.85@1.92½
[C]orn, Egyptian White	1.85@1.92½
[B]arley, Feed	1.37½@1.40
[O]ats, Red, Feed	1.50@1.55
[O]ats, White Feed	1.80@1.85
[M]illet	3@3¼
[F]lax	6@6½
[R]ye	2.10@2.25
[S]unflower	5@5½

FEED STUFF

Wholesale prices.

[A]lfalfa Meal, car lots	16.00@16.50
[B]ran, ton	29.00@30.00
[F]eed Cornmeal, ton	40.00
[C]racked Corn	40.00
[R]olled Barley, ton	31.00@32.00
[R]olled Oats, ton	37.00@37.50
[M]iddlings	33.00@35.00
[S]horts	31.00@32.00
[O]ilcake Meal	38.00@39.50
[C]ocoanut Oilcake Meal	24.50@25.00

Citrus Fruit Market

LOS ANGELES, March 17, 1915.

There is a bit of hope that the near [f]uture will see improvement in the [o]range market. Just at present con[d]itions are "simply fierce." One car [i]n Denver only five days from pack[i]ng house showed 30 per cent decay. [M]uch of the fruit going farther East [i]s being iced, but still is decaying bad[l]y. This, with market conditions, has [t]aken the bottom entirely out of the [m]arket.

The lemon situation is little better [t]han the orange and no immediate [p]romise of improvement.

[S]hipments

Shipments of oranges to date since [N]ovember 1, 1914, 10,857 cars; lemons, [1]385; total, 12,242. To same date last [s]eason: Oranges, 11,616; lemons, 712; [t]otal, 12,328. From Tulare, Butte and [N]orthern California points: Oranges, [5]748 cars; lemons, 171; total, 5919. Last [y]ear same date: Oranges, 4942; lemons, [3]5; total, 4977.

NEW YORK, March 15.—Twenty-three [c]ars navels, 5 mixed cars and two cars [l]emons sold. Market about 10 to 20 cents [h]igher on navels; lemons 20 cents higher. Weather fair.

CLEVELAND, March 15.—Four cars sold. Market is steady.

PHILADELPHIA, March 15.—Nine cars sold. Market is steady.

ST. LOUIS, March 15.—Eleven cars sold. Market is easier.

BOSTON, March 15.—Twenty-six cars sold. Market is unchanged.

KANSAS CITY, March 15.—Two cars sold. Market steady. Cloudy.

PITTSBURGH, March 15.—Twelve cars sold. Market steady. Better demand for lemons.

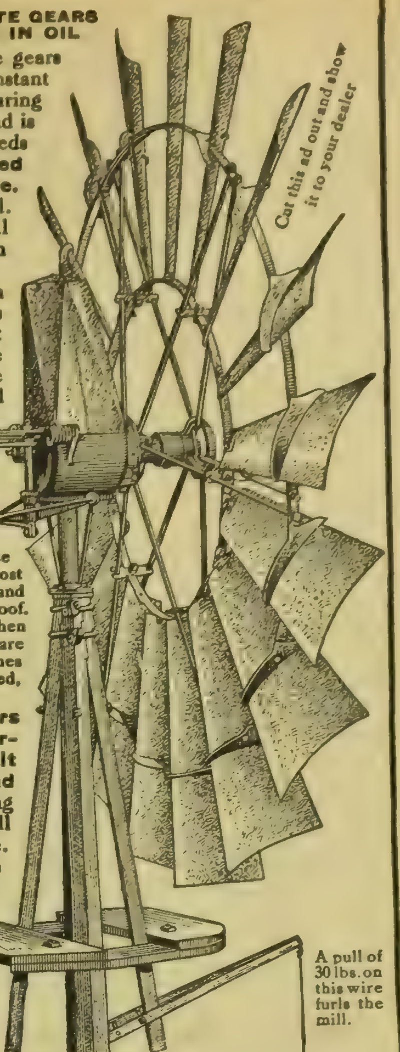
CHICAGO, March 15.—Stocks of Apples are steadily diminishing. California oranges are in plentiful supply, but Florida offerings are scant. Apples, boxes, western stock, Delicious, $2.25@2.75; Winesap, 1.25@1.40; barrels, Greenings, 2.25@2.75. Oranges, boxes, California navels, 1.90@2.25; Floridas, 1.75@2.25; Indian Rivers, 2.25@2.75. Lemons, boxes, Californias, 2.00@2.75. Grapefruit, heavy sales, boxes, 1.75@2.00. Kumquats, very scant offerings, 10@12½ per quart. Strawberries, limited arrivals, 27½@35 per quart.

THE AUTO-OILED AERMOTOR WITH DUPLICATE GEARS RUNNING IN OIL

Every bearing is constantly flooded with oil. The gear case, in which the duplicate gears run, holds two or three times as much oil as is required by the mill for a year of constant running, days, nights and Sundays. From the gear case the oil flows through every bearing in a continual stream. It goes out through the thrust washers in the hub of the wheel and is automatically returned to be used over and over again. No oil is wasted. This mill needs oiling but once a year. **Two quarts of oil in the gear case of the 8-foot Auto-oiled Aermotor will keep the gears and every bearing flooded with oil for a year or more.**

The galvanized helmet covers the gears, keeps out rain, keeps out dust, keeps in oil. The old Aermotor was known the world over as "the windmill which runs when all others stand still." This new Aermotor with gears and bearings flooded with oil runs in much less wind than the old Aermotor.

The two large gears, which lift the load straight up, are each independent of the other and each is driven by its own pinion on the main shaft and must take its half of the load at all times. The Auto-oiled Aermotor, with its duplicate gears and two pitmen lifting the load straight up, is unbreakable.



Every 8-foot mill is tested under a pumping load of 3000 pounds on the pump rod. For the larger sizes the load is proportionately greater. We know that every one of these windmills is unbreakable. We venture the assertion that this is the most nearly perfect, best made, best tested, best oiled, most nearly perpetual, automatic and self-sufficient of any machine of any kind ever made for farm work and the most nearly fool-proof. There is no friction on any part of the furling device when the mill is running and very little when he wheel is furled. A small child can easily furl this windmill or an automatic regulator can take care of it. One of these mills has been furled 10,000 times in one day by a man on our premises—more times than it would ordinarily be furled in 30 years of service. A band brake, of the automobile type, is used, and it always holds.

If you are tired of climbing a windmill tower; if you are tired of buying repairs and having them put on; or, if you are tired of waiting for a big wind, let us furnish you an unbreakable, self-oiling, ever-going mill to go on any old tower. It costs but little and you will get the difference between no water in a light wind and an abundance of water in almost no wind. The flooding of all the working parts with oil, the perfect balance of the wheel and vane on the tower, the very small turntable on which the mill pivots and the outside furling device make this difference.

Now there is no objection to a high tower. Have as high a tower as you need to get wind. You don't have to climb it. Your dealer can come once a year and put in oil, if needed, and inspect the mill.

Why not have flowing water, cool in summer and warm in winter, always fresh and pure? It will cost next to nothing. It will give health to your family and stock. Let the water run into a good size reservoir and raise all the fish of the choice kinds your family can eat, and have water to irrigate your garden and make it raise many times as much as it would otherwise. The Auto-oiled Aermotor makes all this possible as it can run from one year's end to another with practically no wear and no cost. Water costs nothing. Use it. To let it stand is to abuse it.

If interested, write **Aermotor Co.,** 1146 So. Campbell Avenue, Chicago. Write right now.

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Others are doing so to good advantage

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$UDAN GRA$$---THE WONDERFUL FORAGE

"THERE IS NO EQUAL TO SUDAN GRASS hay for milk cows, feeders, steers, work animals or for conditioning saddle and driving horses."—Prof. Youngblood, director Texas Experiment Station.

Write now for special 15-day seed offer.

Also Giant Winter Rhubarb, Spineless Cactus and fine setting eggs at reduced rates.

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California Distributors

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WANTED A MAN

To retail Rawleigh Products, town and country. Some good old vacant territories. Largest and best line. One of the oldest and largest companies in the world. Six Factories and Branches. All Products supplied from new Pacific Coast Branch. Quick Service. Low Freight. We want only industrious men capable of earning $100 and up per month and expenses. Must have means for starting expenses and furnish Contract signed by 2 responsible men. Address **W. T. Rawleigh Company, Oakland, Cal.,** giving age, occupation and references.

Nicholls-Loomis Co.

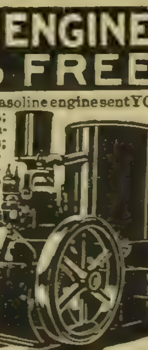
HAY

GRAIN

LARGEST SHIPPERS IN CALIFORNIA

PHONES 10969 BDWY 4011 1128-1140 SAN PEDRO ST. LOS ANGELES, CAL.

RUN THIS ENGINE for 30 DAYS FREE



Detroit Kerosene and Gasoline engine sent YOU on 30 days FREE TRIAL; guaranteed 10 years. Economical horse power, lowest prices; farmer agents wanted everywhere. Engine operates on gasoline, kerosene, alcohol, distillate or naptha. Saws wood, grinds feed, churns, pumps, separates, makes light any job around the farm. Only 3 moving parts, no cams, gears, sprockets, etc. Send for "Common Sense Power Book."

Detroit Engine Works, 510 Bellevue Ave., Detroit, Mich.

2½ to 18 H.P.

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$495 COMPLETE

Now Ready for

Immediate Delivery

To get your plowing done on time this year **you need this tractor.** It will pull the load of 5 big strong horses—Work it 24 hours a day and it will do the work of 15 or 20.

As a **portable engine** it develops 12 horse power on the belt. **There were more Bull Tractors made and sold last year in the United States than all other makes combined.** THERE MUST BE A GOOD REASON.

Wire or write. Actual demonstration daily.

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CALIFORNIA CULTIVATOR

Rural Californian combined with California Cultivator

An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES March 25, 1915 SAN FRANCISCO

An Olive Branch

The Goodrich Tire, like the trained athlete, is all brawn and muscle—no fat

❖ ❖ ❖

THE old Olympic Game promotors were great for what we call "form."

Symmetry, proportion, soundness and proper balance out-bid bulging muscles for favor—yes, and out-won, too, just as they will today.

Mere bulk never was synonymous with endurance—and the truth of this statement drives home with a bang, when you apply it to tires.

❖ ❖ ❖

IF thick, heavy tires were the last word in tire construction, we could wipe out of existence a Goodrich Research and Test Department employing seventy people. We would take off the road a battalion of ten automobiles that run twenty-four hours a day and every day in the year, grinding tires of all makes to pieces, just for the sake of information to us and eventual economy to the user of Goodrich Tires.

There is where we learn to cut out of a tire the material which gets the user nothing.

Of course, when we stripped tire price lists of their padding—fictitious values—we *expected* rivals to say we had stripped our tires.

IT was their only "come-back." They *had* to say that, in stripping down prices to the point where they were *fair* to dealer and consumer and left no room for injurious price-cutting tactics, we had stripped our tires of some quality, too.

❖ ❖ ❖

THE Goodrich Tire, like the trained athlete, is all brawn and muscle—no fat. It represents an achievement—the ability to cut out the extra costs of manufacture, the extra costs of labor, of extra, needless material, and to give you the best, long-mileage, high-standard tire in the world.

There are padded tires as well as padded price lists.

Don't pay for padding.

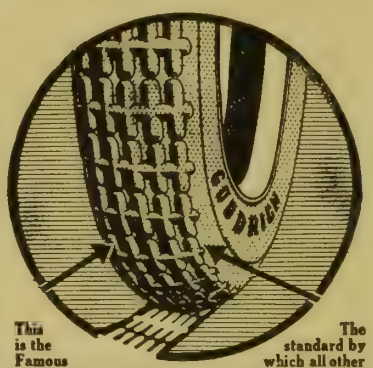
Now don't forget this—we are talking in the main about Goodrich Safety Tread Tires, for they represent ninety per cent of our factory output for resale.

Furthermore, while we have put the padded prices on smooth tread tires on the run, the evil of padded prices on non-skid tires still is in evidence, as shown in table below:

Note the following table of comparative prices on non-skid tires. Columns headed "A," "B," "C" and "D" represent four highly-advertised tires:

Size	Goodrich Safety Tread	OTHER MAKES "A"	"B"	"C"	"D"
30x3	$ 9.45	$10.55	$10.95	$16.35	$18.10
30x3½	12.20	13.35	14.20	21.70	23.60
32x3½	14.00	15.40	16.30	22.85	25.30
34x4	20.35	22.30	23.80	31.15	33.55
36x4½	28.70	32.15	33.60	41.85	41.40
37x5	33.90	39.80	41.80	49.85	52.05

If you are charged less for any other make than Goodrich, they are taking it out of the tire; if you are charged more, they are taking it out of you.



This is the Famous Goodrich Safety Tread

The standard by which all other non-skids are judged

The B. F. Goodrich Co., Akron, O.

GOODRICH Fair-Listed TIRES

CITRUS Trees

Ask any man who has ever planted "R. & W." trees and he will tell you that they always grow true to name and produce "bumper" crops of premium fruit.

For years we have specialized on the growing of high grade orange, lemon, pomelo and olive trees.

It is but reasonable to suppose that with our large facilities and thirty years' experience we are in a position to grow better trees than anyone else—and that we do so, we would like the opportunity of proving.

ANY QUANTITY — REASONABLE PRICES

We have a magnificent stock of all the best varieties and ask the privilege of quoting you our lowest rock-bottom prices. No matter how large or small your proposed planting—it will pay you to get in touch with us NOW.

WRITE US TODAY

We will gladly advise with you free of charge as to best sorts to plant for largest profits. Our close touch with market conditions places us in a position to give you valuable suggestions.

OLIVE
Bulletin Free
You should have a copy of our valuable treatise on the olive. Sent free on request to any address.

Roeding & Wood Nursery Co., Inc.

J. D. MERIWETHER, Manager

1607 E. Washington St. LOS ANGELES, CAL.

"Behind each tree is our guarantee"

THE SILVA-BERGTHOLDT CO. CALIFORNIA FRUITS AL.

NOW

Is the time to plant your Fruit Trees

It is a matter of Days now—then you lose a Whole Year

Send today for our revised February Stock List. If you know just what trees you want and which root-stock, etc., you wish, do not wait for the revised Stock List—Send your order, and if trees are still in stock we shall immediately fill your order.

TIME IS VALUABLE
DO IT TODAY

THE SILVA-BERGTHOLDT CO. CALIFORNIA FRUITS NEWCASTLE, CAL. TRADE MARK REGISTERED

SILVA-BERGTHOLDT Co.
NEWCASTLE CALIFORNA

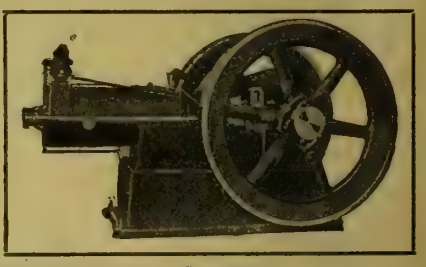
FUEL AND POWER ECONOMY

ALPHA GASOLINE AND DISTILLATE ENGINE

NO BATTERIES
NO COIL
NO CRANKING
NO TROUBLES
A BIG HOT SPARK
A QUICK START
RESULTS

READ THIS

Equipped with a built-in, gear-driven, gear-timed magneto, which is guaranteed for the life of the engine.



The Viking Rotary Pump

All Sizes
No Foot Valve
No Priming
Highest Efficiency
Positive Delivery at Varying Heads.

Alpha Engines & Viking Pumps

A combination hard to beat

Before you install a pumping plant it will pay you to investigate.

Our Engineering Department will work out your pumping plant problem without any obligation on your part.

Write for Special Engine Circular 2A

De Laval Dairy Supply Co.

SAN FRANCISCO **SEATTLE**

Advertisements in California Cultivator are Guaranteed
See Announcement at Head of Editorial Page

California Cultivator

Rural Californian combined with California Cultivator

Vol. XLIV No. 12 LOS ANGELES: THURSDAY, MARCH 25, 1915 One Dollar Yearly

The Feeding Problem

To be Profitable the Dairy Must Produce, Largely at Least, Its Own Feeds. Some Crops Which May be Grown in California Described for Cultivator Readers

By Dr. Leroy Anderson

THE practice of growing summer feed by dairymen in San Timoteo Canyon in Riverside County is worthy of study and imitation by others similarly situated. This canyon is traversed by the Southern Pacific railway between Redlands and Beaumont. Most of the land lies above available water supply and must be utilized by non-irrigated crops. The favorite crop is early amber sorghum. The land is plowed in March as soon as fit after the heavy winter rains have ceased. The latter part of April or first of May it is again plowed, properly fitted and planted to early amber. Planting is done by a regular corn planter in drills about three feet apart. As soon as up a few inches high, cultivation begins and is continued until July or when high enough for feeding. The cows are allowed to harvest it themseves, thus saving the labor of cutting and hauling. As an illustration of the amount of feed obtained, a field of 90 acres afforded pasture for 130 cows during the month of July, 1913, the dry year. The cows fed on it during the day and had access to alfalfa hay in the corral at night. After being eaten down, the sorghum on moist soil gives a second crop, but on drier soil very little second growth is secured. This is a method of utilizing cheap land in growing succulent forage and it pays to prepare the soil well and cultivate the growing crop thoroughly to conserve the moisture.

Non-Saccharine Sorghums

Kafir corn, Egyptian, milo maize and the like are all more or less grown as dry land crops and in culture and use are familiar to most dairymen. Of the white, red and black-hulled kafirs the red seems to be the most popular for fodder because the leaves are large and numerous and the grain yields well. The seed matures in 12 to 14 weeks but the stalks usually remain green much longer, thus enhancing its fodder value. Modern practice has found it possible to silo these sorghums, which greatly increases their value to the dairymen who may have land where Indian corn will not thrive but which is not too dry for kafir or Egyptian.

A new sorghum has recently come to light, having been secured from Sudan. In habit it resembles milo except that the heads are uniformly erect. In drouth resistance it compares favorably with any sorghums yet introduced. It is known as feterita and is commented upon by Professor Stanley F. Morse of the Arizona experiment station as follows: "The principal advantage of feterita over kafir and milo maize is that it will mature in less time (about 20 days). Milo maize matures in about 100 days and kafir in 120 days. Feterita requires the least water, milo maize and kafir the most. In feeding value the grain of feterita is about equal to that of milo maize or kafir, but it is softer and easier for animals to masticate. Feterita yields the least grain per acre (1700 to 2000 pounds), milo more heavily (2200 to 3300 pounds), and kafir most (2800 to 4000 pounds). For silage kafir will yield more tons per acre than either milo or feterita. Kafir yields the best forage, feterita next and milo the poorest. Feterita is frequently planted very early in the season to give an early crop of green feed."

Another sorghum that is creating a great furore is Sudan grass. The tales of its production and the yields of hay per acre have the sound that Easterners are wont to ascribe to all California stories. However it is worth looking into carefully and a trial patch will doubtless be instructive as to value for future use. Seed of this and also feterita may be secured of seedmen advertising in the Cultivator

A bit of personal experience with Egyptian corn last summer may be instructive as to the use of dry fodder. July first I planted a little to grow corn for chicken feed. Because of lack of irrigation it was slow in maturing and it was not cut until November. As it lay on the ground after cutting I offered the fodder to a neighbor for his cow if he would cut off the heads for me. He spurned my generosity, saying the fodder was no good. His advice was to throw the stuff into the orchard where the chickens could harvest the corn and then burn the stalks. But I had other ideas. I hauled it into the barn and on a rainy day cut off the heads. Then I tried the dry fodder on the horse, and much to my surprise he ate it with relish. I gave it to him at noon as a relish until it was all gone. The horse is still alive and has the reputation of being the fattest horse in Santa Clara County.

Indian Corn

Many sections will produce maize in profitable quantities even without irrigation. This is especially true along the coast where chief dependence is placed on the pasturage of hill ranges and where the major milking season ends by July for lack of green feed. Level patches of adobe soil which are so frequent among the hills afford a place to grow summer crops. and Indian corn is about the easiest and best thing to grow. With good cultivation it yields in the neighborhood of ten tons of green forage per acre and its most economical use is to place it in a silo. It is not always necessary to confine the corn plantings to the low, level fields of adobe. This soil, or the redder soils on the lower rolling hills, will produce well if plowed and cultivated at such times as to conserve all the moisture. The corn is best planted in hills in order to make cultivation both ways possible—and then cultivate frequently. Once each way every ten days is not too often.

During several years of experience in San Luis Obispo County I found some difficulty in judging when the corn had best go into the silo. Theoretically the corn plant contains the most available food value at the stage when the kernel is just coming into the glaze period. This is the time when it should be cut for siloing. However, when there is no irrigation, the stalk and leaves toward the bottom may begin to dry before glazing time, which means that the lower portion of the plant may become so hard and woody that the cattle will not eat it. One season I allowed the grain to become more mature (glazed) and the lower stalk to dry and then ran water into the silo when filling. But the silage did not seem to be so good nor so well relished as when the corn was cut with the kernel less mature, say in the milk, and before the stalk had dried to any extent.

Throughout the entire coast region from Mendocino south, Indian corn offers a means of prolonging the milking season and moreover, extending it into the time of higher butter prices in the fall. The corn may be cut and fed green or siloed. Some of the earliest silos in the state were built in the Two Rock district west of Petaluma and King Corn was the plant used.

Root Crops

In Humboldt County on the Eel River bottoms where the cool summers won't let corn grow, roots reach their highest California development as supplementary dairy feeds. Turnips, beets and carrots are the three stand-bys, though turnips are on the taboo list because they insist on carrying their flavor through into the butter, and somehow people who eat butter don't like to know they are eating turnips. But the cow man likes turnips because that root is the earliest ready for consumption. If the pastures begin to dry the last of June, turnips are ready to feed, and that is what the Humboldt dairymen raise roots for—to feed whenever pastures are waning and during the winter when there is little else than dry hay. The large stock beets, golden tankard or yellow globe, and carrots are the mainstay, and every dairy has its acreage depending upon the number of cows. In June it is a common sight to see all hands and all the boys and girls in the family on hands and knees weeding the beets and carrots. It is an illustration of the energy the Humboldt dairyman puts into his business to produce high grade cows. If dairymen of other sections were of similar mind and ingenuity the average production of California cows would be much higher than it now is. The roots are fed in the pasture fields or barn mangers, chiefly in the pastures when the ground is dry and in the barn after rains begin. The cows are allowed to cut the roots for themselves in the field, but in the mangers the dairyman usually helps them a little with a spade.

Pumpkins, Etc.

For a discussion of this topic let me refer the reader to the Cultivator of January 21, 1915. There I said I would not grow beets for cows if I could possibly avoid it. I am inclined to think the Humboldt dairyman would not grow beets if he could find another crop more easily grown that would produce an equal amount of milk. As a basis for this opinion I need only to cite the practice of dairymen from Humboldt who have moved to the San Joaquin or Sacramento Valleys. The root habit doesn't stick to them at all well and they take to alfalfa, corn and such as a duck takes to water. Growing roots is hard work and expensive as compared to corn and alfalfa and if there is only a silo in which to preserve the corn the cow is just as happy as though she were eating beets out of a silver cup.

SURFACE IRRIGATION

PIPE *"BUILT TO LAST"*

Body made from single sheet of Galvanized Open Hearth Steel 10 feet long, with extra heavy taper collar on one end and band of heavy steel on the other—making each section 10½ feet. Made with lock seam (four thicknesses of steel), which gives unusual strength and durability, besides—
ABSOLUTE PROOF AGAINST LEAKAGE.
Write for illustrated price list. Phones: Home F1088, Sunset Main 3141.
Manufactured by
CALIFORNIA STEEL CEILING COMPANY
Eighth St. and Santa Fe Ave., Los Angeles, Cal.
Also Manufacturers of Galvanized Iron Tanks.

This Spray Hose Stands the Wear

Ordinary hose is practically worthless for spraying use. Sprays and chemicals quickly rot it away. For real satisfaction you've got to use a hose made for the purpose—and the best you can buy is

Bean High Pressure Spray Hose

Made to withstand high pressure and constructed especially to withstand the action of spray materials and to give long service. Costs no more than ordinary spray hose—but lasts twice as long. Write for prices. You can order from your dealer—or direct from us.

BEAN SPRAY PUMP CO.
212 West Julian St., San Jose, Cal.

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Budded Varieties

We offer 4000 avocado trees budded varieties 3 years old, budded 2 years. These trees are grown in Redlands in the open air and have never been under shelter. Trees are 4 feet to 6 feet high and stocky. Stock is mainly the Taft variety. Also several hundred of the Dickey, and the numbered Sinaloa varieties.
Single balled specimens $5.00 each. Correspondence invited for larger quantities for acreage planting.
The best lot of young alligator pear trees in the state.

HOCKRIDGE NURSERIES, Inc.
Redlands, - California

EXTRA FANCY CITRUS STOCK

Late Valencias **Eureka Lemons**
Navels **Marsh Seedless Grape Fruit**

— grown on famous —

LEMON HEIGHTS, TUSTIN

All selected buds from proven prolific bearers, budded on sour stock, trees all standard size, straight, clean, thrifty, finest large block in California.

Write or telephone for prices or appointment to see trees to

Tustin Packing Co. **Tustin, Cal.**

Nitrate of Lime

Contains 13 per cent Nitrogen in the most available form. Is a powerful plant tonic and energizer, besides the 25 to 30 per cent Soluble Lime, which we give free. We also sell Nitrate of Soda. For information and prices write.

Agents for So. California BALFOUR, GUTHRIE & CO., 826 Higgins Bldg., Los Angeles

First Class Citrus Seed Bed Stock

Nothing better in the market — Clean and Thrifty
Genuine Florida Sour Stock. Sweet Stock grown from carefully selected California seed. Before buying see us. Prices right.
Locke Nurseries, Chas. H. Harle, Mgr.
Correspondence Solicited — 27 N. Olive St., Alhambra, Cal.

Randall Bros. La Habra Nurseries

100,000 Lemon-Orange-Grapefruit Varieties

All our trees are young, clean, thrifty and free from scale. The buds for our trees were personally selected from known heavy yearly producing, East Whittier orchards. Our nursery stock will stand the severest inspection.

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KELSEY ORCHARD TRACTOR

Light weight — built low — with plenty of traction for the work it is meant to do.
In fuel economy none surpass Kelsey Orchard Tractor
Two Sizes—6-Horse Pull-Continental Motor, 40 H. P.
8-Horse Pull-Wisconsin Motor, 50 H. P.

Saticoy Mfg. Co., Saticoy, Cal. The Kelsey Orchard Tractors have been tested longer than any other California-built small tractor.

Citrus and Tropical Fruits

MEETING OF WESTERN AMERICAN PHYTOPATHOLOGICAL SOCIETY

Written by Wm. T. Horne, Secretary of the Society

LAST summer at the Fruit Growers' Convention at Davis a society was formed for the technical and practical study of plant diseases for the Western states. During the past winter a meeting of this society was held at the Oregon agricultural college at Corvallis at which representatives were present from Oregon, California, Washington and British Columbia. Four very interesting sessions were held and the visiting members were entertained at a banquet on the evening of December 29. The first program took up largely the matter of pear blight, and the three sessions of the following day followed the program, together with discussions of the matters brought up. The program as presented follows:

Investigation of Physiological Plant Diseases by R. E. Smith. Discussion in which Mr. Easthem described the little leaf disease of apples.

Wilt Disease of Carnations by C. J. Wight. Read by the secretary—A paper published in Pomona College Journal of Economic Botany, Vol. II, No. 3, September, 1912. A disease not so serious as formerly and controlled by proper cultural methods.

Sappy Bark Disease of Apples and Polystictus Versicolor by Wm. T. Horne and C. J. Rodgers. Describing the injury caused by polystictus versicolor in apples in California.

Melaxuma of Walnuts by H. S. Fawcett. Read by R. E. Smith—A canker disease of English walnuts in certain parts of Southern California, known also as black sap. Causative fungus isolated and the typical disease produced, but the fungus not certainly identified as yet. The same fungus found also on willows.

Preliminary Studies of Resistance of Prunus to Inoculation with Bacterium Tumefaciens by C. O. Smith Read by R. E. Smith—Mainly giving results of inoculation experiments.

A New Filbert Disease in Oregon by H. P. Barss. Since published in Second Biennial Crop Pest and Horticultural Report, Oregon agricultural college experimental station, 1913-1914.

Notes, Observations and Investigations of Plant Diseases in Western Washington by H. L. Rees. Discussed diseases due to sclerotinia perplexa and other fungi. Called attention to the curious behavior of cane crown galls which are especially bad in Himalaya berry.

Minor Notes on Interesting Diseases by H. S. Jackson. Mainly published in Second Biennial Crop Pest and Horticultural Report, Oregon agricultural college experiment station, 1913-1914.

Inoculation Studies with Apple tree Anthracnose by H. S. Jackson.

Warnock's Tree Paint as a Cure for Fire Blight by J. W. Hotson. Read by H. S. Jackson—Results not indicating efficiency of the material.

Internal Brown Streak of Potato by S. S. Rogers. Read by R. E. Smith—Mainly endeavoring to find methods of avoiding trouble by seed selection, cultural and similar methods, none of which are entirely effective.

Cottony Rot of Lemon (Sclerotinia Libertiana) by C. O. Smith. Read by R. E. Smith—Giving results indicating the identity of the fungus with sclerotinia libertiana from several widely separated places and from various plants. Various inoculation experiments and tests of fungicides for protecting lemons.

The Prevention of Wood Decay in Trees by W. T. Horne. In discussion of questions raised by this paper Mr. Rees stated that he was convinced by observing different methods of treating wounds that those which were promptly covered with a good plastic wax started to callus over much more promptly than those not treated.

Apple Scab Spraying Experiment in the Hood River Valley by J. I Winston. An account of experiment carried on in an exceptionally u fortunate season. Discussion by Pr fessor Jackson showed the scientifi value of the results.

Very many interesting facts wer brought out concerning the disease which occur commonly throughou the region. Some troubles appear i the more rainy parts of the Pacifi Coast which do not occur elsewher whereas on the other hand the drie sections have troubles which are no serious in the more rainy districts

The society is to hold its next mee ing during August in San Francisc and arrangements are now under wa for a joint meeting with the nationa society for the study of plant dis eases, the American Phytopatholog ical Society.

While these programs are in th main technical, they take up man practical phases and their purpose is entirely to discover useful facts and to keep the workers on plant dis eases in close touch with one another so that duplications of effort may b avoided and that mutual help ma add to the efficiency of the work o all.

OLIVE PRUNING

Olive culture is of much interest in New South Wales. From a bulletin of its department of agriculture we quote:

This important branch of work has been very much neglected in many districts where olives have been plant ed, as the growers are of opinion tha this tree does not require pruning. If the olive receives regular annual pruning, either light or otherwise, ac cording to the growth which the tree has made, it will be found the trees will crop more regularly than where they are left to their own sweet will, when they usually crop every other year.

The trees should be pruned every year, but it will be found that some varieties require the knife more than others. This work is best done as soon as the crop is disposed of, or not later than the 1st of August (in New South Wales).

The object in pruning should be to keep the tree just so open that it can develop fruiting wood all through the tree, as well as to keep it from growing too high, as the lower the tree is the more easily the fruit is picked. Therefore, from the time the tree has attained the height of four or five feet, the pruning should commence with these objects in view, viz., to keep it as low as possible without too many main branches, and with the fruiting wood distributed evenly through the tree. The olive bears its fruit on wood of the previous year's growth; the problem, therefore, for the pruner is to regulate the number and kind of branches on the tree, and only a sufficient number of wood branches are left to shape the tree, and to subsequently furnish a place for fruit branches. It is found the vertical branches are practically sterile, while the horizonal branches bear the fruit.

No hard and fast rule can be laid down for each tree or kind, as one tree may require to be severely cut, while another may only require a little pinching back. If a tree is too thick in the centre, no fruit will set inside—in fact, no fruit will set where the sun and light (which are the principal agents of fructification) cannot penetrate freely.

The military post in the American island of Guam is engaged in farming and gardening on the side. This gives suggestion as to where our standing army may be able to work off some of its excess ambition by growing its own garden sass. Why not have a good sized garden in connection with each barracks and detail corporals and some others to get some good healthful exercise?

IRRIGATION APPLIANCES

The 20th Century Method of Irrigation

As superior to old methods as the modern auto is to the ox cart.

Saves Water, Land and Labor.

Don't experiment—the best is the cheapest in the long run.

Illustrated Catalog and full particulars on request.

Kellar-Thomason Company

"Originators of the Valve System of Irrigating"

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"The Roofing that Covers California"

Pioneer Roofing is sun-proof, rain-proof, warp-proof and heat-proof. It is specified by the leading architects and builders as being THE BEST. It covers the largest buildings at the Panama-Pacific Exposition, as well as thousands of buildings of all sizes and descriptions all over the West. Save money by insisting on "Pioneer."

WRITE US for samples and prices --- or ask your dealer.

PIONEER PAPER CO.

Manufacturers

247-51 S. Los Angeles St., Los Angeles

Orange Trees

Now is the time to plant your Orange grove while the trees are cheap. I have a large stock of extra fine trees for sale at low prices. Write for quotations stating how many acres you expect to plant.

Olive Trees

A large stock of Mission and Manzanillo in various sizes; prices on application.

THEODORE PAYNE 345 S. Main St. Los Angeles

Education teaches us only the awful extent of what we do not know.

A SPRAYING SYSTEM FOR FLORIDA

In order to minimize the damage done by insect pests to citrus fruits in Florida, which on the average amounts to from 25 to 40 per cent of the crop, the department of agriculture has worked out a spraying scheme which has given striking results in the three years it has been practiced.

Practically all of the damage that insects do to citrus fruits in Florida can be attributed to six species. The most destructive is the citrus whitefly; the second the purple scale; and the third the rust mite. To do away with these pests government specialists advocate four sprayings, two of which are primarily intended to kill the whitefly and scale insects and the other two to destroy the rust mites. The number of sprayings, however, is not fixed but depends to a large measure upon the thoroughness of the work and the seriousness of the infestation.

The first spraying should be done in May after the adults of the first brood of whiteflies have disappeared and before the appearance of those of the second brood. At that time the fruit should be an inch or more in diameter. A paraffin oil emulsion is used, prepared in accordance with the formula described in Bureau of Entomology Circular 168. Following is the formula: Whale oil soap, eight pounds or one gallon; paraffin oil, two gallons; water, one gallon.

The mixture is prepared by adding the oil very slowly to the soap, the whole being vigorously stirred throughout the process. It is important that the oil be added in small quantities and the stirring be sufficient to keep oil and soap in the form of an emulsion. After the required amount of oil has been added and after free oil has ceased to appear on top of the soap, the water is slowly poured in. After being prepared in this way the mixture is diluted by the addition of 50 gallons of water to one of mixture, which leaves a spray approximately one per cent oil. This is the maximum strength required for whiteflies and purple scale.

In June and July the rust mites should be attacked by a lime-sulphur solution of the strength of 1 to 50 or 1 to 75. This spraying should be done when the maximum number of rust mites have made their appearance and before any russeting appears. It will also kill some scale and whiteflies, but should not be relied upon for this purpose. Some time between August 25 and October 31 the trees should be sprayed again with the paraffin oil emulsion in order to kill all the whitefly larvae which are the progeny of the third and last brood. The earlier these are killed the better it is for the tree. This spraying will also serve to remove the sooty moulds from the trees and from the fruit, enabling the sun to color it.

In November or December it is frequently desirable to spray again with the lime-sulphur solution in order to kill off what rust mites there may be.

The cost of following such a scheme is estimated at from 20 to 35 cents a year for each tree. One grower was able to carry it out at a cost of three cents per box of fruit, and on the other hand it cost another eight cents. Eight cents may be taken as the maximum figure. In return for this outlay the trees yield not only more abundant but much larger fruit. The increase in the size of the fruit alone should result, it is estimated, in an increased production of from 12½ to 25 per cent, amounting approximately to 2,000,000 boxes for the entire citrus crop in Florida. If this scheme was followed throughout the entire state it is thought that the output would be at least 25 per cent greater than it is now, and that the appearance of the fruit would also be much better. In one orchard, sprayed rows yielded 60 to 70 boxes of fruit while adjoining rows which were left unsprayed had only about five boxes.

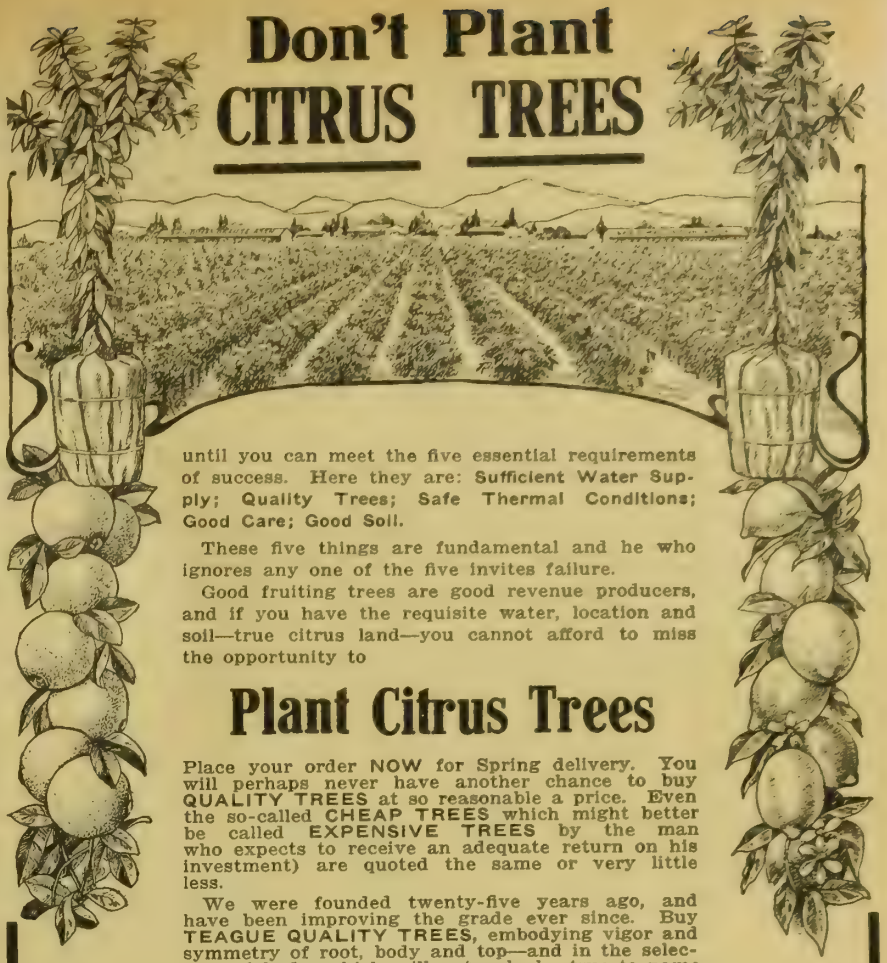
EXPLAINED

"Have you ever noticed how a bum actor can get laughter and applause by using a cuss word?"

"Oh, yes. What's the reason?"

"I've found out, I think. The audience has been wanting to swear, but is too polite."—Toledo Blade.

Don't Plant CITRUS TREES



until you can meet the five essential requirements of success. Here they are: Sufficient Water Supply; Quality Trees; Safe Thermal Conditions; Good Care; Good Soil.

These five things are fundamental and he who ignores any one of the five invites failure.

Good fruiting trees are good revenue producers, and if you have the requisite water, location and soil—true citrus land—you cannot afford to miss the opportunity to

Plant Citrus Trees

Place your order NOW for Spring delivery. You will perhaps never have another chance to buy QUALITY TREES at so reasonable a price. Even the so-called CHEAP TREES which might better be called EXPENSIVE TREES by the man who expects to receive an adequate return on his investment) are quoted the same or very little less.

We were founded twenty-five years ago, and have been improving the grade ever since. Buy TEAGUE QUALITY TREES, embodying vigor and symmetry of root, body and top—and in the selection of buds, which will not only be true-to-name in the general acceptance of the terms, but true to the best type of the varieties to which they belong as well.

Write today for prices and particulars. No orders too large or too small to fill. All correspondence promptly answered.

Our booklet "CITRUS CULTURE" sent to any address on receipt of 25c.

THE OLD RELIABLE

San Dimas Citrus Nurseries, Inc.

Citrus Trees Exclusively San Dimas, Cal.

Cut your grease bill in two. You use only *half* as much

MICA AXLE GREASE

as you do other kinds. It's the ground mica that does it. Resists heat and wear—the grease lasts twice as long. No scored spindles. Dealers everywhere.

Standard Oil Company (California) Los Angeles

Bearing Lemon Grove at 17 Mos.

Will prove it in my own little grove and some of their sires have earned $1,000 an acre a year for years.

Only 5,000 of the same trees left from my own planting at 50¢ each.

RAY S. TAYLOR, Glendora, Cal.

Not a Nurseryman

NOTE (Money could not buy such trees as these so I waited three years while I raised them.)

Planted July, 1913
Photographed Dec., 1914

Fine Large Seed Bed Stock

Sour — Sweet — Pomelo

5000 Lemon Trees

If you wish to buy trees, see me.

W. F. ANDRUS, 107 So. Raymond Ave., Alhambra, Cal.

Deciduous Fruits

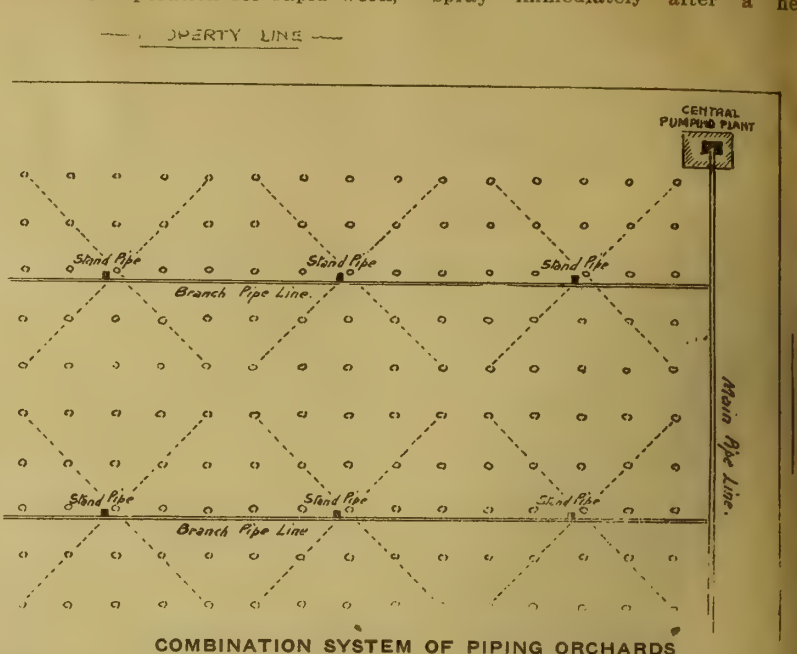
A NEW METHOD OF ORCHARD PROTECTION

Written for California Cultivator
By Wm. H. Kritzer

FOR spraying this system is one of the most practical and economical ever devised and has been found desirable for use in large orchards that have soft soil and are difficult of spraying by the wagon method at the season of the year when spraying is necessary to insure a good fruit crop.

In laying out the system for spraying only, pipe of small size is used for branch pipe lines, those extending from the main line pipe leading from the central pumping station. These pipes are laid at a depth that will not be reached in the plowing or cultivation of the soil and in direct line with the trees; one line of pipe along every fifth row in the orchard, depending upon the kind of trees planted and the amount of space used in setting them out. At each third and fifth tree, in every line of pipe a "T" is placed on the small lateral pipe lines, to which is connected a short standpipe extending out of the ground and up close to the tree, and having a gate valve, stop cock, or gas burner attached to it so it will not interfere with the cultivation of the soil, and so arranged that when connected with a small hose it will permit one man to spray the group of trees five trees square in a short time, unless the orchard has been set out on a different plan.

If it should be desirable to accomplish the work quickly, a large number of laborers can be employed to do the spraying providing enough hose is furnished, for the system is practical in operation for rapid work, and the insect pests have little terr to the orchard owner who has one these systems installed, for he c spray immediately after a hea



COMBINATION SYSTEM OF PIPING ORCHARDS

rain, which is an excellent time do the work. Spraying must be do thoroughly and at the right time be effective, usually in advance of t infection period of the fungus pests that are troublesome in a ce tain locality. Most of these inse pests can be controlled by sprayin well-known mixtures at certai stages; the egg stage, larval stag pupal or resting period, and adu stage—A knowledge each orchardi should have in order to spray inte ligently, thoroughly and at the rig time.

It requires very little more electri or engine power to operate a pip system than to operate a portabl spraying outfit. There should be supply tank that will hold severa hundred gallons of the spraying mix ture that is to be used, also an auxil iary resevoir which will hold a smal er amount that can be kept in con tinuous agitation for immediate use

When a start is made to spray, es pecially in a large orchard, the wor should be carried through as quickl as is convenient, as it pays to kee the spraying mixture going throug the pipes steadily from the start, fo if operations are stopped or muc time lost during which the sprayin solution is not in circulation, the in soluble portions may settle and clos up the pipes. For this reason ther should be two shifts of men wit the work so arranged as to keep it go ing continuously. After the sprayin is done the pipe system and hos should be thoroughly flushed out t prevent deterioration of the plant and appliances.

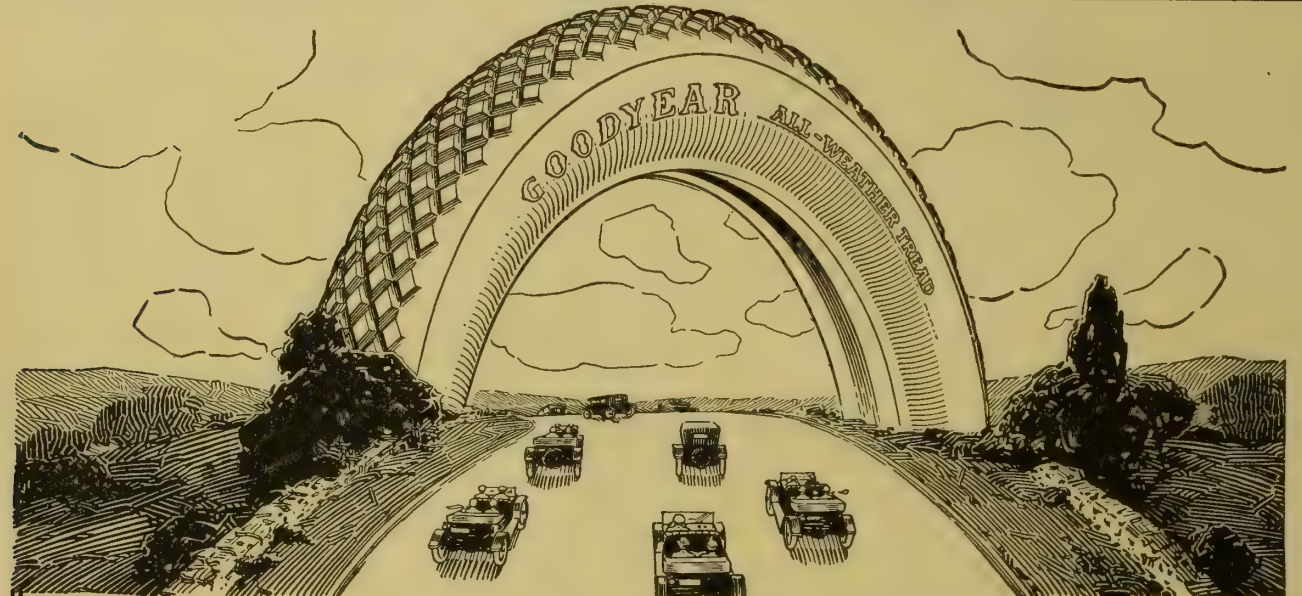
With the proper attachment on each standpipe for holding a non-combustible material that will convert a gas into a smudge or smoke the same piping can be utilized, as the gas is generated at the same central power plant, placed under sufficient pressure to force it through the piping system to all parts of the orchard. A small corps of men can, on receiving report that a fall in temperature is due or a frost is predicted, quickly light all the burners, or it can be arranged to do the work by an electric device made for the purpose.

Should the owner of an orchard desire it, the system of piping can be arranged and installed with pipes of sufficient size to use it for irrigation purposes also, but this idea should not meet with favor for the reason that increased size of pipe would mean a considerable loss in spraying mixtures and some loss in gas when it was converted over to this work.

FRUIT TRADE SINCE WAR BEGAN

By State Statistician George Robertson

At the beginning of the war in August last, it was confidently predicted in many quarters that there would be a great falling off in the foreign trade in fruits, especially in imports. The following brief summary, which has been compiled from the latest reports, shows that instead of a decrease in fruits and nuts during the past twelve months there has actually been a slight increase compared with the previous two years. For



The Road to Tire Content
Join the 400,000 Who Take It

This spring we urge you, for your own sake, to find out the advantage of Goodyear Fortified Tires.

You know they must have an advantage. They have long outsold any other tire. Last year about one-fourth of all tires sold for pleasure cars were Goodyears. Yet we have a hundred rivals.

You know that a tire which dominates like that must be a super-tire.

In five ways Goodyear Fortified Tires conspicuously excel. On these five features—each exclusive to Goodyear—we spend millions of dollars. And we do it for your protection.

One way combats rim-cutting. It has probably saved the ruin of a million tires.

One saves needless blowouts. That one feature—our "On-Air" cure—costs us $450,000 yearly.

One, by a patent method, combats loose treads. One makes the tire secure. And one is our All-Weather tread. That is tough and double-thick, to resist both wear and puncture. And the sharp-edged grips give the utmost in anti-skids.

All these trouble-saving features belong to Goodyear tires alone.

Big Price Reductions

On February 1st we reduced our prices for the third time in two years. The three reductions total 45 per cent. Now our mammoth output enables us to give you the greatest value ever known in tires.

Goodyears are handy to you. We have stocks everywhere. And any dealer who hasn't stock can get them for you quickly.

This season get their protection. Get their savings in trouble and upkeep. Know what tire contentment is.

They can't avoid all mishaps, but they will save you many a trouble, many a dollar. They are doing that now for some 400,000 motorists. Let them do it for you.

After one season with Goodyears, you will never go back to a skimped tire. And never to a tire that lacks Goodyear protections. Be fair to yourself and prove that.

GOODYEAR
AKRON, OHIO
Fortified Tires

Fortified Against:
Rim-Cuts—by our No-Rim-Cut feature.
Blowouts—by our "On-Air" cure.
Loose Treads—by many rubber rivets.
Insecurity—by 126 braided piano wires.
Punctures and Skidding—by our double-thick All-Weather tread.

THE GOODYEAR TIRE & RUBBER COMPANY, AKRON, OHIO
Makers of Goodyear "Tire Saver" Accessories; also Goodyear "Wing" Carriage Tires and Other Types

e months of December however ere is a decrease in value of $700,-)0, compared with 1913, but an in-ease compared with 1912, of $276,000. reek currants show a small increase r the year and the raisins imported ere only 309,000 pounds more than in e previous year, but the total quan-ty imported of late years only nounts to some two or three million ounds, which is so small compared ith the California crop as to be of ttle importance, and vastly different om the 40 or 50 million pounds im-orted a few years ago.

The quantity of figs shows a small crease, olives an increase of over vo million gallons, while lemons and anges both show a decrease, the alue of the latter falling from $253,-)0 to $52,000.

The exports of domestic fruit during ie year show a decrease in value of ,045,000, but for the month of De-ember an increase of $568,000 com-ared with the year 1913.

The principal changes were a fall-g off in dried apples of from 38,000,-)0 pounds to 31,000,000 pounds, dried pricots from 21,000,000 pounds to ,000,000 pounds and prunes from ,000,000 to 35,000,000 pounds. On the ther hand lemons increased from 58,-)0 boxes to 94,000 boxes, oranges from)5,000 boxes to 1,800,000 boxes; dried eaches from 5,100,000 pounds to 7,200,-)0 pounds; and raisins from 16,500,-)0 pounds to 21,600,000 pounds, a uantity which has only once been ex-eeded, viz. in 1912, when it amounted) 28,000,000 pounds. Canned fruits re-ain steady, the total value during the ast three years being about $5,000,-)0, the year 1914 showing an increase f $297,000. For the month of Decem-er the exports show an increase of 568,000.

CALIFORNIA ASSOCIATION OF NURSERYMEN

Secretary Kruckeberg of the Califor-ia Association of Nurserymen is send-ng a list of standing committees ap-ointed by President Howard. There re committees on legislation, insects nd diseases, transportation, deciduous ruits, citrus and tropical fruits, viti-ulture, California gardens, plants and lowers, native vegetation, arboricul-ure, nomenclature, exhibitions and rogram. These committees will re-ort at the next annual.

Accompanying the announcement of ommittees is a roster of members of he association. There are now 134 ctive members.

NEW METHOD FOR FUMIGATING IMPORTED SEED

A satisfactory method for destroy-ng injurious insects in imported seed ithout affecting the value of the seed as been used by the United States epartment of agriculture and is de-cribed in a new bulletin (No. 186), ntitled, "A Method of Fumigating eed." Interested individuals who ap-ly to the department at Washington, . C., will be sent the bulletin.

In the new method the infested seed s placed in a chamber in which a par-ial vacuum has been created. The hamber is then filled with a very eadly gas, hydrocyanic acid, which enetrates more effectively into the eed because of the previously created acuum. It has been found that a onsiderably shorter exposure was ecessary in using this method of fu-nigation than in the usual method. The bulletin describes the experiment ompletely, giving details and illus-rations of the chamber used in the xperiment.

Hydrocyanic acid is of course a most angerous poison and should not be andled by any except those who are horoughly familiar with it. Another as, carbon bisulphid, is to be used by he department in a similar experi-nent, the results of which will be an-ounced later.

The services in the chapel of a cer-ain Western university are from time o time conducted by eminent clergy-nen of many denominations and from many cities.

On one occasion, when one of these visiting divines asked the president of the university how long he should speak, that witty officer replied:

"There is no limit, doctor, upon the time you may preach; but I may tell you that there is a tradition here that the most souls are saved during the first 25 minutes."—Lippincott's.

Don't Delay - send in your order for TREES now

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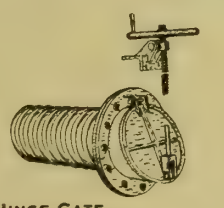
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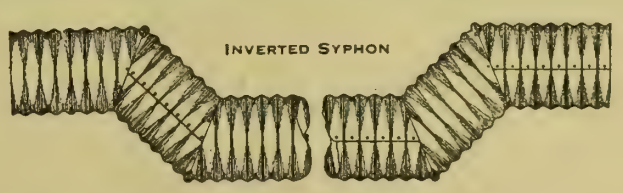
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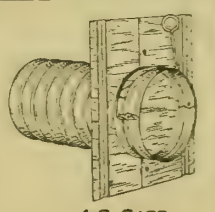
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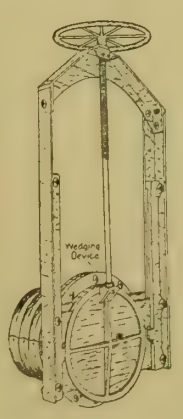
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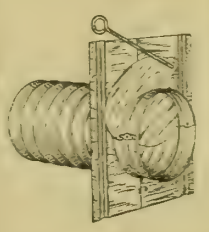
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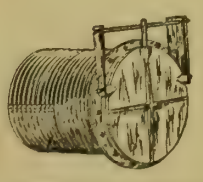
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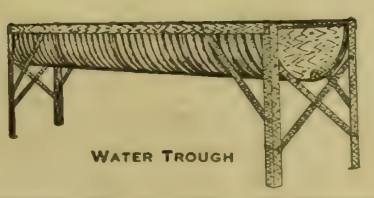
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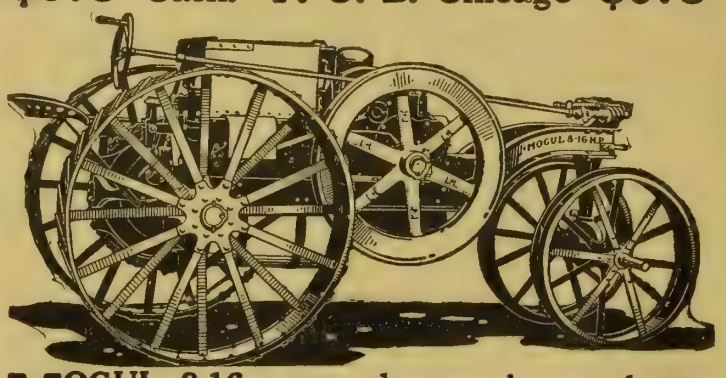

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General Agriculture

THE COST OF AN ACRE OF RICE

Written for the California Cultivator
By Sacramento Valley Contributor

HOW much does it cost to grow rice? is a frequent question in the Sacramento Valley. Unless a great many farmers change their minds there will be a big acreage planted in 1915, thousands of acres of land that has been used for sheep pasture for years—not because it is not rich in the elements of fertility, but because it is so heavy and hard to handle that a grain crop is a gamble. If the season is just right and rains come so that it can be plowed satisfactorily and a good seed bed can be prepared, a bumper crop may be the result. But if it must be plowed too wet or too dry in order to get the crop in at all, and because of poor plowing a poor seed bed is prepared, a crop failure may result.

It has now been demonstrated that with water this land will raise big crops of rice, yields often being 40 sacks per acre or more, double the average in most rice-producing countries of the world.

The following figures on the costs of various rice-growing operations approximate the average for the Sacramento Valley. It must be remembered in considering them that on any particular piece of land there may be a difference in some features because of different conditions.

These are per acre costs:

Plowing	$3.00
Preparation of seed bed—disking, harrowing, etc.	1.35
Checking land with rough contour borders for irrigation	3.00
Drilling-in seed	.75
Boxes in ditches for control of irrigation water	.50
80 lbs. seed at 2 cents per lb.	1.60
Care of crop (labor of irrigation etc.) April to Sept.	4.00
Twine for binding	.40
Harvesting grain with self-binder	2.00
Shocking bundles	1.00
Threshing 40 sacks @ .20 sack	8.00
40 sacks @ .10	4.00
Hauling from field to warehouse	3.00
Irrigation water—5 acre feet at $1.00 per foot (This will vary—pumping will generally cost more. The cost at Biggs is $1.00 per acre foot.)	5.00
Pulling weeds	1.25
	$38.75

Land rents for $5 to $15 per acre cash or one-third of the crop, the landlord to furnish the water.

James Mallon of Princeton in Colusa County and his associates are preparing now to plant 4000 acres next season, and many others on both sides of the valley are busily engaged in getting ready for the 1915 crop.

MADE MOST MONEY

Written for California Cultivator
By Milo Hunt

To Albert Jackson of the Whittier Union High School belongs the honor of having made the best financial showing of any boy entered in the agricultural contests as fostered by the state university of California last year. Young Jackson is a senior in the Whittier school and made a record of a net profit of $66.87 from a quarter of an acre of ground during the past season. Ten fellow members of the school entered the school, but Albert Jackson outstripped them all. He did it with corn, egg plants and bell peppers, but the egg plants proved to be the "big money" crop. Jackson's record was made at the rate of $267.48 per acre, but this egg plant patch gave a net profit at the rate of $698 per acre. The record established by this young lad from the Quaker City leads easily all the records made last season in this state.

Undoubtedly a large part of the success of the winner came from the fact that he used his head as well as his hands. In planning his contest cr s he says:

"When I decided to go into the c test the first step I took was to m a thorough investigation of the m

ALBERT JACKSON, WINNER THE AGRICULTURE CONTEST THE WHITTIER HIGH SCHOOL, W TOPS ALL RECORDS OF SIMIL CONTESTS IN THE STATE TH YEAR, WITH A NET PROFIT AT T RATE OF $267.48 PER ACRE.

ket for different vegetables. I fou that there was always a good mark for sweet corn, egg plant, and b peppers; so I decided to plant thes

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planted the three crops so that if one should fail I would have the others to depend on. Peppers and egg plant bear continuously, so it was possible to market the crop at different times." A part of the contest requirement was that each contestant should keep an accurate account of all labor, and other expenses, and an account of all income from sales of produce. All labor was charged against the crops at the current day rates, likewise with irrigation, seeds, plants, etc. Every participant in the contest speaks highly of the value of accurate accounting in crop production and marketing. The winner says: "While I have learned many things from my garden, I think the most important is the value of keeping books. There is not a single business man who would think of running his business without keeping books, so why should a farmer not do so?"

UNIVERSITY FARM PICNIC

The famous stock parade on the afternoon of Saturday, April 24, always a feature of the University of California's annual farm picnic, is expected to bring together not less than 5000 admirers of the university's high-y pedigreed dairy cows, sheep, horses, goats, swine, beef cattle, and other livestock representing the best achievements of the breeder's art.

All manner of other interesting sights are to be shown—barns, stables and poultry plant, choice orchards, a vast variety of table, wine and raisin grapes, improved irrigation and pumping methods, field crops, farm shops, farm machinery, and the work of a creamery where butter, cheese and ice cream of the highest quality are made by the students.

The farm picnic plans are being worked out through cooperation between the 288 students in the three-year course of the farm school and the 75 students from the college of agriculture at Berkeley who are spending the present half year at the university farm.

The junior contests in judging livestock will begin at 9:30 a. m. on April 24. There will be athletic events, too, and speechmaking. At noon the picnickers will have their basket lunches on the broad lawns. At 1:15 will occur the stock parade.

KILLED THE SQUIRRELS

Mr. W. C. Heim of Dehesa writes of successful experiments in killing squirrels with distillate.

I had been told that a good and cheap way to kill the squirrels was to take an old rag and saturate it with distillate, shove it down in the hole and stamp it tight shut, the fumes from the distillate would do the rest. I was a little skeptical when I first heard it and determined to find out. The other day I ran a squirrel into its hole and then got the rags and distillate and proceeded to fix him up. After waiting two days to see if he would dig out I got anxious and proceeded to dig him up. Just below the rags were two large squirrels dead. I was convinced.

The farmers' club can be made the starting point for cooperative enterprises. It can be used to secure the farmers the benefits that big business secures from doing things on a big scale. Many have the idea that nothing can be done unless there is a big organization. This is a mistake. The successful cooperative enterprises have come from small beginnings.

The state of Iowa has passed a measure appropriating $16,000 additional for the live stock show of the Panama-Pacific International Exposition. Iowa's previous award to the exposition was $75,000.

Standard Cyclopedia of Horticulture

SOME 15 years ago the Macmillans issued the four-volume edition of the Cyclopedia of American Horticulture. It was edited by Liberty H. Bailey, at that time professor of horticulture at Cornell. The purpose of the work, as announced, was "to make a complete record of the status of North American horticulture as it exists at the close of the nineteenth century," and, in addition, "it was an effort to include all the species which are known to be in the horticultural trade." Of course there were errors in it and experts and all the rest of us could make suggestions. We doubt not many suggestions were made. Whether or not they were, now comes the offspring of the old four volume edition in a new one, or rather an entirely new book, the Standard Cyclopedia of Horticulture. It is a six volume edition, and while founded on the former compilation the editor wishes it understood that it is an entirely new work with a greatly enlarged scope and the older work will no longer be published. "It nevertheless stands by itself, and the two should be quoted as independent cyclopedias. The geographical boundaries are wider in the present work, due to the fact that the United States and England have both acquired new tropical connections and interests in recent years. It has not been the effort to cover completely the horticultural floras of Porto Rico, Hawaii, and other islands, for that would involve the tropical flora of the globe; but it is the intention to include the most outstanding species grown in a horticultural way in those islands. A fuller treatment has also been given of the plants grown in Southern Florida, Southern California and the other southernmost areas of the continental United States."

This work is of such magnitude that the editor and his large force of contributors and helpers and one of the largest publishing houses of the world are finding the task of completion no small one.

The work consists of six volumes of about 600 pages each. It is published at six dollars per volume. As yet only two volumes are ready for delivery by the publishers. The third is due either this month or next. The other three will follow as rapidly as possible. The Cultivator has arranged with the publishers to supply its readers with these volumes as rapidly as published. Where preferred terms will be made permitting of monthly payments. It is a book which should be in the library of every California farmer or fruit grower, for everyone who comes in contact with products of the soil will meet questions, the answers to which may be secured in this cyclopedia.

It is not exactly a companion for the Cyclopedia of American Agriculture, also edited by Professor Bailey, but both these books are invaluable though along materially different lines. The books are practically the perfection of the bookmaker's art though no effort is made toward the de luxe.

Volume I opens with explanations, abbreviations and other general matter pertaining to the book. Then follows a synopsis, giving divisions, classes, orders and families of the plant kingdom. This feature of the work which is invaluable to the botanist, requires 78 pages. Then comes the key to the families and genera, requiring, with its index, about as much more space. Then comes a name list with English equivalents for Latin names, then a glossary of botanical terms, all told taking us to page 171 where the cyclopedia proper begins. This contains the names, botanical description, cultural directions and illustrations of almost every plant grown. The text has been edited with great care. It is printed in clear type, and practically every page has from one to a half dozen illustrations, and there are many colored plates.

In closing his preface Mr. Bailey says:

"It is not wholly with satisfaction that one puts forth a work of this magnitude. The responsibility increases with the largeness of the enterprise, for users do not readily purchase new and corrected editions of a work of this extent. Every care has been taken to present an accurate and faithful account, and this is as far as the responsibility can extend. The editor can not expect to make another cyclopedia of horticulture; but he hopes that these six volumes will comprise another step in the collecting, assorting and appraising of our horticultural knowledge."

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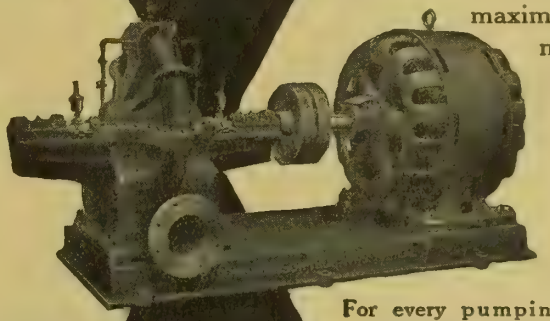

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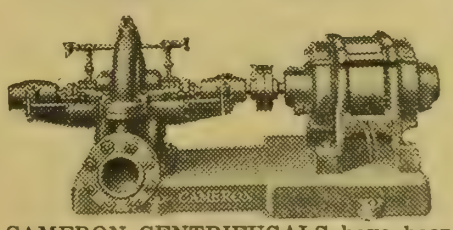

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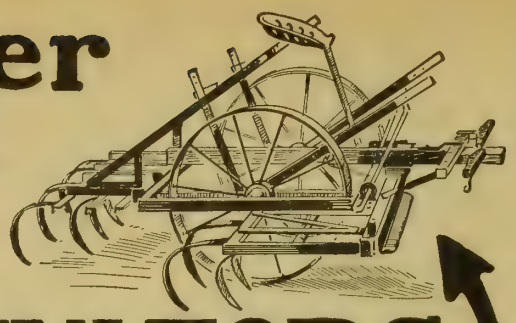

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The Lawn and Flower Garden

THE GARDEN SPIRIT

Written for the California Cultivator
By Ernest Braunton

ONE of the chief requisites to gardening operations is the assumption of the proper mental attitude toward the work. Let us begin our garden-making in a sympathetic spirit, seeking to cultivate contentment and peace of mind as well as the soil; to love plants and take pleasure in caring for them; to find relief and relaxation in all gardening operations.

Let us do the best we can with what is at hand or may easily be found, nor strive for the spectacular or regard our work as a task or as a weighty problem. In short, let us be happy, however much or little we may do, for if we make our garden beautiful we shall learn to love it, whether our efforts be confined to the care of a window-box or lavished upon broad acres.

Let us be governed by a desire to please and satisfy, not alone ourselves, but others, not by gaining unusual or unnatural results, but by making all so simple and homelike that every visitor will enjoy the quiet restfulness and sufficiency of the whole, the charm of response to every simple and natural desire. Do not attempt too much. Before beginning the plan—for every garden should have a plan before any work is done—set down upon paper all the things you feel an attractive homelike garden should have.

This does not mean a list of the plants and flowers you wish—such are mere incidentals — the material with which you build and finish the picture. Begin with fundamentals. Lightly sketch where paths are needed, and have none you do not need. Provide for comfort, interest, even instruction. Will you have an arbor, one or more garden seats, and where? Are you interested in sun-dials? If so, have one by all means, for there is no place on earth where the sun shines more than in California, and therefore we may make more use of them than other and less fortunate peoples. Our mild and equable climate allows us to get about the garden with pleasure nearly every day throughout the year.

Have some sort of a water garden, even if no more than a half-barrel submerged to a level with the garden plane; for in a semiarid land having few natural streams, ponds, or lakes, an aquatic feature, however tiny, cannot fail to attract and interest and lend strength and balance to the landscape. Unconsciously we derive a certain amount of comfort from proximity to water, for of all natural elements it is the one most necessary to the preservation of life and health, therefore its simple presence is soothing and satisfying.

Continue Planting Bulbs

Summer-flowering bulbs should still be planted. If you are using many of my favorite, the gladiolus, plant some of them once each month so long as you procure (or keep) the bulbs in dormant condition. It may be that in this way some may be planted too late to get vigorous blooms, but this little experience will be worth all it costs. There are many other sorts of hardy bulbs which may yet be planted and quite a lot of tubers, roots and bulbs of more tropic requirements.

Watch Trees and Shrubs

Deciduous trees and shrubs are called upon for unusual expenditures of natural forces at this time of the year. Deciduous flowering shrubs have a greater call upon their strength than do evergreen shrubs. I have noted in my own garden that when standing side by side it is the deciduous shrub that first shows distress from lack of water. Now that rains are largely past, if you have flowering shrubs in light well-drained soil, see that they do not thirst until flowers and the season's growth immediately following are given all necessary moisture and there by kept on the move until the perio comes for ripening wood growth.

Sow or Resow

So heavy and long-continued wer some of our recent rains that seeds o or near the surface may have bee washed away or exposed to the ele ments to such an extent that few wil grow. If any doubt exists on thi point it is best to resow at once There also remains plenty of time t get good results from seeds of native wild flowers sown now, if you have ordinary gardening facilities for wa tering. In fact, he who has water may grow plants at any time.

Lawn Grasses

All keen observers will agree tha the fine texture, rich green color and smooth even growth of Poa pratensis the Kentucky blue grass, prove it t be more desirable as a ground cove than any other known, and it should be used wherever conditions are fa vorable to establishment and main tenance of lawn grass. The mos closely similar species is P. arachni fera, a Texan species. A substitute used in cheap mixtures, is P. com pressa, the Canadian blue grass. The latter is flatter, more wiry and blue than Kentucky grass and is good on dry sand, clay, or poor soils where the others do not thrive. P. nemoralis the wood meadow grass, is good for shady places in woodlands, yet resistant to heat. In the eastern states Agrostis canina, the Rhode Island bent grass, makes a fine close turf of good color on sandy seasides and should thrive in California. Eastward they also have a "beach" grass known to dealers and botanists as Ammophila arenaria (or arundinacea) that is successfully used on seacoast embankments to hold dry, loose soils and drifting sands. In California the Australian rye grass is much used for shady places and for lawns where less care and water can be given—a lazy man's grass—but inferior to Kentucky blue grass.

White or Dutch Clover

White or Dutch clover is often used to mix with blue grass in lawns. The clover seed, being much heavier, should be sown separately from the grass seed and in quantity about one-fourth as much. Clover is also excellent for control of Bermuda grass. Many prefer a lawn wholly of white clover, and if so a pound of seed will sow very nearly twice the area that a pound of grass seed will. It also thrives with less water and is superior to Kentucky grass for sandy soils and also does better close to the ocean, where it requires still less water than it does inland.

Ferneries and Rockeries

A pleasing variety may be added to any garden by the judicious use of rocks. Build in the open. If the walls are sufficiently abrupt, you may have rock and desert plants on one side and ferns and alpine plants on the other.

If in the country where a wash or ravine could be utilized one may have ferns on the steep, shady, northern walls, alpine rock plants on the more exposed and sloping north exposures; the hot, steep sides covered with rock "wall" plants and the gentler sunny slopes with cacti and other succulents. If skillfully planted such a ravine or gully, no matter how small, could be made a wonderland of suitable plant life under natural conditions.

Herbaceous Perennials

Many of our Eastern visitors miss the old-fashioned herbaceous perennials so common in gardens on the Atlantic Coast and in the Middle West states. Those companions of childhood's years; fox gloves, larkspurs, Canterbury bells, penstemous, columbines, sweet Williams, candytuft, yarrows, goldenrod and a host of

imilar plants make glad the eyes of hose who but a few years ago had eft these plants in their old home fter perhaps a half-century of close ssociation with them. The story of ardy perennials for California is a uch needed chapter in all our local arden lore. Plant them more freely.

Mission of the Vine

It is not only pathetic to see houses ompletely covered with vines but uch condition is frequently conducive o the tragic. Thickly-tangled vines t foot or more in thickness have nade many wooden cottages positive- y unhealthful as places of abode. 'he true mission of the vine is to eautify, not to obscure. Ugly ob- ects may be covered, but man's welling place should never be ugly nough for such drastic treatment. Se it ever so beautiful, the delicate racery of a fine-leaved, sparse-grow- ng vine will heighten the value of he most classic architecture. The eauty of the human figure, or a tatute of the same, is much enhanced y the judicious use of delicate, ilmy drapery.

PLANTING ROADSIDE TREES

Written for California Cultivator
By J. H. Reed

A brief addendum to Mr. Braunton's nteresting and valuable article on Know the Trees," in your recent is- ue, the gist of which is "Plant Road- ide Trees."

It seems scarcely credible that this hole matter of systematic street ork reaches back but a dozen years. hen it was first proposed that it hould be a matter under municipal ontrol, the plan met little favor. Now n Southern California cities have ntire charge of their street beauti- cation and others are being added. Just at present this interest in ystematic tree planting is rapidly ex- nding to the public highways, where feel sure it will be as popular and apid in growth as it has been in our ities. One thing should be kept in ind, the lining of our good roads as ell as our city streets with trees is r the generations to come as well s for the present, hence it is exceed- ngly important that it should be roperly done. The most important em is the choice of varieties. They hould not only be adapted for the pur- ose, but such as are best suited to limatic and soil conditions. This everely limits the varieties that hould go on either city streets or ounty roadways. They should be ost carefully and intelligently stud- d before choice is made.

Just now some varieties are being rged, the suitableness of which at east is questionable. For instance he live oak is being favored by a few. t must be for sentiment's sake. Cer- ainly the oak we admire dotting the penings in many sections of Califor- ia is not the suitable tree to border ur roadways. Sentiment aside, it ould not be considered for a mo- ent. Nurserymen tell us it can be ade to grow as rapidly and shapely s other trees by proper care. Even this were true, we well know it ould not receive such care on the ublic highways.

The sycamore is favored by a few. n ravine roads or especially wet laces it would not be out of place, ut if there is anything more out of lace than the sycamore or any de- iduous tree for that matter, in this unland of ours, with their litter in he fall and nakedness during the onths when visitors from the ends f the arth come to see us, it would e a roadside lined with evergreen rees swaying in icy breezes over New ngland snow drifts.

Yes, the campaign for roadside ree planting is on. May it be pushed ith the same enthusiasm as the city treet planting, but let us go about t as though we realized we were plan- ing to make our loved Southern Cal- fornia the most beautiful spot in all his wide country for other genera- ions as well as ours. Let us be guided y careful, intelligent consideration, ot by impulse or sentiment.

Flowers should have a friable, very ertile soil in which to grow. They ften make a brave display in rather oor soil, but they appreciate good re.

KILLING DANDELIONS

Cut the dandelion roots off below the surface of the ground.

Gasoline or kerosene, applied at the crown of the dandelion, will kill individual plants.

When only a few stray plants appear persistently use the spud, or knife.

On badly infested lawns good results may be obtained by spraying with sulphate of iron.

Use one and one-half pounds of iron sulphate, which can be purchased at any drug store, to one gallon of water, remembering that it will discolor clothing and cement walks.

Apply the spray three days after lawn is cut, on a bright day when the possibilities of rain are slight.

The solution should be applied with a sprayer which gives a fine mist-like spray—a sprinkler is not satisfactory.

The lawn should be sprayed about once a month during the summer and not cut or watered for three days after the solution is applied.

Whatever method of eradication is used it is always well to reseed the lawn.

For reseeding eight or ten pounds of seed should be used on a lawn 100 by 150 feet. The seed should be sown broadcast, raked in, then watered daily for a time.

A good lawn grass mixture is 14 pounds of Kentucky bluegrass, two of white clover. Buy good clean seed and mix it yourself.

With the thickening of the grass and the use of fertilizer many of the dandelion plants will be crowded out.

Besides this reseeding it is well to scatter nitrate of soda over the lawn before a rain or just before the lawn is sprinkled. Fifty pounds will fertilize a lawn 100 by 150 feet.—W. L. Oswald, Assistant Agricultural Botanist, Minnesota University Farm.

I like to see flowers about a house and in the doorward. I do not remember to have ever seen an anarchist wearing a buttonhole bouquet or a very bad citizen whose house and yard contained flowers.

Harden off all plants before setting in the open ground. This is done by reducing the amount of water given and giving more air to the plant. It is simply a hardening of the tissues to withstand field conditions better.

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CULTIVATION AND FERTILIZATION OF BLACKBERRIES

WHETHER an intercrop is grown or not, cultivation should be begun as soon as the plants are set in the spring and should be continued at intervals of from one to two weeks throughout the season. The purpose of this clean cultivation is to provide a dust mulch for the retention of moisture and to keep down suckers and weeds. Since the roots of the blackberry ordinarily lie close to the surface of the ground, cultivation must be shallow. The breaking of the roots not only weakens the root systems of the plants but increases the number of suckers. The deeper the soil and the more thorough its preparation before the plants are set, the deeper will be the position of the roots. Frequent cultivation is of greater importance during the growing and ripening season of the berries than at any other time, since more moisture is required then.

Fertilizers

The fruit, foliage and canes of the blackberry remove a large quantity of plant food from the ground each year. Most soils, however, have sufficient nitrogen, potash, and phosphoric acid to grow full crops of fruit for many years. Some are better supplied with one element than with others, and each grower must know his own soil before he can make profitable use of commercial fertilizers. Nitrogen should be used with caution after the berry field is in bearing, as it may cause a rapid cane and leaf growth at the expense of fruit bearing.

Stable manure is the best fertilizer to use, for in addition to supplying the elements of plant food it adds much humus to the soil. An annual application of 20 tons of stable manure to the acre will usually be sufficient, although there is little danger of using too much, especially after the field is in bearing. In order to supply humus, leguminous and other cover crops should either be plowed under before the plants are set, or grown between the rows of blackberries each year. When such crops are grown, less stable manure will be required—Farmer's Bulletin 643.

POTATO PRIZE

So important is it to the potato grower, the potato industry of the state and to all our people that we maintain a maximum yeild of potatoes of the best quality that a prize of $100 is offered for the best five acres of potatoes grown in California this Panama-Pacific International Exposition year of 1915. The money available for this prize is secured by one of our leading potato growers. Arrangements will be made for examination by an expert of the seed before planting of growing crops at least twice during the season and also to inspect and weigh or measure at time of digging. Careful data as to history of the soil, methods of planting, culture, irrigation, fertilization, care and management from first to last must be preserved and handed in at the close of the season. It is hoped and believed that this action will result in crops and will win prestige that will be far more valuable than will the prize. It is also hoped that we may secure other prizes of lesser amounts for second, third and possibly fourth prizes. It is also suggested to the county horticultural commissioners that efforts be made to secure prizes in their several counties for the best five acres of potatoes grown during this year.

All who engage to compete for a prize are asked to report to the writer at once and to name date when seed will be ready for inspection.—A. J. Cook, State Commissioner of Horticulture, Sacramento.

A FARMER'S GARDEN

Our garden is not as large as the average farm garden, being 31 by 67 feet in extent with a path three feet wide extending two-thirds the length. All rows run north and south. The soil is a heavy, dark, fertile but porous loam, and with deep tillage and thorough cultivation all available moisture is conserved.

In preparing the seed bed the soil was dug up as deep as the shovel would permit and well pulverized, thereby preventing the available plant food being locked up in the soil, also increasing the capacity of holding moisture. In spite of the long dry spell last season I could dig up moist earth.

The first work in the garden was in getting the cold frame in shape and planting a few varieties of seeds that were needful for early transplanting, consisting of tomatoes, peppers, lettuce for early use, also celery, cabbage and five or six varieties of annual blooming flowers.

The first sowing of lettuce, however, was a decided failure, and the seed bed was quickly prepared for the second seeding, and with a liberal application of commercial fertilizer and an occasional dose of liquid manure. This encouraged a rapid growth of crisp and tender lettuce, which was much appreciated. Owing to its superior quality, a few sturdy plants of this were transplanted for seed production for the coming season.

We had considerable space planted with peas, the dwarf for early, which furnished our table with delicious peas and lots of them, too, for the rows received plenty of fertilizer when they were planted. As the vines of the dwarf stopped bearing, the late peas were ready for use, giving us a long season. When they were through bearing the vines were pulled up to give the Giant Podded Limas, which we planted between the rows, full sway. They were also pulled up as soon as the beans were ripe and the ground was then prepared for a strawberry bed.

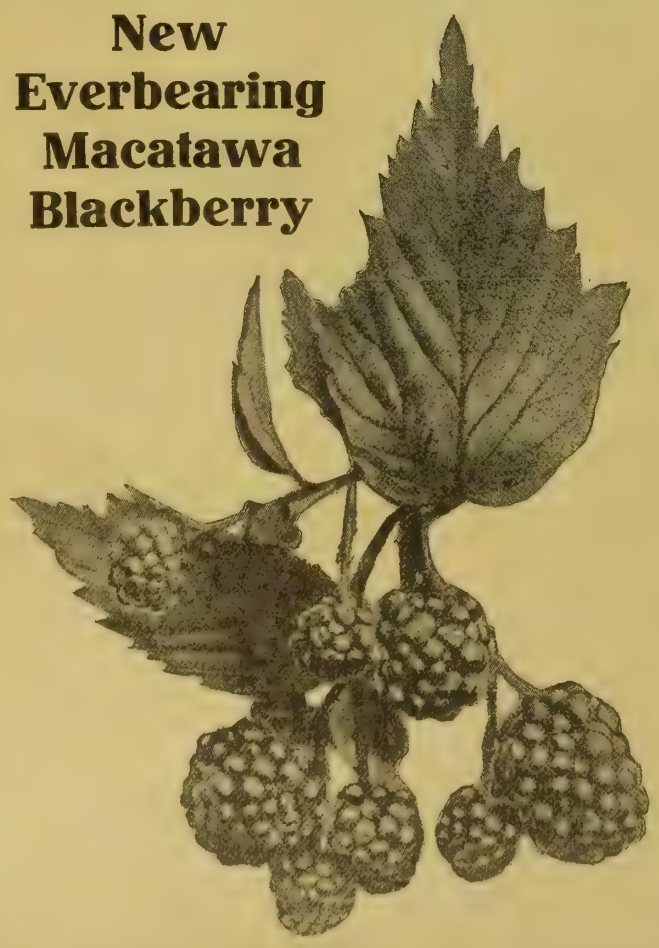
One of the most productive corners in the garden, and the one that actually proved itself the most satisfactory, was the tomato patch with its 50 plants all loaded down with large beautiful fruit, the Earliana for the early and a dark red variety, of which the name was lost, for late. In growing these tomatoes we trained them on stakes made especially for that purpose having four or five short wires fastened about 12 inches apart. As the plant grew up the wire, it was bent around the plant, holding it firmly until the next wire was reached. The plants were pruned to a single stem, insuring fruit of large size and fine quality. The yield was remarkable, as we had all the family could use on the table, canned 32 cans, sold one basket and gave some away.

We also had salsify, okra, cucumbers, parsley, onions, corn and about 75 or 80 heads of Danish Ball Head cabbage, and about 100 bundles of nice crisp and tender celery, which followed onions. A hailstorm stunted the cucumbers before they had borne many "cukes" and the vines were pulled up and the ground prepared and sown with turnips, which produced three bushels of nice large turnips as second crop. A variety of summer blossoming flowers were planted on either side of the path, using asters, candytuft, mignonette, zinnias, cosmos and gladiolus.

In cultivating the garden we used a scuffle hoe, a garden rake and a three-tooth hand cultivator, used in working between the narrow rows. No crust was allowed to form, as the soil was worked up after every rain.—Fruit Grower.

The best appreciation shies at language.

New Everbearing Macatawa Blackberry



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TO CULTIVATOR SUBSCRIBERS ONLY—To have this New Macatawa Everbearing Blackberry tested in as many localities as possible, claiming it to be the sweetest and best table berry on the Coast, the propagators of this berry have made us a proposition for supplying same in shipments of 6 plants each by parcel post, all charges paid.

Their description of the Macatawa is as follows: "It is a cross between the true Giant Himalaya and the Eldorado. The fruit is very large and sweet, in fact, it is the sweetest blackberry grown. It is coreless and almost seedless; very solid, jet black when ripe and can be shipped 1000 miles without bruising. The shape is oblong, very uniform, averaging three and one-half inches around one way by three and one-fourth inches the other way. The bloom is almost semi-double, about the size of a silver dollar. So far all who have tested this berry say it is the sweetest and best flavored berry they ever tried."

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Bees and Their Care

NATIONAL BEEKEEPERS' ASSOCIATION

IN The Beekeepers' Review we note that it will be continued as the official organ of the association. It was rumored that the association would drop entirely the financing of this publication. Regarding the national convention which was held in Denver we quote from the Review:

The annual meeting of the National Beekeepers' Association is a thing of the past. The new association that has sprung from the ashes of the old has thrown off its weaknesses and taken on the strength of a harmonious and united brotherhood.

The attendance of delegates was especially large and the attendance of Colorado and other western states was very satisfactory. The papers and discussions were of a high order and were enthusiastically received.

The business department of the association was satisfactorily arranged and will be conducted by an affiliated association, leaving the national free and untrammeled by business entanglements, to devote its energies to the educational and scientific labors so much to be desired.

The attendance was of strong men. Representation of this class was especially large. Some of the notables present were Dr. Phillips of Washington, D. C., Prof. Jager of Minnesota, Prof. Millen of Michigan, Frank Pellett of Iowa, E. I. Root, Editor of Gleanings in Bee Culture, C. P. Dadant, Editor of the American Bee Journal, and dozens of other strong men were in attendance and assisted in shaping the policies adopted.

The membership fee is fixed at $1.50 per annum, of which 50 cents is to go into the general fund, and $1.00 into the subscription fund. While the dues are fixed at $1.50 per annum it is not obligatory for any member to subscribe for the Review; he may instruct the secretary to devote the dollar to the promotion of lecture courses, etc.

It has now been two years since the national has had a cent of money in the treasury, from fees, and it is expected that its scope of usefulness will be greatly enlarged by the addition of dues.

The new organization (incorporated association) received the entire membership of the old national, consequently, each member of every affiliated association is now a member of the new association. The provisions governing the relations of affiliated associations to the national were changed slightly. It becomes necessary now for each individual of the state association to belong to the national before affiliation. This, however, does not affect the present status.

Some other minor changes were made in policy, but on the whole wise counsel prevailed. Some difference of opinion was manifested, but the entire proceedings were marked by earnest effort to clear the atmosphere of past differences and make it possible to exert the entire strength of the membership in solving the big things before us.

The officers elected for the ensuing year are as follows: President, Dr. Burton N. Gates, Amherst, Massachusetts, (re-elected); Vice President, Frank C. Pellett, Alantic, Iowa, (re-elected); Secretary-Treasurer, Wesley Foster, Boulder, Colorado.

The directors elected for two years are as follows: E. D. Townsend, North Star, Michigan, (re-elected); E. J. Baxter, Nauvoo, Illinois, and J. H. Stoneman, Blackfoot, Idaho.

INTELLIGENCE OF BEES

Gaston Bonnier, the great French authority, put pieces of sugar in his garden. The bees could not bite off any of it, but he marked the ones that tried. He watched them fly to their hive and later return with reinforcements, stopping on their way at a watering place, where they secured enough water to moisten the surface of the sugar. Other experiments have convinced him that bees making a "find" convey the intelligence to others and the number of bees then sent out is in proportion to the amount of treasures.

BEEKEEPING VS. SPRAYING IN BLOOM

The Massachusetts board of agriculture will shortly issue a poster indicating the proper time for spraying fruit trees and showing that while trees are in bloom, it is not only ineffective as a prevention against fruit pests, but also directly dangerous in some cases, being liable to spoil the blossoms and to cause the death of bees, thereby greatly reducing the amount of fruit set.

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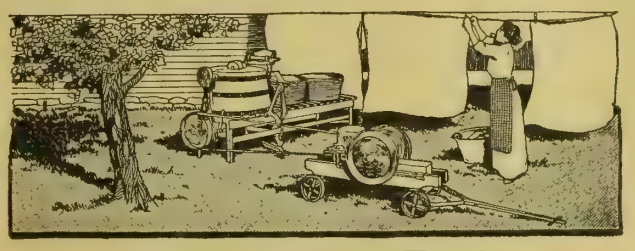

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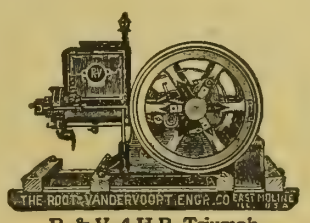

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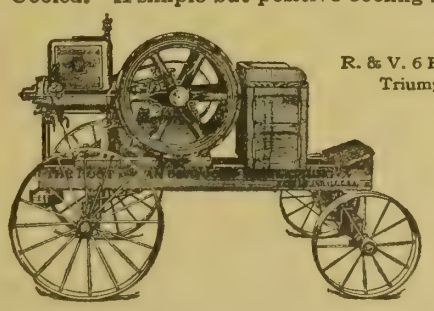
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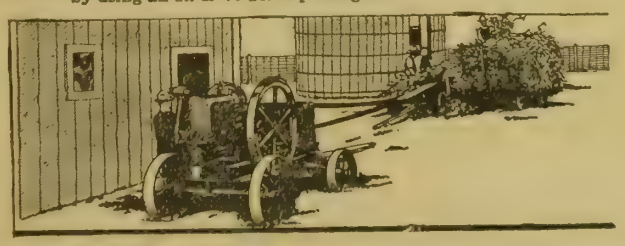

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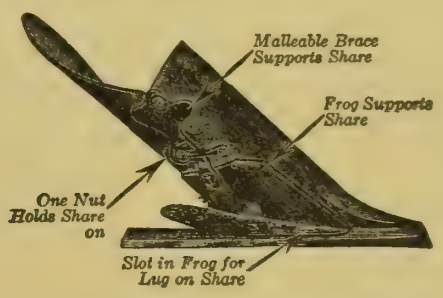

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Thursday, March 25, 1915

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We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

OLIVE DAY

Wednesday, March 31, is Olive Day. The department of agriculture and some state institutions of the East are calling attention to the wonderful value of cotton seed oil. It is time that more special attention was called to the superior quality of olive oil. The only point that has ever been made against olive oil is its cost, but its purity and ease of digestion are points which should be brought to the attention of the world, and one step in that direction is afforded by Olive Day. "Eat California Ripe Olives" is also a good slogan. There is no better nor purer food.

TORRENS LAW IN DANGER

Assembly Bill 655, now in the hands of the committee on banking, should be killed. It appears on the surface harmless, even helpful. It relates to the regulation of the business of banking and stipulates how savings and other banks may loan at low rate of interest on real estate. One of the requirements of making these loans, however, is that the title of the land must be shown to rest in the borrower by "a policy of title insurance or guaranteed certificate of title issued by a company authorized by law to issue policies of title insurance or guarantys of land title or by an abstract of title examined and approved by attorney for bank." The people of California voted favorably at the last election on the Torrens system of land titles, which would be of no use, at least where one wished to borrow money, if this law were passed. It is evident the intention of the bill is to nullify the action of the people of California. But few land holders would care to take certificate of title from the state if the law of the state makes it of no value when a loan is desired. Plainly there is a joker intended in this bill which should impel every well wisher of the state to get busy and prevent the interests from passing any such bill.

POULTRY FOR PROFIT

We trust we may be pardoned for again referring to that excellent book in the dollar series of the Cultivator Publishing Company, Poultry for Profit. The book is strictly true to name, and if its principles are followed it will surely lead to profitable poultry. At this time when many poultry people are discouraged at the outlook for high-priced feeds we imagine it a good time for the shrewd poultry man to enlarge the scope of his work, and one of the first steps in enlarging a business is to get a grasp of marketing conditions and learn wherein methods may be improved. Mrs. Koethen, the author of this book, is intensely practical, and the book is a chronicle of some of the practical methods she has used in her own successful business. Scarcely a mail goes out of Los Angeles these days without some copies of this book. The early order is the one sure to secure a copy. The publisher makes a proposition by which subscription to the Cultivator and Poultry for Profit may be had at a material reduction.

COMMITTEE AT WORK

At the meeting held in San Francisco, February 22, to consider the advisability of organizing a state agricultural society, one which would include all interests, whether organized at present or not, the chairman was instructed to appoint a committee of seven which should meet and formulate a constitution and by-laws or at least a line of action for the new society. Some of the most efficient men in the state were appealed to to work on this committee, which consists of: Prof. H. E. Van Norman, University Farm School, Davis; Dr. Herbert J. Webber, in charge of the Citrus Experiment Station at Riverside; C. Thorpe, secretary Walnut Growers' Exchange, Fay Building, Los Angeles; G. H. Hecke, Woodland, Horticultural Commissioner Yolo County; Charles A. Kimble, president California Wool Growers' Association, Hanford; Guy H. Miller, Modesto, president State Farmers' Union; George C. Roeding, Fresno, former president of the State Nurserymen's Association. Prof. Van Norman has been named chairman of this committee and he will call the members together in the near future.

INCREASE IN COOPERATION

With many farmers still groping in the dark for the best steps to take to market their fruit products, it is most satisfactory to notice how the raisin producers of the state are perfecting their organization by signing up more and more of the raisin acreage. All over the San Joaquin Valley new vineyards are being added to the Associated Company's holdings. New plants for handling fruit are being purchased or leased, and every promise is made for a successful year for the raisin producers. The cured fruit industry is likewise making a strong fight for more general cooperative marketing. Members of the California Fruit Growers' Exchange, for years the most perfectly organized of any of the industries, are casting about for some more perfect method of marketing. It seems to us that all these movements have promise for improvement in marketing conditions. The industry that refuses to cooperate refuses to succeed.

APPOINT A COMMISSION

The supervisors of San Francisco County have never felt that the fruit interests of that county called for the appointment of a horticultural commission. They have maintained that there is hardly a fruit grown in the county and the fact that the county is consuming vast quantities of fruit from practically every other county in the state has not appealed to them as a matter for their concern other than in a purely commercial way. State Horticultural Commissioner Cook has called the attention of the supervisors to the necessity of a commission to watch over the fruit interests of San Francisco County even if it is handling fruits only commercially. The industry must be protected if the interests of these handlers are to be protected; it is as vital to them as to the producer. This protection the taxpayers of San Francisco should be as willing to grant as are the taxpayers of the counties which produce fruit. If one large distributing center is permitted to pass through it infested fruit which will carry to other counties disease and lessened production, it will also suffer. We certainly hope the supervisors of San Francisco County will see this side of the controversy and grant the request of the state horticultural commissioner and observe not only the letter of the law, which says they shall appoint such commissioner, but its spirit.

FARM BUREAU DAY.

It was our pleasure to attend the annual meeting of the San Diego farm bureau last Saturday. The day has the making of a more interesting story than we have room for this week, but another week it will be touched upon more fully. San Diego was one of the first counties to establish a farm bureau and the first to have a farm adviser. Farm bureaus and farm advisers are two entirely different institutions. However, they have worked together to the wonderful advancement of agriculture in this state. The farm bureau is made up of locals or centers organized in various neighborhoods of the county, and these centers are working great good to the farmer. The farm bureau day is a day of gathering together and introducing those connected with these centers. It gives an idea of the magnitude of the movement, not only as to the one county, but brings to the attention of those who are attending many other bureaus in the same state and in other states. Instead of dozens affiliating, as in the locals, there are hundreds and thousands in county and state organizations, these all working to one end and, better, all putting themselves in position to aid other smaller organizations. Perhaps no question is more discussed during these days of lowering prices than that of marketing. Cooperation is progressing in all lines. How may it best work to the advantage of the producer? As yet there is no clean-cut answer, or at least none that is entirely satisfactory, though he is discussing it seriously and we believe with a possibility of arriving at a solution. Strength to the arm of the farm bureau and the farm adviser who works in conjunction with it.

Tolls received by the government for the passage of vessels through the Panama canal for the six months ended February 12, amounted to over $2,000,000.

Agricultural Notes

The International Viticultural Congress will be held in Convention Hall at the Panama-Pacific Exposition at San Francisco on July 12 and 13.

The American consul at Petrograd cables that shipments of lemons to Russia are now practical except via Saloniki, Roumania and Odessa.

Railroad passenger officials give out word that enormous Eastern travel is coming to the California expositions since the special reduced rates went into effect.

Owing to the hig price of flour in the canal zone the commissary department has reduced the size of the loaves of bread dispensed by it from 18 to 15½ ounces.

During the last week of February 14,850 bales of cotton, valued at $742,500, current prices, were loaded in Seattle for Vladivostok, Siberia. The cotton is destined for ports in Russia.

During the past few years much attention has been given by foreigners in China, as well as by many thoughtful Chinese, to the question of afforestation. The university of Nanking has established a school of forestry.

Minister of Agriculture Burrell of the Dominion of Canada and Territorial Secretary Thayer of Hawaii after visiting the Panama-California at San Diego are recommending to their governments that they make exhibits there.

Egypt expects to have an average crop of onions this year as both weather conditions and water supply have been favorable and there have been no war disturbances in the region devoted to the cultivation of this vegetable.

So far as known the silo which John Edwards of Englewood, Kansas, is building, will be the biggest in the world. It will be 50 feet across, 55 feet high and 15 feet in the ground. It is estimated that it will hold 2500 tons of ensilage. Edwards owns 10,000 head of cattle.

It is proposed to develop sugar beet culture in England. A factory is in contemplation at Gloucestershire. The estimated cost of the factory is $725,000 and it is proposed that the government be petitioned to guarantee the stock, the preference shares being taken up by the landowners and citizens and the ordinary shares by the farmers. After paying five per cent interest, the profits are to be divided among the holders of ordinary shares in proportion to the quantity of the roots delivered.

Wheat growing states will not experience any difficulty in harvesting their big crop this year, if plans just launched by the National Farm Labor Exchange of Omaha are successful. The board of directors consists of the state employment departments and state agricultural boards of Missouri, Kansas, Minnesota, Iowa, Nebraska, Oklahoma, Texas, North Dakota, South Dakota, Wyoming, Colorado and Montana. It is planned to extend the work to every state in the Union. The United States department of agriculture and the industrial relations commission will cooperate in the work. Emergency workers will be signed up at once and they will be thrown into the Texas fields where the grain begins to ripen early in June. As ripening progresses northward the laborers will be moved, reaching North Dakota and Minnesota late in August. Kansas City, Sioux City and Minneapolis will be clearing houses for the farmers and the laborers.

Agricultural News Notes of the Pacific Coast

Northern California

Total membership of the Solano County farm bureau is 150.

The planting of almonds has been greatly extended in Sutter County.

Four cars of rice were recently shipped from Chico, Butte County.

Lodi, San Joaquin County, is planning to ship more strawberries than any preceding year.

Tehama County sheepmen report large losses of spring lambs because of the continuous rains.

Several Northern California towns are engaged in beautifying vacant lots and generally cleaning up roadsides.

Contra Costa County poultrymen will incorporate for the purpose of handling products and securing supplies for members.

The cannery at Lincoln, Placer County, put up 18,000 cans of fruit in the season of 1914. This was during a 40-day run.

Los Molinos, Tehama County, has a new dairy of pure bred Jersey cattle. Stock for the ranch was bought at an average of $150 per head.

The Cow Testing Association at Gridley, Butte County, is proving its worth by aiding the dairymen in eliminating non-productive cows.

Many poultrymen of the state attended a session of the assembly at Sacramento to listen to discussion of anti-Chinese egg legislation.

The proposal to form a cow testing association at Chico, Butte County, met with objection because some felt that it would be for the benefit of the few.

Through the activity of the Yolo County farm bureau it is expected that a county swine raisers' association will be formed to fight against cholera.

The Plant Introduction Garden at Chico had placed many plants in cold storage to keep them dormant until the planting season of the East is over, when they will be distributed.

The dehydrated olive has met a favorable reception in Tehama County where it is being processed in an evaporating machine. The olives are allowed to fully mature on the tree before processing.

Stock are now allowed to be shipped into this state on permit from the state veterinarian. Stock for immediate killing may be freely brought in from Nevada, Oregon, Utah, Arizona, New Mexico and Texas.

Fruit shippers who had hoped for reduced freight rates because of the building of the Panama Canal are disappointed by announcement by the railroads that there will be no change during the coming summer.

Governor Johnson has announced appointment of the three members of the water commission established by act of legislature in 1913. They are: Irving Martin, newspaper editor, of Stockton; A. E. Chandler of Berkeley, irrigation engineer and lecturer at the university of California, and W. A. Johnstone of San Dimas, Los Angeles County, former assemblyman and author of the water commission bill.

Central California

Hollister, San Benito County, shipped 28 cars of hay in one day last week.

Kings County raisin growers are signing up contracts with the Associated.

W. J. Mowry has been re-elected president of the Kerman Cured Fruit Association.

The University of California reports 395 taking the new correspondence course in olives.

The San Joaquin Sugar Company at Visalia is urging farmers about Merced to plant sugar beets.

Hog raisers at Tulare report poisoning of hogs resulting from eating seeds dropping from umbrella trees.

It is rumored that outside packers are cutting prices on raisins in order to discourage members of the Associated.

There was a general meeting of the members of the Tulare County Citrus Protective Association at Lindsay last Saturday.

The raising of race horses has been made a profitable industry by a rancher in the Cuyama Valley near Maricopa, Kern County.

The King bill regulating shipment of green oranges and frosted citrus fruits has been amended to conform to the proposed federal law.

The Porterville Alfalfa Company recently shipped a car of fat stock to San Francisco. By now only about 400 steers are left on the ranch.

There are about 1500 acres of raisins not in the Associated in the section of Dinuba, Tulare County. An effort is being made to sign up the entire amount.

Tulare County Pomona Grange met recently at Visalia and installed officers for the coming year. J. W. McPherson of Orosi is master, Mrs. B. C. Anderson of Visalia, secretary.

Swine raisers recently met at Lemoore, Kings County, and organized the Kings County Hog Breeders' Association. The principal work of the association will be eradication of hog cholera.

Estimates indicate that Kings County's output of fruit this year will be 25 per cent larger than last year, due largely to plantings of new orchards. The county estimates that it will receive $2,500,000 for the crop.

At a farmers' meeting held in Tehachapi recently, under direction of Agricultural Demonstrator Roberts of the Santa Fe Railway, Dean Thomas F. Hunt of the University of California spoke to the farmers on pear blight. Other speakers were: S. W. Foster, R. R. Mack, Kern County farm adviser, and Kent Knowlton, horticultural commissioner of Kern County.

The Associated Raisin Company has bought out three more raisin packing companies. Rumor has it that a fourth will soon be added. The Associated now has control of eight packing houses as follows: Fresno Home Packing Company, Kings County Raisin and Dried Fruit Association, Mowat & Company, Clovis Farmers' Union, Oleander Farmers' Union, Giffen-Hobbs Company, Malaga Packing Company and the Fowler Fruit Company.

Southern California

Paso Robles in San Luis Obispo County is planting extensively of blackeye beans.

The Ventura County Fair Association directors are arranging details for the 1915 fair.

The Sugar Beet Growers' and Manufacturers' Educational Association met recently in Los Angeles.

Covina, Los Angeles County, is shipping quite extensively of winter rhubard to Eastern markets.

San Luis Obispo County is discussing advisability of calling a good roads bond election for a million dollars.

The Santa Ana Valley Walnut Growers' Association is contemplating the building of a new packing house at Anaheim.

The San Diego Floral Society held a three-day exhibit on the Panama-California Exposition grounds March 19, 20, 21.

The Poultrymen's Association of Southern California has arranged with a Los Angeles firm to handle its entire product.

The Hemet Farmers' Club will meet March 25. Prof. H. J. Quayle of the pathological laboratory will be present to answer questions.

The Tri-counties Reforestation Committee has appointed a committee to look after all legislation affecting drainage or irrigation.

County Horticultural Commissioner Beers reports fumigating and spraying against fruit pests more general than any preceding year.

The local center of the San Diego County farm bureau at San Luis Rey listened to an address at its last meeting by Adviser Weinland.

The Indians of the Pala reservation in San Diego County are planting orchards and generally getting their reservation into productive condition.

The Ventura Avenue farm bureau center has endorsed the county free library plan and will ask the supervisors to establish a branch in their section.

Cantaloupe shippers of the Imperial Valley are endeavoring to perfect a more effective association. It has been claimed by some that shippers and jobbers last year lost heavily.

An immense force of men is working on straightening the levees along the Colorado River. This work is being mostly done over the line in Mexico. It is expected the levees will be sufficiently strengthened before the high waters of June.

The recent meeting of dairymen in Los Angeles resulted in the appointment of a committee which will investigate as to the advisability of a large cooperative marketing association which will deliver dairy products to the consumers in the city.

Orange labels have been sent to this state by Californians who were visiting in Japan and who purchased, supposing they were getting California fruit. The labels are declared counterfeits, and the inference is that they are being used on Japanese fruit in order to induce more general sale.

The Coast

Wool growers of Utah are selling at 22½ cents.

Arizona is organizing poultry clubs for boys and girls.

Shearing, which began in Arizona in February, still continues.

Chehalis County, Washington, has just installed a farm adviser.

Nevada wool growers are reported holding out for 25 cents a pound.

The third annual Southern Arizona fair is being held at Tucson this week.

Farmers at Redmond, Oregon, are doing extensive plowing for spring crops.

The March meeting of the Arizona Poultry Association was held last Saturday at Phoenix.

Stockmen of Southern Arizona are pleased at the heavy feed which covers nearly all ranges.

The sale of 2500 head of young cattle was made in New Mexico last week at $32.50 per head.

The Utah County Fruit Growers' Association met recently at Provo and agreed upon a pooling system for the coming year.

Roosevelt Lake in the Salt River Valley, Arizona, passed the 1,000,000 acre-foot mark last week and an elevation of 201 feet.

Contracts have been made at Puntenney, Yavapai Country, Arizona, for yearling steers, June delivery, $35; two-year-olds, $45.

The Wenaha forest reserve near Walla Walla, Washington, will have grazing for 11,000 horses and cattle during the coming summer.

Eastern Washington Jersey breeders have organized the Inland Empire Jersey Breeders' Association. W. T. Newbury of Mica is secretary.

Southern Arizona is planting quite extensively of early apricots. During this season the trees have cost the fruit growers about $25 per hundred.

The reduction of the stock of early winter apples is resulting in better prices being secured by producers of the Northwest for good keeping varieties.

The Commercial Club of North Yakima, Washington, has raised a $5,000 fund as guarantee for a stock show. The amount is to be raised to $15,000 if possible.

The Oregon Horse Breeders' Association recently organized at Corvallis, electing John Wells of Alicel, president and Carl N. Kennedy of Corvallis, secretary.

Farm Adviser Armstrong of Maricopa County, Arizona, announces that work which he is directing from Phoenix is progressing well and several meetings are being planned.

Live Stock breeders of Cochise County, Arizona, met at Willcox and elected officers for their new association for the coming year. J. T. Wood of Willcox is the secretary.

Farmers of Eastern Washington have taken for their slogan, "Let us organize into a mighty brigade that will sweep our community and state for the cause of live stock improvement." Community associations are being organized at various points.

On Their Feet Again

KOW-KURE

HUNDREDS of farmers and dairymen have felt the joy of seeing sick and ailing cows restored to health and productiveness by the use of KOW-KURE, the great cow medicine. This wonderful remedy has proved its worth for over twenty years in the prevention and treatment of ailments which sap the life and strength of dairy cows—such as Abortion, Retained Afterbirth, Barrenness, Milk Fever, Scouring and Lost Appetite.

Many backward cows are overfed with so-called stock foods when what they really need is a medicine that will tone up the system and repair the sluggish digestive and genital organs. HEALTHY cows will thrive on nature's food and produce more and better milk.

If you have a cow that is below par, go to your druggist or feed dealer and try a package of KOW-KURE; the result will surprise you. *Sold in 50c and $1.00 packages.*

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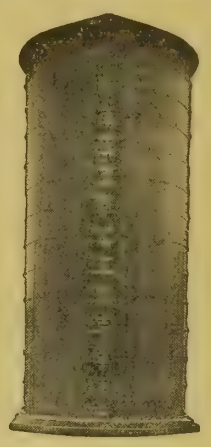

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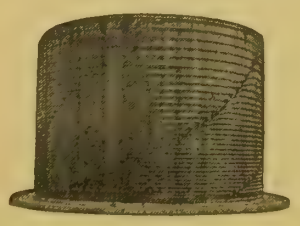

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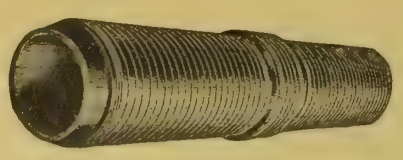

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Live Stock and Dairy

BUTTER SCORING CONTEST

THIRTY-ONE buttermakers participated in the first scoring of the 1915 educational butter scoring contest which was held March 11, 1915, at the university farm, Davis.. Of this number nine had not taken part in any previous contest, while the remaining 22 had at sometime in the past participated. Several of the contestants are now started on what is their third year, one is starting on his fifth year, while another has taken some part every year since the contests began in 1909. The butter sent to this scoring was of fair quality with an average of 91.68 for all entries, 25 per cent of the entries scoring 93 or above, 53 per cent scoring 92 or above, 78 per cent scoring 91 or above and 90 per cent scoring 90 and above. The entries were due at the university farm March 8, and were held in the refrigerator room until March 11, when they were scored by Mr. T. J. Harris, official inspector of the San Francisco Wholesale Dairy Produce Exchange, L. M. Davis and H. S. Baird of the dairy division.

Following are the scores with the exception of those who do not wish their scores published:

B. Bertholsen, Los Angeles Creamery Co., Hanford, 92.

P. Bernasconi, Harmony Valley Creamery, Cayucos, 92.

John Clausen, Riverdale Cooperative Creamery, Riverdale, 90.

Glenn Decow, Mission Creamery, Perris, 93½.

R. B. Foss, Imperial Valley Creamery, El Centro, 91½.

W. J. Grinnell, Libby, McNeill & Libby, Loleta, 91.

Geo. Hartson, Fountain City Creamery, Merced, 91.

Ed. Hooper, Spreckels Market Creamery, San Francisco, 92½.

J. N. Jensen, Visalia Cooperative Creamery, Visalia, 92.

David P. Johnson, Riverside Dairy Co., Riverside, 92.

Simon Koppes, Montague Creamery, Montague, 91½.

A. Kristensen, Santa Ynez Valley Creamery, Solvang, 90½.

L. Larsen, Sunset Creamery, Loleta, 93.

Lee, Star Creamery, Holtville, 90½.

W. W. Leffingwell, Stonyford Creamery, Stonyford, 93½.

A. Le Roy, Exeter Creamery, Exeter, 93.

N. C. Nelson, Crescent Creamery, Reno, Nevada, 93½.

Richard Nelson, Pt. Reyes Cooperative Creamery, Pt. Reyes, California, 92½.

Wm. Oelkers, Minden Butter Manufacturing Co., Minden, Nevada, 93.

Edw. O'Mara, Heber Cooperative Creamery, Heber, California, 91½.

P. Peterson, Valley Flower Cooperative Creamery, Ferndale, 92½.

J. C. Phillips, Delta Creamery, Imperial, 92½.

G. G. Plunkett, Visalia Creamery, Visalia, 91.

———, Gridley Creamery, Gridley, 92.

W. T. Scheld, Inyo Cooperative Creamery, Bishop, 91.

H. Sutton, University Farm Creamery, Davis, 91½.

G. W. Wright, Woodland Creamery, Woodland, 93.

Feed Flavor Appears

The most frequent criticism made under flavor was a feed flavor. Over one-third of the entries showed the effect of feed conditions which exist in nearly all sections just at present. The common alfalfa flavor was noticeably present in a number of the cubes. This is not a flavor which can be classed with a dirty flavor, but regardless of the fact that it is not an unclean flavor, it is objectionable and is one which handicaps the marketing of the butter by the butter dealers. Overcoming this flavor is one of the problems of the buttermaker, for as conditions are in California he can but expect alfalfa to form the greater part of the ration of the majority of dairy cows. Methods in the creamery which will work to that end are pasteurization and the liberal use of good starter. More creameries are realizing the importance of those methods, as the method blanks show that 61 per cent of the entries were made from cream which was pasteurized and to which starter was added, nine per cent were made from cream which was pasteurized but in which no starter was used, while 22 per cent were made from unpasteurized cream with the use of starter. It must not be thought that these methods will insure the highest grade of butter, for the condition of the raw material is the real seat of the trouble, but it is certain that they are steps in the direction of improving the quality of butter. Aside from the food flavor there were some of the common defective flavors which are typical of much of our butter. Foreign flavors of any kind are in the majority of cases due to a lack of care in producing the milk and cream. Many of the defective flavors found in butter are caused by some form of dirt. One of the most essential factors in the successful handling of any dairy product is cleanliness. Another is low holding temperatures. Considering these, and our natural climatic conditions as well as the fact that cream is such a perishable article, it is plain

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As a Human Remedy for Rheumatism, Sprains, Sore Throat, etc., it is invaluable. Every bottle of Caustic Balsam sold is Warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. ☞Send for descriptive circulars, testimonials, etc. Address

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Economy Calves

You can now feed a calf for the first five months of his life for less than half the cost of the milk he would consume in the old way. Do this with

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This meal has been known as the complete milk substitute since the year 1800. Very easily prepared. It prevents scouring promotes a strong rapid growth and makes a better cow.

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the California butter will not be of best quality until each person concerned in its production assumes his full degree of responsibility. The condition of the butter markets just at present demands that butter must show quality if it is to be sold at highest profits. Overstocking the market with medium or low grade goods will not help the situation. Low quality has a depressing effect on the local and domestic markets and is a serious handicap in developing export trade. It is a losing proposition for every one in the dairy business.

Defects Due to Methods

Mechanical defects of one kind or another were present in many of the entries. Greasy body was the most common, caused mostly it would seem from the use of too high temperatures, either for churning or washing, or excessive working. Uneven color was found in 13 cubes to such an extent as to call for cuts. In working butter it is the aim of the buttermaker to strive for good body and texture, distributing the salt and getting the color uniform. In cases where certain of the conditions are not right it is not possible to do all of these things, and one is accomplished at the expense of another. Some buttermakers work their butter sufficiently to make the color uniform, but in order to do this the working is excessive from the standpoint of body and texture. The incorporation of moisture is another factor that influences the condition of the body, and frequently a buttermaker will manipulate the temperatures and manner of working in such a way that he gets the desired percentage of moisture incorporated, but the butter will be found to possess numerous mechanical defects. It is the strict regulation of these points which determines a buttermaker's ability. Light color was a criticism made of two entries. An exceedingly high color was found in another cube. Uniformity is a desirable thing in marketing. Other mechanical defects noted were gummy body, leaky body, high salt and grittiness. Some of the troubles under flavor may be justly charged to the producers of cream, but the buttermaker himself is the one who must assume the blame for mechanical defects.

Five Entries to Follow

In announcing the 1915 contest it was desired to reach every buttermaker so that all who wished could take part. If any were missed they may still enter and win a certificate, as the rules provide for a Grade B certificate for those buttermakers who take part in five entries only and who obtain an average score not below 93. Information and blanks regarding the next entry may be obtained by addressing Division of Dairy Industry, University Farm, Davis, California.

MILO AND KAFIR HARD ON SOIL

Do milo or other sorghums "poison" soils? There is an opinion prevalent in some sections that there is a poisonous acid or other substance freed in the soil by the roots of these plants. Others think that the effect is more or less mechanical and comes from not plowing under the roots deeply. As there are thousands of acres of these crops grown in the Imperial Valley where barley often follows milo we have written to Mr. W. E. Packard, in charge of the Imperial Valley experiment station near El Centro, who writes:

"We are growing some barley on old milo land (the land has been in milo for two years), and so far can see no effect whatever. The stubble was plowed under and not simply disked, as many do. I have seen fields in the valley where the poor stand of barley was attributed to previous crops of milo but have no proof that the milo had any effect. I do know that good barley has been grown on old milo land again and again with no ill effects. I would certainly recommend plowing before planting the barley, however, as the simple mechanical effect of the roots where not plowed under might have a bad effect."

Regarding best sorghums to raise for grain, and certain objections which have been raised to Egyptian corn, Mr. Packard advises:

"Egyptian corn has not proved a good grain for this section solely on account of the fact that the grain shells out too easily. The birds get a large part of the crop in many cases, and much more is lost in gathering and hauling. The Egyptian corn yields well here and the heads are large and heavy. A ton to a ton and a half is a normal yield where the grain is not eaten or lost by shattering. I believe that it does not produce as much fodder as milo, at least that is our experience. The fodder is valuable as food after the grain is ripe but should of course be used simply as a roughage."

A FINE PRODUCER

California dairymen have shown much enterprise in bringing in some of the best blood to be found in the world, and we are proud of some magnificent stock which has been brought here. California dairymen are also producers of some fine strains. We believe some of the finest work done in California has been by Mr. Guy H. Miller, owner of the Venadera herd. This herd has won many "blues," "champions" and "grand champions" at the state fairs, and everyone of these winners has been a home-made product. Mr. Miller believes in introducing new blood when necessary, but his best stock has been of his own production.

In a personal letter Mr. Miller refers to one of his latest favorites as follows: "We have a heifer, Jewel of Venadera, that has recently finished an official yearly test which is a new record for California Jerseys beginning under three years of age. For the 12 months she gave 8017 pounds of milk, making 441 pounds of fat, 519 pounds of butter 85 per cent fat. Jewel began the test at 23 months of age. She was fed and milked but twice daily throughout the test and ran with the rest of the herd in good weather and bad the year round. She was, of course, bred in Venadera herd, and her sire and dam were also. As a purely Venadera product we are well pleased with her for she is a handsome individual as well as being a great worker."

DEHORNING CALVES

We have several requests for information as to the use of caustic for preventing growth of horns in young calves. We copy the following from "Diseases of Cattle," issued by the department of agriculture:

"The operation is performed as follows, and is uniformly successful if performed before the calf is three days old: The little animal is caught and gently laid over on its side, in which position it is easiy held by one assistant while the operator clips the hair off the trifling prominence on the frontal bone which marks the spot on the uppermost side of the head where the horn would be developed if not interfered with. He then takes his stick of potash, dips it in cold water, and carefully rubs it over the part just clipped for the space of, say, ten seconds. The calf is now turned over, the corresponding portion of the frontal bone on the other side clipped an thoroughly rubbed with the moistened potash the same way as the first. By this time the side first treated is dry and ready for a second application of the caustic, which should conform exactly to the first. Follow the same procedure on the remaining side, where the matrix of the embryo horn has been located, and, if the caustic has been properly applied, no horns will ever make their appearance."

THE BLUE BOOK

The sales of the 25th volume of the Blue Book of the National Holstein-Friesian Association now average about 50 copies per week, and at that rate it is evident that a large number of copies will remain unsold at the close of the fiscal year. Should this be the case, the number of copies of the 26th volume to be printed will be correspondingly reduced, and may fall far below the demand. Five thousand copies each of the 24th and 25th volumes were printed and about 4,600 copies of the 24th volume have been sold with only one-half that number of the 25th. Fully 2,300 breeders who have the 24th volume have not applied for the 25th; yet each breeder will need to keep his set complete, as no further volumes can be printed as complete as was the 24th. The 25th volume refers frequently to the 24th, and the 26th will refer to both the 24th and 25th volumes.

The survival of the fittest

TRIED in the furnace of competition and subjected to the test of years of practical use on nearly 2,000,000 farms the world over, the De Laval has proved its overwhelming superiority to all other cream separators.

Twenty years ago there were as many makes of factory as of farm separators, but for the past ten years the De Laval has had this field almost to itself, 98 per cent of the cream separators in use by creamerymen and market milk dealers to-day being of the De Laval make.

It has taken the inexperienced farmer a little longer to sort the true from the untrue, the wheat from the chaff, in the maze of conflictory catalog and local dealer separator claims, but year by year the ever-increasing proportion of farm separator buyers is reaching the same conclusion as the creameryman—that the De Laval is the only cream separator they can afford to buy or use.

Many other cream separators have come into the limelight of publicity for a few short months or a few short years, claiming to be "as good as" or "cheaper" than the De Laval, but their users have sooner or later found them lacking in some one respect or another, and even where a few have seemingly done well their users have come to learn that the De Laval was a still better machine.

The unfit or the less fit cannot possibly survive for long in separators or anything else. Think of all the separators you used to see advertised so extravagantly in your favorite farm papers. Where are they now? Why do you seldom, if at all, see their names mentioned? Simply because the fittest must survive and the others must fall out of the race.

The De Laval has triumphed over all other separators, and its supremacy is now almost as firmly established in farm as in factory separators because its separating system, design and construction are essentially different from and superior to other separators.

A De Laval catalog to be had for the asking explains and illustrates these differences. A De Laval machine, to be had on test or trial from the nearest local De Laval agent, does so better still. If you don't know the nearest local agent, simply write the nearest De Laval main office as below.

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If you are looking for cheap, unreliable stuff, you will have to look elsewhere, but if you want good seed at an honest price we can serve you.
Samples, prices, etc., on application.

V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.

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¶ BE SURE IT'S PURE. That's the one thing absolutely necessary about SUDAN GRASS SEED. Don't let considerations of saving a few dollars on the price now keep you from buying seed that you can feel sure is genuine and unadulterated. If you do, you'll pay double penalty in a poor harvest and sow your land with the plague of Johnson grass.

¶ LUBBOCK ASSOCIATION GUARANTEED SEED is sold with the following warranty as a part of our contract:

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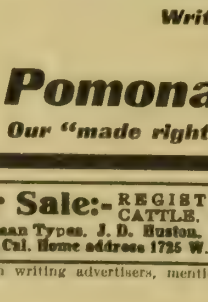

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Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Sore Feet in Pigs

What is wrong with my pigs? On February 15 I put them on alfalfa. About three weeks ago I noticed their noses were very red, then they turned yellow and large pieces of skin peeled off. Soon after I noticed their hoofs were red and sore and the cushions under the hoofs badly swollen so that they walked apparently on the first joint instead of the point of the hoof. Their appetite has been fine.—Subscriber, Glendale, Arizona.

Because you say "their appetite has been fine" and that they are improving it can not be foot and mouth disease and is not so very serious. There must be something in the soil that is irritating the feet and nose. Oil the parts well with engine oil or cosmaline.

Breeding Question

Are there any symptoms by which one can tell if a cow is in calf? Does the udder become caked? The cow was bred about two months ago.—Subscriber, Arizona.

There is no way whatever to tell that a cow is with calf so soon after breeding except that the cow ceases to come in heat and refuses the bull. It would not affect the udder. Read the article on garget in the Cultivator of March 18.

Skin Disease

Please let me know what is good for a Jersey cow that has pimples on her neck and sides that irritate her so she rubs herself and causes large patches to become raw. The veterinarian advised me to use mercurial soap but the pimples came as before. —Subscriber, Merced.

It is difficult to say just what is causing the irritation of the skin. Try bathing the parts with a five per cent solution of zenoleum or some other good sheep dip. To remedy the condition of the blood that may be the cause of the trouble give first a physic of one pound of epsom salts and half a pound of common salt dissolved in two quarts of hot water and given as a drench at one dose. Then get one pint of Fowler's solution of arsenic and give one ounce of the solution once a day on some feed.

Scratches

What is the best thing to do for scratches? I have a horse that has a breaking out of pimples that discharge matter. I have been told that it is scratches. It is only at the hock joint. —Subscriber, San Dimas.

Give internally a small tablespoon of nitrate of potash once a day for two weeks by putting it in the feed or water. Also get of your druggist two drams of chloride of zinc in one quart of water. Warm it in an earthen or granite dish and apply it to the chapped skin once a day while warm.

Dry Skin

I have a number of pigs several months old and in marking their ears I find that there is no blood in them whatever. Their ears are hard and stiff and are just like leather. They also seem to be a little sore under their legs which causes them to walk a little stiff. Would like to know the cause and the remedy for the trouble.—Subscriber, Berendo.

Oil them a few times all over with a light grade of engine oil.

Retaining Afterbirth

I am having some trouble with my cows retaining the afterbirth. What is the cause and what is the remedy? —Subscriber, El Centro.

The cause is a lack of something in the system from a lack of something in the feed. A handful of ground flaxseed in the feed once a day for two or three weeks before calving or a quart of raw linseed oil given at the time of calving would probably regulate the trouble. If the afterbirth is retained over 24 hours after calving it should be removed carefully with the hands and the womb washed out with a two per cent solution of zenoleum at the temperature of the body.

Physic for a Horse

Please give a receipt for a physic for a horse in case of impaction and directions for giving it.—Subscriber, Watsonville.

The following is a good physic for a horse: Take powdered barbadoes aloes one ounce, powdered nux vomica two drams, powdered belladonna leaves four drams and raw linseed oil one pint. Shake well and give at one dose as a drench.

SANITATION

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Economics on the Farm

SOCIAL LIFE IN THE COUNTRY

By Mrs. Robert Potter Hill Before State Fruit Growers' Convention

AN organization whose educational mission is " * * * to so equip the farmer as to enable him to keep himself and his industry from lagging behind in this great age of industrial, domestic, moral and social progress, among whose objects is to develop a better and higher manhood and womanhood among themselves. To enhance the comforts and attractions of their homes, and strengthen their attachments to their pursuits."

From this you will readily see that the highest mission of the grange is to exalt and uphold a high ideal of farm home life. And to help realize this ideal, on every hand, the grange discusses what a home in the country really affords and what it stands for in the lives of the family. Again and again in grange programs, under one head or another, is drawn out the fact that good farming which understands its soils and its crops underlies all ideal country life whether it be on a large or a small scale.

Follow this with the thought that the spirit of homehelpfulness, industry and play combined must be built on a good farm foundation, and then that reaching out into the community must stimulate the building of better roads, better schools and better churches, which with their attendant social activities are necessary for the ideal country life.

My message is "The Need of Rural Child Welfare, or Social Work, in its Relation to Horticulture."

For if you are to have lasting results for all the scientific thought that you are giving to the cultivation and culture of your fruits and various crops, you must give the same scientific thought and attention to the keeping of your boys and girls on the farm.

You are familiar with the great movement of population from rural districts to cities. You know also that most of our successful men and women come from the rural districts, and a fundamental fact is that from rural districts comes all of our food. That the country can continue indefinitely to send the best boys and girls to the city and keep up the quality of the supply is hardly to be expected.

What the rural population needs to insure its stability are first increased production (there are nations in Europe with soil inferior to ours that produce two to two and one-half times as much per acre as we do); secondly, increased profits through cooperative buying and marketing; and third, and for which I make my plea, better social institutions, churches, schools and social centers. I would have you foster every opportunity for wholesome recreation in your community.

Until recent years the study of social questions and the application of modern methods of philanthropy have been confined almost entirely to city life problems. The welfare workers of America are just beginning to see that all matters of social and family uplift, relate as truly to the rural as to the urban classes. One reason for the farmer's neglect of rural welfare work is the greatness, combined with the vagueness, of the task—even now it seems like a great mountain outlined in the mist. I will only speak for more and a better social life.

We need to remember that pleasure-seeking is a natural instinct in all young people. By young people, I mean the normal child of that mysterious age between twelve and eighteen when the boys and girls have ceased to be interested in the daily rounds of washing dishes, mending, milking, going to school, finding bird nests and being happy with other outdoor things.

California gave to its city and country people one great foundation to help toward a wholesome social life—when it gave the use of its schools to the people who built them. Take advantage of this and socialize your schools, your churches, your Granges—your neighborhoods, and provide suitable centers under the leadership of the Grange, or, if you are not fortunate enough to have a Grange in your neighborhood, then under farm leadership. Take the social life away from the town or small city unless they provide a suitable social center. This wonderful social center idea must be fitted in some way into the meager lives of rural young people. In some way boards of education and school trustees must be aroused; granges and neighborhoods must be aroused and in some way the rural church (the ideal leader), must be aroused and awakened so as to become a prime agency in this regeneration of social country life. I hesitate, but I must put this added responsibility on those who are so poorly paid and sometimes not paid, leaders of country churches. It is for the country church first to advocate social reforms, originate social improvements and stimulate the "service of humanity as the earthward side of the service of God." "The church of the country must not be satisfied with a gospel of personal salvation but must be filled with the passion of vitalizing the life of the entire countryside with ideals that do justice to our social Christianty."

Rev. Deiman of Chicago recently said, "The church must so energize rural life that it may keep pace with our advancing civilization." Dr. Gill and Mr. Gifford Pinchot are the joint authors of a new book called the "Country Church." I can quote but one or two of its most pregnant statements, "The church is the natural body to lead in rural social service." "The country church needs rural social service as much as rural social service needs the church." "Social service is as important to the health and life of the country as it is to the city."

If I am to leave a thought in your minds, as Grangers, as friends, as colaborers in the fruit and farm industries of this great state, it is this, that while you are planning, thinking and working to make class A farms, remember the scientific work of your generation is wasted if you do not give the same scientific, careful thought and study to the keeping of your, of our, boys and girls on the farm. To do this all forces that are working for good must get behind the movement to furnish up-to-date, clean, wholesome, cultured amusement to the growing boys and girls of the farm that they may know the "joy of living" and so stay on the farm leading wholesome, clean, God-fearing lives.

If the church, the school or the country club does not show you the way—start a Grange.

The Return of the Prodigal Son

This poor boy never would have left home if there had been an R. & V. engine on the place. Do you blame him for leaving home when he had to turn the cream separator, the grindstone, the washing machine, ice cream freezer, bone mill, corn sheller, the grinder, pump the water, milk the cows, rock the cradle, etc? But it will be different now. His folks have ordered a little R. & V. engine of GREGORY to do all this work at a cost of about five cents a day. Don't forget that GREGORY has all sizes of engines and pumps, the cheapest power in the world.

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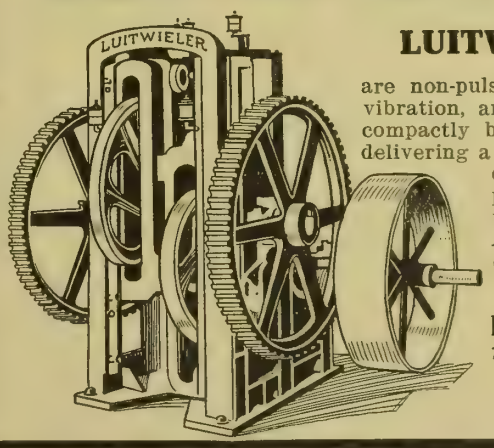

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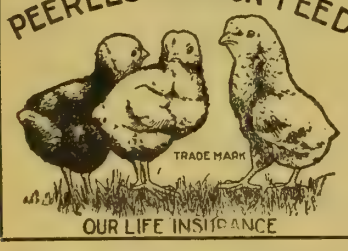

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Easy to put on and cheaper than gunny sacks.

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Write for samples and prices of both Pots and Protectors. State which you are interested in.

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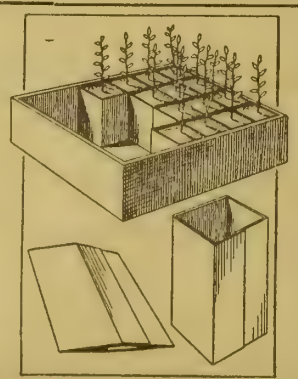

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Poultry for Profit

IMPROVING THE FLOCK

Written for the California Cultivator
By Jean A. Koethen

WHAT does the European war mean to the poultry industry? As wheat prices continue to soar, and that panicky feeling to seize amateur and professional alike, while the air is filled with advice of all sorts isn't it time to get down to brass tacks, as current slang has it, and see just where we are and what is to be done about it?

First of all let us not believe for a minute that anything really serious can happen to the poultry industry. This one or that one may have to let go because of the too-narrow margin between income and outgo, and others may find it necessary to reduce stock or turn to other sources for part of their income, but the billion-dollar poultry industry is going to keep marchilng right along. Agriculture has a way of getting hard hit from time to time in this or that branch.

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Every year or so the peach crop fails or the apple crop is too big or the orange crop somewhere is small or frozen. When I was a little girl on a Kansas farm there were years when drouth spoiled the crops and years when the grasshoppers took everything and years when corn brought so low a price that it was hardly worth husking, but things went right on just the same.

Poultry is essentially a branch of agriculture, and the lesson of bad times in other lines is one of the lessons for us. Two years ago when the orange crop was frozen experts said "Diversify," and the orange growers set about looking for another basket for part of their eggs. In the South today, where the cotton crop has been as hard hit by the war as poultry raising, statesmen and agricultural experts alike are crying "Diversify," and the easy-going cotton planter is seeding part of his acres to wheat. So many other crops go well along with chickens or on land where chickens have been, that the poultry keeper, whether he be side-liner or specialist, may well consider the advisability of letting part of his stock go and raising something else in its place. He must be careful, of course, if he does this to part with only the hens that are of doubtful value as producers, for the poultry crop is short this year and will be shorter next just because of this general reduction of stock. Poultry writers East and West are predicting that the man who holds on will reap a golden harvest, only he must be sure to hold on to only what is really worth keeping.

I believe one result of the hard times the poultry industry is suffering will be the bringing into far greater prominence of the real worth of the bred-to-lay hen. There have been some very hazy notions afloat about chickens. From the day when Mr. Philo electrified the world by telling how he got rich keeping 50 hens in his back yard and Mr. Kellerstrass advertised his wonderful Peggy, who was far more valuable than the goose that laid the golden egg, just because of her "points," poultry keepers have wavered between two ideals, the bred-to-lay hen and the bred-for-points hen. Hard times are forcing us to the conclusion that however valuable and important the fancy is and however close may be "the connection between standard type and fecundity," the main thing that is to be expected from a hen is eggs. The demand for eggs is almost as certain as the demand for wheat, and they can always be produced at a reasonable profit if the hen does her duty. The trouble is that something like half the hens kept in the United States are not doing their duty (according to current calculations), and we have borne with them and humored them, partly from sentiment, partly because of admiration for fine feathers, but mostly because, in spite of the admonitions of the agricultural experiment stations, we are still quite generally in the dark as to what constitutes a good hen. If hard times clear away the mists and cobwebs and bring us face to face with the necessity of recognizing the merits of the bred-to-lay hen, they will not have been in vain. She is the heart of the poultry industry and its firm foundation as well. All honor to the good, faithful little bred-to-lay hen!

The Maine station has been doing some very practical work along the line of improving egg production by breeding, and Dr. Pearl in Bulletin 231 presents a plan which he believes may be followed by most breeders. He names the following basic elements in such an effort:

1. "Selection of all breeding birds first on the basis of constitutional vigor and vitality, making the judgment of this so far objective as possible." He would judge of the vigor

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E. J. Reefer, the poultry expert of 805 Main St., Kansas City, Mo., is giving away free a valuable book entitled "White Diarrhoea and How to Cure It." This book contains scientific facts on white diarrhoea and tells how to prepare a simple home solution that cures this terrible disease over night and actually raises 98 per cent of every hatch. All poultry raisers should certainly write Mr. Reefer for one of these valuable FREE books.

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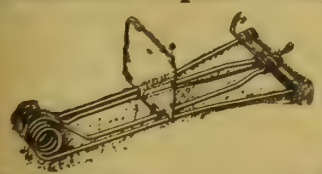

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of each particular bird not only by its appearance and behavior when grown, but by its growth, culling out as unfit every bird which could not reach a given weight at a given age. He would also "let all deaths in the shell and chick mortality be charged against the dam, and use only those females as breeders a second time which show a high record of performance in respect to the vitality of their chicks, whether in the egg or out of it," and would "let no bird be used as a breeder which is known ever to have been ill to however slight a degree." To accomplish this he suggests putting a leg band on every bird when it shows the first sign of illness, and leaving this band on as "a permanent brand which marks this individual as one that failed to a greater or less degree to stand up under its environmental measures of constitutional vigor."

2. "The use as breeders of such females only as have shown themselves by trapnest records to be high producers, since it is only from such females that there can be any hope of getting males capable of transmitting high laying qualities."

3. "The use as breeders of such males only as are known to be the sons of high producing dams, since only from such males can we expect to get high producing daughters."

4. "The use of a pedigree system whereby it will be possible at least to tell what individual male bird was the sire of any particular female. This amounts to a pen pedigree system." Such a system is very easily operated by means of a toe punch, the chicks from each pen being punched between the toes in a different way.

5. "The making at first of as many different matings as possible. This means the use of as many male birds as possible, which will further imply small matings with only comparatively few females to a single male."

6. "Continued, though not too narrow, inbreeding (or line breeding), of those lines in which the trapnest records show a preponderant number of daughters to be high producers. One should not discard all but the single best line, but should keep a half dozen at least of the lines which throw the highest proportions of high layers, breeding each line within itself."

Dr. Pearl and his assistants have worked out a series of diagrams showing the results of mating a male of each one of nine types with high producing females. The nine types are not distinguishable the one from the other, save by the performance of their daughters and sisters, but the diagrams have this value, they show conclusively that the mating of an ordinary or inferior male with high producing hens "results in a flock of male offspring of better average quality, taken as a whole, than the sire himself. In other words the use of high producers, proven by the trapnest, as the only females for breeding purposes, grades up very rapidly the cockerels produced.

Dr. Pearl's plan will not be the last word on this question of improvement of the laying stock, but it is worth considering and acting upon and is especially valuable for the new suggestions it makes in items 1 and 5. The importance of the male in transmitting fecundity is too well understood to require comment, but the responsibility of the dam for the vitality of the germ and the chick which is hatched from it is a new idea and may be of great significance. If I understand Dr. Pearl, what he means to say is that a hen may bear all the marks of vigor and yet, for some reason, not transmit vigor to her offspring. In order to measure this breeding performance he suggests that a part of the breeding females each year be pullets, which is contrary to the established principle, "pullets for layers; old hens for breeders," but would undoubtedly be a time-saver, for a pullet that showed herself a good breeder would have at least two years of service as a breeder before her.

The standardizing of the weight of chicks of various breeds at various ages, as suggested in item 1, would also be a tremendous improvement over present haphazard methods of raising chicks. We ought to know exactly at what age a Rock or Leghorn or an Orpington should reach the broiler weight of two pounds, and breed only from birds which made that weight in standard time. We ought also to know just how much a chick of given breed ought to weigh at a month old, at six weeks, and so on. We have long been familiar with the idea that the most vigorous chicks grow most rapidly; let us take a step forward and know just how rapidly a vigorous chick should grow. The experiment stations are working at this problem, but there is no reason why every poultry raiser should not do a little experimental work of his own.

The average annual lay of the American hen, it is said, is 70 eggs. Raise this to 80 and we add (at 25 cents a dozen), $62,500,000, according to figures recently given, to the wealth of our country. Raise it to 100 and we put $187,000,000 more into the pockets of poultrymen than they now receive, enough to make up for the high price of wheat several times over. Probably it will be a good while before the average reaches 100 all over the country, but it ought to be raised very easily in California where poultry work is more in the hands of specialists than in the Middle West. It costs no more to feed a 200-egg hen than a 100-egg hen. When we raise the average of production we are diminishing the power of high prices by just that much.

ALFALFA TO HAVE NEW RIVAL AS A FORAGE

Some five years ago the office of forage crop investigations secured one-half pound of seed of Sudan grass from Khartum. The government then began experiments in Texas and so promising were the early tests that during the following years stations all over the United States have tried it out. Farmers in Texas have been planting the seed for about three years, but it has been only comparatively lately that there has been a sufficient supply of seed to distribute to the farmers of the other states.

Mr. Vinall of the United States department of agriculture says: "Yields of cured hay obtained under irrigation the past year in California and Arizona have been equal and in some cases superior to those from alfalfa. At Chico, California, Sudan grass when irrigated gave a yield of 9.8 tons of cured hay per acre against a yield of 8.3 tons of alfalfa; at Bard, California, in the extreme southern end of the state, Sudan grass on favorable soil gave a yield of 8 tons to the acre against a yield of 7.9 tons of alfalfa. The yield of 8 tons at this place was made notwithstanding the fact that the grass was planted almost a month later than it should have been.

This unusual yield of hay from an annual crop which by its nature can be made to fit into any rotation will no doubt mean much to the dairying industry of the Southwest. It has appeared just in time to solve this problem which only in the last two or three years has become acute and for which the dairymen have just been clamoring for a solution."

The advocates of this new grass claim that it is unusually drouth resistant and that it will grow in arid or semiarid districts. According to government Bulletin 605, "Practically every test of the grass made in the semiarid regions from South Dakota to Texas has given remarkably favorable results."

PRESERVING EGGS WITH WATER-GLASS

At present prices of eggs preserving for use a few months later is worth considering. Probably the best preservative is water-glass. We quote the following from the Cultivator's poultry book, Poultry for Profit, by Mrs. Koethen:

"Water-Glass (sodium silicate) may be bought from any druggist for 25 or 30 cents a quart, and a quart will preserve 20 dozen eggs. Boil ten or 12 quarts of water and let it cool. Then add a quart of water-glass and mix thoroughly. The mixture should be kept in a stone jar in a cellar or other cool place, and the eggs placed in it each day as soon as they are brought from the nest. Do not put in dirty eggs nor eggs that have been washed. The liquid should cover every egg completely.

"When eggs that have been in a water-glass solution are to be boiled, pricking a hole with a pin in the large end of the egg will keep it from cracking.

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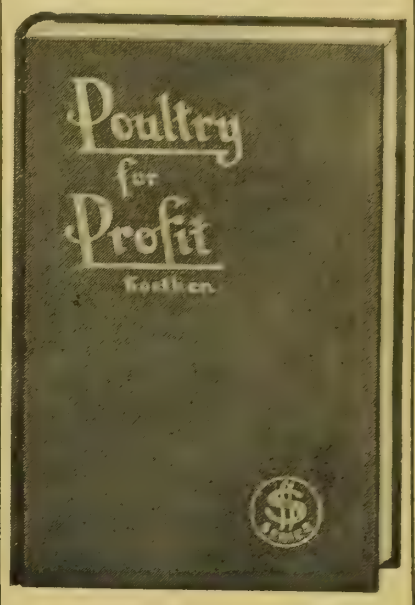

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BY

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S. C. White Leghorn Baby Chicks and Hatching Eggs that are Top Notch. Write for particulars. Prices reasonable. Ten years in business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

White Rock Eggs—For hatching, from select mated birds with heavy egg producing record. All healthy fowls. Seven cents each, $1.00 per 15. Ben F. Thorpe, Bonsall, Cal.

Petaluma Hatchery—The one that's different. We challenge the hen, or anybody else. Don't compare prices, compare quality. Circular free. L. W. Clark, Petaluma, Cal.

Revanew Strain—White Wyandotte eggs, $3.00 for 15, from prize winning stock; 221 pen average, chicks, 25c. Mrs. W. L. Duvall, Franklin Ave., Pomona, Cal.

Petaluma and American Brooder Stoves with new and exclusive features. Write for free catalogue. American Brooder Stove Company, Oakland, Cal.

Rhode Island Reds—Great laying strain, baby chicks; reduced prices for rest of season. Rainescourt Poultry Ranch, Zelzah, Cal.

Baby Chicks—If looking for the best—get Golden Buff Leghorns or White Minorcas. Sandridge Hatchery, Kerman, Cal.

Barred Rock Eggs for hatching, $1.00—13. Brown Leghorn eggs, 75c—15. Mammoth Bronze Turkey eggs, $2.50 per doz. Massey Farm, Wilmington, California.

Goodacre Blue Ribbon Strain of heavy layers. Send for 1915 catalogue. Twelve First prizes at Los Angeles show, Jan., 1915. Goodacre Bros., Compton, Cal.

POULTRY

Just Out—The Cultivator Poultry Book, "Poultry for Profit," by Jean A. Koethen. Published by the Cultivator Publishing Co. Highly endorsed by experts. Over 200 pages, 50 illustrations. Contains simple methods of avoiding and overcoming difficulties. A guide to poultry success under Western conditions—it tells what to do, why to do it, and how to do it. Nicely bound in cloth. Price $1.00 postpaid, or with Cultivator one year, $1.75. Send orders to Cultivator Publishing Co., 115-117 North Broadway, Los Angeles, Cal.

White and Brown Leghorns—Day-old chicks from healthy vigorous breeders. "Chicks well hatched are half raised." We will be pleased to send you circular and prices. San Jose Hatchery, 371 Meridian Road, San Jose, Cal.

Eggs and Chicks—From prize winning birds, Golden Buff Orpington and Barred Plymouth Rocks. Excellent winter layers. Settings of 15 eggs $2.00 to $1.50. $5.00 per 100. Chicks $15.00 per 100. K. L. Kirby, Oakdale Poultry Farm, Watsonville, R. D. 2.

Barred Plymouth Rocks—Winners at New York and California's leading shows. Laying strain unequalled. Eggs for hatching from seventeen Champion matings. Eighteen years breeding Barred Rocks exclusively. Write for catalogue. C. H. Vodden, Los Gatos, Cal.

Ancona Eggs—Select stock, $1.50 per 15, $6 per 100. Baby chicks 15c each. Mammoth Pekin Duck Eggs, $1 per 12, $6 per 100. Baby ducks 20c each, $17.50 per 100. J. P. Clough, 3980 Peralta Ave., Fruitvale, Cal.

Baby Chicks—Eggs for hatching. Pure bred, R. I. Reds, White and Buff Leghorns, Black and White Minorcas. Eggs $6.00—100; Chicks $12.50—100. White Wyandottes higher. Gem City Yards, Los Gatos, Cal.

Day-Old Chicks—From healthy, vigorous, heavy-laying, free range stock of S. C. White Leghorns. Price $7.00 per hundred. H. P. Hansen, R. 4, Box 177, Petaluma, Cal.

Hatching Eggs—Any quantity, any time; R. I. Reds, White Leghorns, $4.00 per hundred, $35.00 per thousand. All from good layers. Our baby chick prices will interest you. Write us. Roofden Poultry Ranch, Campbell, Cal.

Selected Single Comb White Leghorn eggs for hatching that will improve your flock. All hens 220-egg type. $1.50 per fifteen eggs; $8.00 per 100. Jay Maxwell, Madera, Cal.

Barred Rock Eggs from Wagner strain; first-prize winners $1.00 per 15; cockerel mated pen $2.50. Roselle Jelly Plant seeds 10c per package. Mrs. C. A. Richey, R. 8, Box 557, Los Angeles.

Trapnested White and Buff Leghorns, records 120-279 eggs per year. Eggs, chicks, stock. Arthur R. Schroeder, R. 18, Box 179-D, Mountain View, Cal.

Safety First—Feed your baby chicks Croley's Dry Mixed Chick Feeds manufactured by Geo. H. Croley Co. Inc., 631-637 Brannan St., San Francisco, Cal.

Baby Chicks (White Leghorns)—Shipped on approval. Examine at your home before remitting. No weak ones charged for. Schellville Hatchery, Sonoma, Cal.

Pit Games—A few choice specimens for sale. Write for prices. Delivered your station. O. L. Crane, R. D. 3, Santa Rosa, Cal.

White Wyandottes—White Rocks, cockerels, $2.50; eggs, $2-15; $7-100. Ramona Farm, Box 1361, R. D., Sacramento, Cal.

Hatching Eggs a Specialty—Selected S. C. White Leghorns. Reduced prices March and April. $5.00 per 100; $45.00 per 1000. Pine Tree Poultry Farm, Los Gatos, Cal.

For Sale—Barred Rock Cockerels, also Barred Rock, R. I. Red, Anconas, Buff and White Orpington chix. Enoch Crews, Santa Cruz, Cal.

Hatching Eggs—Hoganized S. C. White Leghorns four dollars hundred, thirty-five thousand. Chicks $9 per 100. D. Clayton, R. 2, Modesto, Cal.

Fine Selected Setting Eggs from Hoganized ducks and hens. Most breeds. Black Bros., 455 Lucas, Los Angeles, Cal.

Pheasants—Ringneck and Golden. Eggs for hatching. T. D. Morris, Agua Caliente, Cal.

Barred Rocks—Only a few fine breeding cockerels for $3.00 each. G. L. Hawley, Madera, Cal.

Chinese Ringneck Pheasants, $2.50 each, either sex. Powars' Pheasantry, 935 So. Tenth St., San Jose, Cal.

MISCELLANEOUS

Free for Six Months—My special offer to introduce my magazine "INVESTING FOR PROFIT." It is worth $10 a copy to anyone who has been getting poorer while the rich, richer. It demonstrates the REAL earning power of money, and shows how anyone, no matter how poor, CAN acquire riches. INVESTING FOR PROFIT is the only progressive financial journal published. It shows how $100 grows to $2200. Write NOW and I'll send it six months free. H. L. Barber, 430, 28 W. Jackson Blvd., Chicago.

For Sale—Miscellaneous Bargains—240 acres sugar and yellow pine timber, four miles from Tuolumne, Tuolumne Co., Cal. Sixty-horse power steam boiler and 40-horse power engine. One 18-months-old boar weighing 350 pounds. One sow weighing 300 pounds. Safe in pig. Six fall boar pigs weighing from 40 to 60 pounds. All registered O. I. C. hogs. All the above priced for quick sale. Address G. H. DuBois, San Martin, Cal.

Free Illustrated Book tells of about 300,000 protected positions in U. S. service. Thousands of vacancies every year. There is a big chance here for you, sure and generous pay, lifetime employment. Just ask for booklet S-85. No obligation. Earl Hopkins, Washington, D. C.

"Smith's Pay the Freight"—To reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St., San Francisco.

DUCKS

Indian Runner Duck Eggs for setting, 240 egg strain. Eggs no stronger than hen's. $1.00 per 12. Rancho San Aidan, Gilroy, Cal.

LIVE STOCK

Ohio Improved Chester White (O. I. C.)—Entire herd immunized against hog cholera. Nothing but immunized stock sent out. Extra fine lot of fall pigs, both sexes, ready for shipment during February and March. Three herd boars used. All stock crated and registered. Make reservations now. C. B. Cunningham, Mills, Sacramento Co., Cal.

For Sale—Registered Tamworth swine—boars, sows and gilts of this famous bacon hog. This breed commands a premium on the market. Our original sows from the University Farm at Davis. Sweetwater Fruit Company, Bonita, San Diego County, Cal.

Blue Ribbon Herd Duroc-Jersey Hogs—Bred Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 firsts, 13 seconds, 6 thirds, 7 fourths, 1 fifth. Will show 1915. For prices, write Jno. P. Daggs, Modesto, Cal.

Grape Wild Farm Thoroughbreds—Guernsey Bulls of A. R. Breeding. BERKSHIRE HOGS. Finest herd in the state All ages for sale. A. B. Humphrey, proprietor. Mayhews, Sacramento Co., California.

Registered Berkshire Boars, all ages, one farrowed July 17, 1914—$35.00. Grade Holstein Bull Calf born Jan. 10, 1915—$25.00. Riccomi Bros., Mountain View, Cal.

For Sale—One pure bred Guernsey bull. He is of the Langwater family. Four years old. For further information, inquire of Dr. D. J. Turner, of Gridley, Cal.

For Sale—Registered, Berkshires:. 25 choice pigs of best breeding from the best strains in America. For prices and description address H. L. Murphy, Perkins, Sacramento Co., Cal.

Blatchford's Pig Meal weans pigs easily and safely; no trouble; no milk. Write for free folder, "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

Choice 15/16 Swiss doe sired by Prince Bismark No. 159, dam gallon Saanen doe, hornless, light brown, bred Jan. 1st; price $50. R. M. Cartwright, Foster, Cal.

Red Rock Ranch, Glen Ellen, Cal.—High-class Duroc Jersey hogs. Specialty registered pigs at weaning time. If interested write.

For Sale—Young registered Berkshire boars and sows; fine, strong stock. Boars ready for service. Stanislaus Ranch Co., Crows Landing, California.

For Sale—A young thoroughbred Saanen, Swiss Milch Goat Buck, born hornless, white, fertile, large, registered; price $75. John Stewart, Box 27, Mentone, Cal.

Berkshires—Registered and grade stock. Boars and bred sows. C. H. Thompson, Novata, Cal.

Saanen Grade Swiss Goats—About 80 high grade to select from. Henry Siemer, 1213 W. 5th St., Los Angeles.

Registered Toggenburg buck kids, a few from choice stock at a bargain. H. W. Shepard, National City, Cal.

Glenview Poland Chinas—Stock for sale. Chas. R. Hanna, R. F. D. No. 3, Riverside, Cal.

Poland Chinas—Young stock; either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

M. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale.

For Sale—One mammoth jack and 14 mules. Zack Tompkins, Sunnyvale, Cal.

FARM LANDS FOR SALE

VICTORIA, AUSTRALIA, WANTS SETTLERS

Special inducements; government land, railways, free schools; cheap irrigation; 31 years to pay for farms adapted to alfalfa, corn, grains, fruit, etc.; climate like California; ample markets; reduced passages; special excursion being arranged. Free particulars from F. T. A. Fricke, Government Representative from Victoria, 687 Market St., San Francisco, Cal., Box X.

250 Acres Near Sonoma City, large portion level (now in crop), balance rolling, fine pasture, some wood, well, never failing spring, etc. This is a particularly good location (42 miles from S. F.) for a whole milk dairy. Price, $12,500. Terms, $1,500 cash, balance in six years. R. C. Waller, 625 Market St., San Francisco.

California Land—Money making little farms, high class, low priced properties in all counties; first mortgage loan on farms bearing 7 to 9 per cent. Call or write the oldest land office in California. C. M. Wooster Co., 303 Phelan Bldg., San Francisco.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sjill & Co., Watsonville, Cal.

For Sale—160 acres river bottom land. Address C. E. Johnson, owner, Yermo, Cal.

For Sale—Orange, olive, peach and rice land. Close in, on good terms. Fred Hart, Exeter.

Free—Brand new list of Santa Cruz Ranch Bargains. Wilson Bros., Santa Cruz, Cal.

TURKEYS

Stearns' Turkeys—Won 19 first prizes at Los Angeles in January—more than all other turkey entries put together. Bronze, Black and White Holland eggs, $3 to $5 a dozen; Buff and Narragansett, $4; Blue and Bourbon Red, $5. M. M. Stearns, Claremont, Cal.

Mammoth White Holland Turkeys—A few fine toms for sale. Also eggs in season from two very select pens. Orders given prompt attention. Prices on application. Address H. McKusick, Box 733, Calexico, Imperial County, Cal.

For Sale—Bourbon Red turkeys and eggs for hatching. My birds won all the honors in the Alameda County Poultry Exhibition in Oakland, 1914. A. E. Balmer, Alhambra Valley, Martinez, Cal.

Mammoth Bronze Turkeys. Largest and best flock in the world. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

Giant Bronze Turkey Eggs—For hatching from extra choice prize winning stock. Mrs. Nellie Hart, Holtville, Cal.

SEEDS AND PLANTS

Rhubarb Plants—Now ready and going fast. Never has there been a better season for planting. Latest developments have perfected eastern marketing and Rhubarb has stepped into the first rank in commercial importance. Correspondence solicited with intending planters. Starting right is more than half of success. Get my new book, "Winter Rhubarb, Culture and Marketing." Will send a copy free to all who purchase plants. Selected Plants—all No. 1 size. Burbank's Crimson Winter, 75c per doz.; Wagner's Giant, $1.50 per doz. Quantity prices on application. Reginald Bland, San Luis Rey, San Diego Co., Cal.

Luther Burbank & Mediterranean Spineless Cactus Plantations—Robinson Citrus Nurseries, R.F.D. 35-A, San Dimas, Cal. See our cows and chickens eat spineless cactus—also inspect our orange and lemon trees. Take Pomona, Riverside or San Bernardino P. E. train. Off at Valley Center, walk four blocks north.

For Sale—Non-irrigated, San Fernando Valley Grown Seeds. Black Seeded Chilean and Angeleno Melon, 80c per lb.; Improved Hybrid, Golden Beauty and Pineapple Casaba, $1.50 per lb. First class seeds direct from the grower. M. C. Sutton, Van Nuys, Cal.

Sudan Seed—Officially inspected, recleaned. Prepaid, under 50 pounds, 35 cents pound. Over 50 pounds, 25 cents. Planting, harvesting instructions FREE. Wholesalers. Robinson Bros., Lubbock, Texas.

Spineless Cactus—Strictly first class. Very reasonable prices. The real thing—not slabs with the spines brushed off. You can save money by writing to me. Nick Kass, Lincoln, Cal.

Sudan Grass Seed in fifty-cent packages. One package plants seventy-five acres next planting. Enough to plant ten acres for five dollars. Jones County Seed Co., Anson, Texas.

Berry Plants, Rhubarb, Cacti—It will be worth your while to send me a postal right now if you are interested. Louis F. Scribner, R. 2, Pasadena, Cal.

Giant Himalaya Blackberry Plants (one year old, not tips), doz. 50c; 100 for $2.50; 1,000, $15.00. Postpaid. David Bahrs, Box 25, Marysville, Cal.

Feterita Corn Seed—The corn that puts the Du in Duroc, the Po in Poland, the Ber in Berkshire Hogs. For sale by John P. Daggs, Modesto, Cal.

Attention Dairymen—Plant Sorghum for green feed or ensilage. Seed for sale in lots to suit. A. L. Sayre, Madera, Cal.

Rhubarb—Crimson Winter, $3.00 per hundred. Good strong, one-year plants. Currier Bulb Co., Seabright, Cal.

Pure Sudan Seed—Any quantity, 20 cents per pound. Money to accompany orders. F. M. Grundy, Lubbock, Texas.

Burbank Spineless Cactus—All the best varieties for forage and fruit. Guaranteed. G. D. Cummings, Los Altos, Cal.

Rice Seed for Sale—Free of grass or other seeds. Write Jesse Peter, Pond, Kern County, Cal.

RABBITS

For Sale—New Zealand Rabbits—"the best meat producers." Mature does and bucks $2.00 to $5.00 each. Halfgrown youngsters, buck and 3 does unrelated $5.00. Shipped anywhere. Standard Rabbitry, Santa Ana, Cal.

Leading Rabbitry in America—Flemish Giants a specialty. Prize winning and heavy weight stock. Scored and sold on their merits. Inquiry and inspection solicited. Catalogue on request. Empire Rabbitry, Empire, Cal.

Richey Reds are beauties; won 19 ribbons in one year. Fine bucks for sale and young stock reasonable. Mrs. C. A. Richey, R. 8, Box 557, Los Angeles.

MOTORCYCLES

Order Your Motorcycle accessories and motorcycle parts direct by parcel post and save money, as we carry a complete stock, spring tandems, tires of all makes, lamps in all sizes, horns, and everything pertaining to motorcycle accessories, we have it. Also a fine selection of used motorcycles, consisting of the following makes: Excelsior, Indian, Thor, Harley and many other makes. We pay the freight on any motorcycle you buy from us. Write for a price list. Fred H. Bente, mgr. Excelsior Agency, 1550 Market St., San Francisco, Cal.

WANTED

We have parties that want farms and ranches improved and unimproved. If you want to sell or exchange your place list your property with us at once for quick results. Write for listing blank and other information. John E. Drendel Company, Inc., 212 Hearst Bldg., San Francisco.

Wanted—Agents to handle Elite Products Co. Poultry Remedies of merit on commission basis. Write for folder and particulars. Elite Products Co., 2421 2nd Ave., Sacramento, Cal.

Wanted—To hear from owner of farm or fruit ranch for sale. O. O. Mattson, Minneapolis, Minn.

Wanted—To hear from owner of good farm or unimproved land for sale. C. C. Buckingham, Houston, Tex.

HORTICULTURAL PRINTING

Catalogues for the seed and nursery trade. The live stock and poultry industries are a specialty with us. Two thousand illustrations to select from. Write for prices and samples. The Kruckeberg Press, 237 Franklin St., Los Angeles.

MORE TO COME

Recently in Seattle in a cigar stand appeared the sign, "We give $15 for 1909 Lincoln pennies." No less a person was attracted by this than Judge Watson. He walked up to the counter and laying down a penny triumphantly asked for $15. The clerk took the penny, examined it closely, asked if it were genuine, and after several minutes sighed and said he guessed it was good.

"Certainly it is," answered the Judge. "Where is my $15?

"Where," said the clerk, "are the other 1908?—Life.

Foundation Stones for Success in Agriculture

CONTINUING the series published in the Cultivator of February 4. In these brief summaries different experts of the college of agriculture of the University of California have set forth the basic principles of their various specialties.

THE MARKETING AND STORAGE OF FRUITS

By A. V. Stubenrauch, Professor of Pomology

The California fruit industry is a wholesale business; large wholesale marketing and selling methods are therefore essential.

The packing, transporting, storing, and selling of fruits are phases of the industry quite distinct from the production or growing of the crops, and as such require special business training, talents, and experience not often possessed by the ordinary grower.

The problems of marketing California fruits are problems of wide distribution.

In order to market successfully the large prospective increase in the production of fruit crops, a wider and more systematic distribution over the markets of the world must be accomplished, and the per capita consumption of fruits must be materially increased.

Overproduction of fruit crops is only apparent as long as there are accessible markets which are not fully supplied; under present inadequate systems of distribution there are many such markets.

The pressing problems relating to the systematizing of marketing methods, the increase in the consumption of fruits through judicious advertising, and the broadening of distribution can be solved only through close and hearty cooperation among the growers.

The foundation upon which effective and successful cooperation among producers rests is absolute necessity for the solution of some pressing problem relating to the success of the industry.

The only true cooperative organization of fruit growers is one in which all phases of the business are under the control of actual growers, who are members of the organization.

Any organization which does not operate at actual cost to the grower members, and without profit on capital stock, is not truly cooperative in its functions.

A cooperative organization which attempts arbitrarily to control prices or curtail production in the interest of high prices is operating dangerously near to a violation of the federal anti-trust laws.

Some of the most common causes of the failure of cooperative efforts among fruit-growers: Improper methods of organization, mutual distrust and suspicion among members; inefficient, unbusinesslike, or inexperienced management.

Cold storage is a most efficient means of equalizing the marketing of fruits.

The fundamental factors underlying successful storage are: Well grown, fully mature fruits carefully handled and packed in an uninjured condition, promptly stored and quickly cooled, and held at a uniform temperature.

Cold storage cannot improve the quality of fruits—unless the product is in first-class condition when placed in storage it will not remain in good condition, and serious deterioration is sure to take place even under cold storage conditions.

The cold storage warehouse is an important ally of both the producer and consumer of fruits, enabling the one to extend the sale of his product over a long season, and the other to avoid the effects of alternating seasons of great plenty and scarcity.

NUTRITION FOR ANIMALS AND MAN

By M. E. Jaffa, Professor of Nutrition

The fundamental principles of nutrition are the same for men and animals.

Food is material which when taken into the body either builds tissue or yields heat and energy.

Foods are classified roughly according to these two uses.

If protein is neglected, growth is limited or delayed, repair checked, and resistance to disease lessened.

An excessive amount of protein is uneconomical, both physiological and financially.

Carbohydrate food gives bulk to the diet and insures an economical use of the protein.

Fat supplies heat and energy in a more concentrated form than carbohydrates and prevents an excess of bulk.

The modern standard for a ration must meet all needs of the body, maintain it in perfect health and at the highest level of efficiency.

An economical ration provides for all these needs at the least cost.

In a scientific ration the measure of the food fits the measure of the body.

The measure of the food is its nutritive value (expressed as protein, fat, carbohydrates, etc.)

The measure of the body is its size, its rate of growth, and the work it performs.

The nutritive value is the only comparative gauge of the real money value of the foods.

A balanced ration must contain the proper proportion both of the food classes and of the bulky and concentrated foods.

Protein foods are more expensive than others, in all the markets of the world.

Fresh vegetables, fruits, greens, etc., are worth more than dried foods.

All food should be fresh, sound, and clean.

Food should be purchased under pure food guarantees.

POULTRY INDUSTRY

By John E. Dougherty, Assistant Professor Poultry Husbandry

Essentials of a good poultry house: (1) Abundant ventilation, (2) strong illumination, (3) freedom from drafts, (4) dryness, (5) roominess and comfort for fowls, (6) convenience in operating and cleaning (7) as low cost as is consistent with the securing of best results.

The type or size of house affects the cost per hen of construction.

As the size of flocks increases, the risk from disease increases, the quality of hatching eggs is lowered, and the egg yield per hen generally decreases, but the cost of construction, equipment, and labor decreases.

The proper size of flocks or pens of fowls for the purpose is the one that brings the greatest net returns.

Breeding stock does best in small units.

Double-yarding permits of frequent tillage and cropping so that yards are kept in a clean, uncontaminated condition and makes it possible to keep fresh young forage growing in yards nearly the year around in California.

The greatest benefits from green feeds are secured where fowls can freely pick their own greens fresh and crisp as wanted.

Selective breeding of vigorous, good-producing stock is necessary to improve the constitutional vigor and laying qualities of a fowl.

To secure heavy-laying offspring, we must breed from matured females that are naturally high producers and from males out of such females.

The male is half the flock. His breeding qualities should receive as careful attention as those of the female.

Fowls that molt late and quickly are as a rule the best layers.

Good winter production is indicative of strong laying ability.

The trapnest is a necessary adjunct to breeding for increased egg production.

WOULD LINGER LONGER

In a storm at sea, the chaplain asked one of the crew if he thought there was any danger.

"Oh, yes," replied the sailor; "if it blows as hard as it does now we shall all be in heaven before 12:00 o'clock tonight."

The chaplain, terrified at the expression, cried out," The Lord forbid."—Life.

Little Stories of Success

No. 5

John P. Jones & Sons of Fair Oaks make a specialty of planting orchards and ornamental trees, and doing landscape gardening. Jones & Sons use no horses at all. A Baby Caterpillar pulls up stumps, hauls off tree trunks, plows, cultivates, and hauls wagons loaded with trees to be planted. Often they haul 20 ton loads from the railroad station to their nursery—a distance of 5 miles up grade. All they use is six wagons hitched on to the Baby. Jones & Sons figure the Baby takes the place of five four-horse teams.

The Baby Caterpillar is a handy tractor—it seems to fit in almost anywhere, and still has plenty of power for heavy work. There is probably one in your neighborhood.

THE HOLT MFG. CO.
(Incorporated)
Stockton San Francisco Los Angeles
Both Expositions — San Francisco and San Diego

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Don't say Caterpillar unless you mean Holt!

Bean Giant Power Sprayer

A Money-Maker for the Citrus Grower

It pays to spray. Orange and lemon growers have proven it beyond a doubt. And it pays to spray right. That means a big, powerful outfit that will cover the grove quickly and drive on the spray at effective pressure.

For downright dependability—of efficient work—high pressure—ease and economy of operation—low cost of maintenance—strength—durability—and all round merit, the Bean Giant is in a class of its own. It is pre-eminently

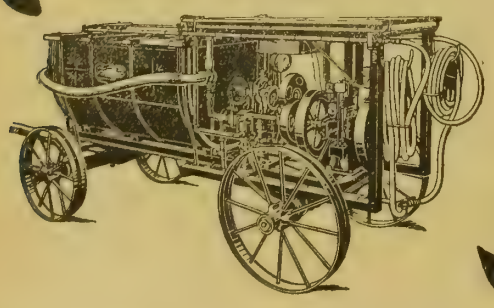
The Sprayer for Southern California

Study the illustration. Note the complete, balanced, mechanically perfect appearance of the Bean Giant. It's built as carefully as an automobile. It's not simply an assembled outfit—a conglomeration of parts made in a dozen or twenty factories. The Bean is built complete under one roof—with the exception of the engine—and no sprayer factory could build a better sprayer engine than the Novo, with which all our power rigs are equipped.

WE MANUFACTURE A COMPLETE LINE OF HAND AND POWER SPRAYERS. BEFORE YOU BUY AN OUTFIT WRITE FOR

FREE CATALOGUE 28 A

which illustrates and describes the entire Bean line—and proves their superiority



Bean Spray Pump Company

212 W. Julian St., San Jose, Cal.

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Do not fail to avail yourself of our Bargain List of Gasoline Engines. Sizes from 1½ H. P. to 18 H. P.

ALL ENGINES ARE BRAND NEW.

Write us for descriptive literature and price list. We have only nine engines left on this BARGAIN LIST.

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proved by actual experience, are produced by NITRATE OF SODA; because Nitrate is always needed in our soils.

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W. S. SPEAR, Agent 321 Stimson Bldg., Los Angeles, Cal.

Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

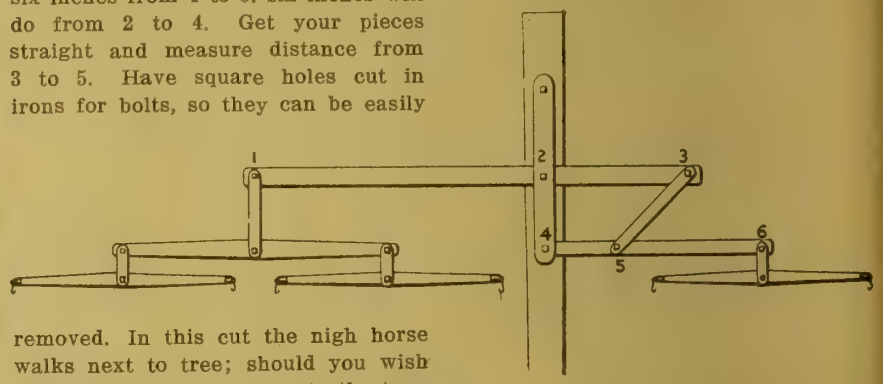
Crossing Mulefoots

I would like to know if you can cross the mule foot hog with the Poland China or Berkshire.—L. K., Mt. Hamilton.

This is being doine by some swine breeders who think they have secured a more hardy strain, but we believe there are more losses than compensations. It was at one time thought that greater immunity to cholera could be secured by this, but this has been disproven.

Three Horse Evener

By request the following is reprinted from a former Cultivator: "Two feet from 1 to 2; one foot from 2 to 3; one and one-half feet from 4 to 6; six inches from 4 to 5. six inches will do from 2 to 4. Get your pieces straight and measure distance from 3 to 5. Have square holes cut in irons for bolts, so they can be easily



removed. In this cut the nigh horse walks next to tree; should you wish to drive the off-horse next to the tree, you can reverse the plan. You must place the double tree part back six inches from the place where you would hitch two horses, or shorten traces. I am using one on a disc and do not notice much side draft."

Combs Diseased

Our chickens have disease of the comb. Combs turn yellow and little black spots appear. Finally combs become mass of rough scabs and eyes swell shut. Wattles are affected like comb.—Subscriber, Dinuba.

I think your birds have favus, a sort of mange which affects sometimes the head and sometimes other parts of the body, but the swollen eyes suggest chicken pox. Neither disease, as far as I know, begins with little black spots. In favus there is a peculiar musty odor, which is different from anything you ever smelled before, and the entire skin of the affected portion of the body is scabbed over. In chicken pox the scabs are separated and after a time drop off. Favus is easily cured by lard and sulphur, mixed half and half and applied twice a day. Peroxide of hydrogen will also kill the germ, but several applications will be required. Chicken pox is treated by removing the scabs and touching the sore spots with tincture of iodine, creolin or some other strong disinfectant. In light cases anointing the sores with carbolated vaseline is sufficient. You will have to study the symptoms and decide for yourself which disease your birds have. If it is chicken pox, the birds first affected should be well by this time. In any case, isolate all sick birds immediately and clean up thoroughly. Chicken pox germs often remain from year to year about houses that have not been disinfected, and attack each new flock. Favus is less infectious and sometimes appears when there has been no possibility of infection. I had such a case in a Buttercup pullet hatched from eggs I bought miles away. There had never been a case before in my flock and there has never been one since. My explanation is that the pullet had inherited a tendency to the disease.—J. A. K.

Native Grasses for Pasture

I have hill land which is not irrigable. It has been in oats for years. Would like to use this for pasture. What can I sow which would make good pasture during wet months, also which would cure on the root and make fair dried feed? Of course prefer a crop which will naturally reseed. The land is altogether too dry for alfalfa.—Subscriber, Escondido.

This is a very difficult question to satisfactorily answer. It is probable our native grasses would be the best. However, the question was referred to Mr. J. B. Neff, who answers: "I know nothing which will meet the above requirements fully. Bur clover does not make the best green feed but will reseed itself and makes good dry feed. Neither is it sure to make a crop every year as the rains must come early and dampness continue for some weeks in order to have the seed germinate and the young plants establish themselves. Alfilaria makes good feed and will reseed but the tonnage is small at best. Sudan grass is the most promising forage plant we have but has not been used long enough to determine its full value."

Grafting St. Johns Bread

I have a male St. Johns Bread tree. If I graft a limb from a female tree will I get beans only on the limb grafed or on the whole tree? If only on the one limb would it be wise to graft most of the limbs?—B., Pasadena.

If you graft your male St. John's Bread tree to a good female variety, leaving but one branch in the center of the tree to furnish pollen, you will get plenty of fruit on all your worked-over top.—J. W. M.

Green Almond

I have green almond eight years old; it is like St. Johns Bean, dioecious. How old are they before they bloom?—B., Pasadena.

Your almond should bloom when three years old, very often they bloom at two years.—J. W. M.

Salt On Butter

Why does salt show on the outside of butter after it stands for several days?

Salt grains appearing on the surface of butter is caused by the evaporation of the water at the surface, thus leaving the dry salt. In working

butter half or more of the salt before working is squeezed out. This, however, has no relation to salt appearing on the surface of the butter roll as the result of evaporation, as such a thing is apt to occur if the atmosphere is dry. It can be prevented or lessened by wrapping the butter in parchment paper similar to that used in all creameries or by wrapping in a moist cloth.—L. A.

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.
Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Anonymous

We are receiving so many unsigned letters and the department is becoming so filled that there must be some reduction, therefore we are again compelled to announce that anonymous communications will not be given attention. As soon as a letter is opened the signature is looked for, and if not found—no matter how helpful a question it may be—the waste basket will get it. This is an invariable rule and yet there is scarcely a day that unsigned letters are not received at the office. In some cases these letters have the full address of the writer on the envelope, and it is possible the envelope has been thrown away before this fact is observed, so it is best always, in addition to putting the name on the envelope, to attach it to the letter. We scarcely ever use the name, and certainly will not when it is indicated that name should be withheld.

Again, subscribers will send remittances in a letter and on the same sheet ask a question intended for the editorial department. It will expedite matters if the question or matter intended for the editorial department is written on a separate sheet with full name and address on it. It will then receive immediate attention.

Surrendering Contract

I made agreement to purchase real estate. Made three payments and find myself unable to continue. Wish to know as to my liability. In my contract it is provided that—"It is further agreed that time is the essence of this contract, and if the party of the second part shall fail, or make default in any of the payments by said party of the second part herein as the same mature or become due, etc., then this agreement may be terminated and cancelled at the option of the party of the first part." According to this the party from whom I purchased may terminate the contract, but another clause provides: "The foregoing covenants run with the land, and upon the breach of any one thereof, the said property shall revert to the said grantor." Does not this allow me a lapse without any liability?—Subscriber.

The grantor upon these real estate contracts has two methods of procedure. He may treat the contract as an agreement to purchase and bring action for the balance due or he may elect to rescind for failure upon the part of the purchaser to complete the contract and retain monies paid by way of damages for non-fulfillment of contract. If the land is taken back you would not be under further liability, but the option is with the seller of the property.

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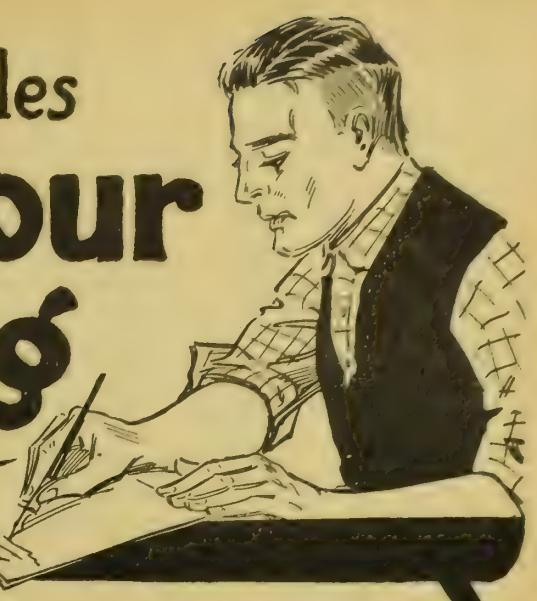

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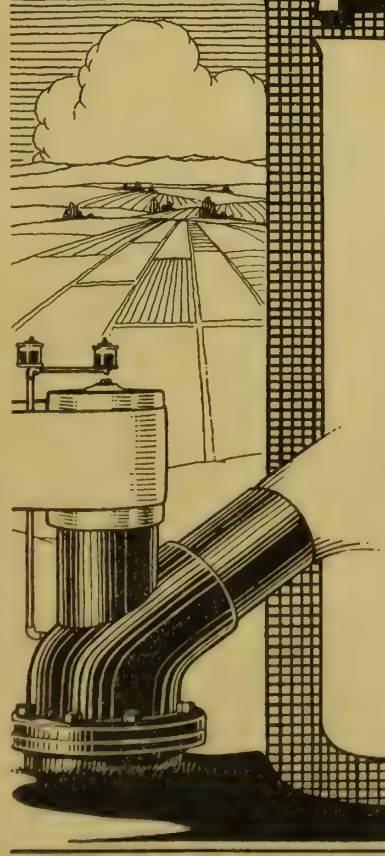

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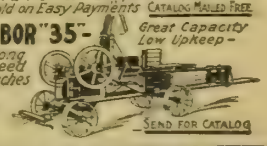

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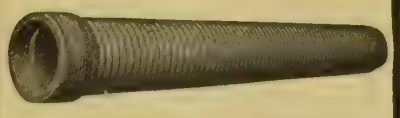

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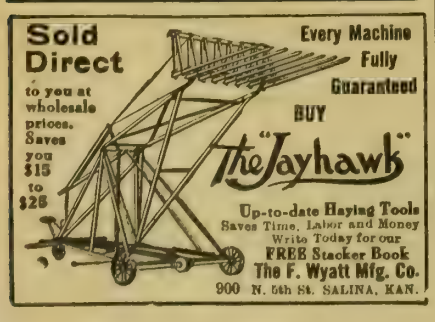


Irrigation Ditch

I have a 20-acre tract of land, just inside the city limits. A water company has an open cement irrigation ditch along the entire front of my 20-acre tract. It is very hard to cross and during the irrigation season it is running full of water a greater part of the time. Can I compel company to cover this ditch, and what would be the proper course to pursue? Could it not be declared a nuisance and abated in that way?—Subscriber, Anaheim.

I fail to see any legal liability upon the part of the company to cover this ditch or bridge the same. I have never known an irrigation ditch to be held a nuisance in California.

Road Right

A owns a ranch in canyon and B owns a ranch above him in the same canyon. B has no other way out except by going through A's ranch. Both places were homesteaded 25 or 30 years ago. Can A charge B at least one-third of what his ranch is worth for privilege of driving through, or can A fence B out?

Having owned your property for so long it is very probable that you have acquired a right-of-way through your neighbor's land, but from the information given, it would be impossible to say that. It is certainly true that no one is required to allow another to pass over his property simply because the other desires to do so.

Contract for Deed

How soon may one be dispossessed of land which is now held under contract to deliver deed? Contract for purchase of the land was made some years ago and all payments have been kept up and all taxes paid. Now if, on the final payment, there is a lapse of a few days or weeks could the purchaser be dispossessed immediately or would court action be necessary and would it give opportunity to the purchaser for redemption?—Subscriber.

There is no definite time within which one in possession of real property under contract can be dispossessed, as it is necessary for the seller of the property to bring action in the superior court to rescind the contract for failure upon the part of the purchaser to keep up the payments. This is an action in equity and the courts frequently allow some specified time, such as in their discretion is deemed equitable, to allow the purchaser to complete the payment.

Tubercular Cow

A has a herd of cows for sale and B comes and picks out some, pays for same and takes them home. After several months one of these cows is condemned as tubercular. Who has to stand the loss? She was never tested for tuberculosis or guaranteed from this or any other disease. —Subscriber.

It appears that B made an inspection of the cattle and chose them himself. Unless A made a warranty to the effect that the cattle were free from tuberculosis he is not liable to replace the animal lost.

Shooting Quails and Rabbits

Has one a right to shoot quails and rabbits on his own place out of season when they are destroying crops? Also is there a season on rabbits this year?—Subscriber, Encinitas.

There is a closed season for cottontails and bush rabbits from the 1st of February to the 1st of August. There is a provision in the penal code under the game laws to the effect that where a wild bird is found destroying berries, fruit or crops growing on the premises, it may be killed by the owner or tenant of such premises, but shall not be shipped or sold.

Delinquent Water Dues

A farmers' cooperative ditch company distributes irrigation water to its stockholders. The water is furnished by a canal company at the cooperative company's headgate. A number of stockholders have become dilatory in paying their annual maintenance assessments. Is it therefore legal to withhold the water from delinquents without interfering with the usual rights exercised by the canal company over these lands? If not what is the proper procedure to force collection of this assessment?—Director, Biggs.

Without an inspection of your articles of incorporation or by-laws it is impossible to give you an entirely correct answer, but there is no rule with which I am acquainted that prohibits a water company from cutting off water supply from such parties as do not pay for it. It would seem that you would also have the right to bring action against the delinquents for the amounts due from them, but you should take the matter up with some attorney who can inspect your company, before taking any action.

Leased Machine

A leased a machine from C and ordered $18 worth of goods from B. Shortly after B asked C to guarantee the bill. C refused but promised to go after A about it. He promised to pay, but did not. B sent the bill to C who refused to pay. B has given bill to collecting agency.—Subscriber, Burbank.

You do not state the kind of goods purchased. If they were merely oil or goods to be used up in the operation of the machine, there is clearly no liability upon your part. If they were additions to the machine, as in the nature of nuts, bolts, wheels, etc., you would be required to reimburse B for the value thereof, unless you could separate such goods from the machine and return them to him.

Width of Road

I own 20 acres in the center of a section and according to abstract my boundary lines run to middle of 60 foot roads, 30 feet having been deducted from my land on each of three sides. Kindly advise if this width of road is not illegal except on outside boundary roads of section?

The statute relative to the width of highways provides that all public highways except alleys, lanes and trails shall be at least 40 feet wide, and it has been held that the board of supervisors has power to provide for a road wider than 40 feet.

Soldier's Scrip

I am desirous of getting information on what is called soldier's scrip. Can an old soldier assign his right to anyone, and will the party he assigns to have to pay anything to the government after he has bought the assignment, or how do you proceed to acquire title?

A warranty for soldier's scrip is assignable and would thus be made subject to sale by the person entitled to obtain it from the United States government. When such warrants are located on lands worth more than $1.25 per acre, the difference must be paid, but where the land is worth only $1.25 and not exceeding the area specified in the warrant, it must be taken in full satisfaction. Such warrants must be located upon contiguous land.

Notes Against Estate

A man died leaving an estate but no will; no indebtedness except two notes of $1,000 each. His wife furnished the greater part of the purchase price of the farm, which she has never put in a claim for, and in case she did there would not be enough left of the husband's share to pay the notes. Would such notes bear interest? Are they valid and just? The heirs are his widow and ten children. The two notes were given on his death bed, are not signed by the wife.—Subscriber, San Diego.

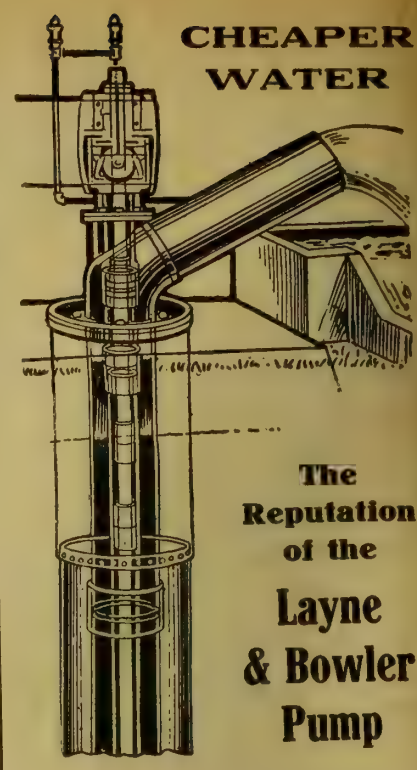
Notes are mere evidence of indebtedness in the hands of a payee. Consideration for such notes is at any time subject to inquiry, and in the administration of the estate the wife would undoubtedly be entitled to put in her claim for the monies furnished. It is entirely probable that the notes you refer to could be entirely set aside.

Water Rates

We hold contracts with an irrigation company whereby they agreed to furnish water for 50 years at a fixed rate per acre per year. These contracts have been running for upwards of 10 years in some instances. Company is now petitioning the railroad commission to overrule these contracts and fix a uniform rate for all users of water, claiming that the

(Continued on Page 383)

CHEAPER WATER



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The Household Department

A PRETTY GOOD WORLD

This world's a pretty good sort of world,
Taking it altogether.
In spite of the grief and sorrow we meet,
In spite of the gloomy weather,
There are friends to love and hopes to cheer,
And plenty of compensation
For every ache for those who make
The best of the situation.

There are quiet nooks for lovers of books,
With nature in happy union;
There are cool retreats from the noon-tide heat,
Where souls may have sweet communion;
And if there's a spot where the sun shines not,
There's always a lamp to light it,
And if there's a wrong, we know ere long
That heaven above will right it.

So it's not for us to make a fuss
Because of life's sad mischances,
Not to wear ourselves out to bring about
A change in our circumstances;
For the world's a pretty good sort of world,
And He to whom we are debtor
Appoints our place and supplies the grace
To help to make it better.
—London Tid-Bits.

APRIL PRIZE CONTEST

April 30 is Raisin Day when all good Californians celebrate the richest product of the vine. Therefore our next contest in the issue of April 22 will be for raisin recipes.

Send your favorite, one only, and please write on one side of your paper. All recipes should be in this office by the morning of Thursday, April 15.

Cash Prizes

Two dollars will be given for best recipe; $1.00 for second best. All recipes published will entitle sender to three months' extension of subscription to the California Cultivator. If you have already received one extension for subscription this year you are not entitled to further extension for recipe furnished. With your recipe send name of member of your family now receiving the Cultivator that extension may be properly credited.

Any suggestions as to further contests are gladly received. Mrs. R. J. Fuller of Fairmead writes:

"Would suggest for another contest recipes for dishes made from other grains and cereals than those commonly used. I have in mind whole grains, such as wheat, Egyptian and kafir corn to be found on most ranches and much cheaper than the same product manufactured into 'cereal foods' in packages. Another time, palatable dishes from beans of various sorts. There are numbers of farmers' wives who have to prepare meal after meal without help of meat dishes" Both these suggestions we shall follow in these contests.

Mrs. Geo. F. Herrick of Riverside writes: "I have been thinking that many would like to know of other people's ways of economizing. We are never too old to learn. I am past the three score age but can still learn and have learned many things from very humble workers. Let us try it for one or two papers."

That surely appeals to everyone of us.

PRIZE WINNERS

The first prize this month is awarded to Mrs. Gertrude H. Brink; the second to Mrs. A. L. Vandiviere.

Rice Prepared in Many Ways

RICE growing has become an important industry in California. In the Sacramento Valley lands particularly it has passed the experimental stage and thousands of acres will be grown there this season.

As a California product we are of course interested in it, but as a valuable food product, capable of preparation in many ways, it appeals most strongly to our housekeepers. Dr. Wiley, our noted food expert, says: "It is a food rich in starch and poor in protein, and furnishes, therefore, heat and energy, and is well adapted for the nourishment of those engaged in hard labor or who undergo extreme physical exertion." Boiled rice furnishes 89 per cent carbohydrates, 10 per cent of protein and only 1 per cent of fat.

Our subscribers have furnished a great number of recipes for cooking rice and we regret exceedingly that lack of space forbids publishing all. Less than one-tenth of those received can be published this week. We shall, however, use others in later issues as space permits.

To Cook

During five years residence in the Philippine Islands, where rice is the chief article of food, I learned to cook it as it should be cooked, so that each grain is whole and separate and not a pasty, unappetizing mass. One of the most important factors is getting the proper kind of rice. It must not be broken. The Filipinos use broken rice only as a food for chickens and as a grain for horses. Ask your grocer for the unbroken head rice. Another important thing is proper and thorough washing. Wash it in hot water, scrubbing between the hands, and then rinse several times in cold water until the water does not show any milky white coloring.

Rice cooks more perfectly on a wood or coal range or over an oil heater if you have one in use for warming the room, than it does over the gas flame. If gas is used put an asbestos mat under the dish as soon as it boils but be sure to keep the water boiling.

The proportions are one cup of rice to four cups of salted water. I put the cold water on the rice and set it over the gas flame until it boils, then place it on the range to finish cooking more slowly. Cover the dish and boil the rice until it is dry. Do not disturb it by stirring as it will not burn nor stick if you have followed directions. When the water is boiled away so that the rice will not move when the dish is tipped sideways you will find it tender and fluffy and wholesome. If the heat is sufficient to cause it to boil over, place the cover so that a little of the steam will escape and it will continue to boil without boiling over.

Serve with cream and sugar if desired. It is especially nice if fresh or preserved berries or sliced peaches are sprinkled over after the cream has been poured over the top of each dish Mrs. Gertrude H. Brink, Riverside.

Plain Boiled Rice

To avoid broken and heavy flakes as well as a "sticky" kettle try the following method:

After thoroughly washing (do not soak) a cup of rice toss into a quart and one-half of boiling salted water. Stir for two or three minutes to prevent sticking and keep the water boiling continuously for 20 minutes. Remove from the stove and toss into a sieve. After all the water is drained, rinse thoroughly with cold water and

I Want to Show You This 40 ACRE EQUIPPED FARM

LAND: Level, clean, strong; no brush or stumps; ready for plowing; between two railroads and within 1½ miles of stations on Southern Pacific and Western Pacific. In the Upper Sacramento Valley.
SOIL: Deep San Joaquin loam.
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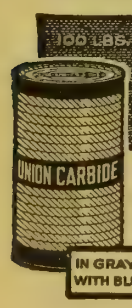

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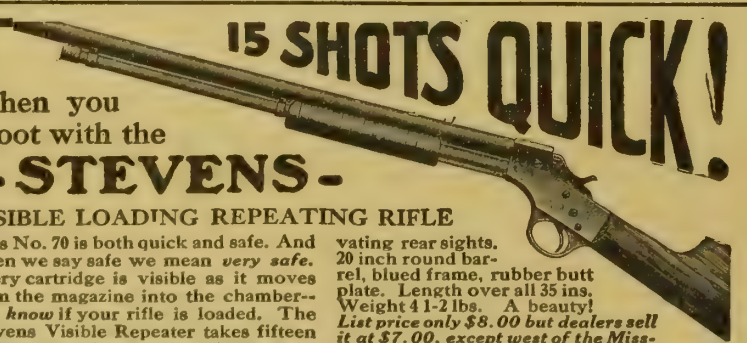

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set aside in a warm place until ready to use. Serve with cream and sugar. —Mrs. G. A. Grober, Cohasset, Minnesota.

Rice Griddle Cakes

One pint of boiled rice, two pints milk, one and one-half pints flour, three eggs, one teaspoon each of baking powder and salt, one tablespoon each of sugar and melted butter. Put the cooked rice to soak over night in a pint of milk and in the morning add the flour, salt, sugar and butter. Beat the mixture well and add eggs well beaten, and the other pint of milk into which the baking powder has been stirred. This makes quite enough cakes for six or seven persons. —Mrs. Edith Warner, Willits.

Rice Waffles

Two cups flour, one-half teaspoon salt, one tablespoon baking powder, one egg beaten separately, one tablespoon butter, one cup milk, one cup cold boiled rice, one-half cup rice water. Sift dry ingredients together into a bowl. Make a hole in the center, into which put the rice and the water in which the rice was boiled. Add the well-beaten yolk of the egg, the milk and melted butter. Stir until thoroughly mixed. Beat well and add gently the white of the egg, beaten to a stiff froth. Fry in a well-greased waffle iron.—Miss Elsie Pedroia, Lodi.

Rice Gems

To one cup of cooked rice add one well beaten egg, one cup sweet milk, one teaspoon salt, two teaspoons baking powder, mixed with enough flour to make a soft dough. Put in greased gem pans and bake in hot oven.—Mrs. R. W. Edmiston, Sanger.

Browned Rice

Wash rice; dry evenly and place in oven until golden brown. Put one cup of browned rice in double boiler, add three and one-half cups of hot water, a little salt and steam until done. Serve with cream.—Gretchen Rueff, San Fernando.

Rice Croquettes

These answer for a luncheon dish. Melt two tablespoons of butter in a saucepan; stir in one tablespoon of flour, half a cup of milk and mix over the fire until boiling. Then add two tablespoons of chopped onion, a cup of boiled and drained rice, a chopped, hard-cooked egg, a tablespoon of chopped parsley, a beaten egg, salt and pepper to taste and four tablespoons of chopped nut meats. Turn out to cool and stiffen. Then divide into even portions and form into neat croquettes. Roll in bread crumbs; brush over with beaten egg and again coat with bread crumbs. Fry in smoking hot fat, and drain.—M. J. Wilkinson, Warrenton, Oregon.

Rice Fritters With Jelly

Put one cup of rice in a double boiler, cover with boiling water and let it boil ten minutes, then drain through a wire sieve; rinse off with cold water and return to the double boiler, in which one pint of milk and one level teaspoon of butter have been heating. Boil until the rice is soft and the milk quite thick. Turn the whole into a large bowl and let stand until cool. When cold mix with the rice three tablespoons sugar, yolks of four eggs, four tablespoons flour, a little salt. Mix thoroughly. Beat the whites of the eggs to a stiff froth and fold in the batter. Drop from a spoon in hot fat and fry a golden brown. When done, dust with powdered sugar and pile on a plate. Serve with currant jelly or plum jam in a separate dish. Very nice for luncheon.—Mrs. H. R. Franck, Clovis.

Baked Rice

Butter the sides and bottom of a one-quart granite pan. In it put one pint of water and two level teaspoons salt. When water is boiling stir in one cup carefully washed rice. Cover and place in oven until rice has absorbed all the water (about 20 minutes). Add one tablespoon sugar, one-third teaspoon pepper, one small chopped onion, one-half can tomatoes, one pint water and one cup chopped ripe olives. Cover and bake until rice is cooked and almost dry. Keep covered all the time. A cup of chopped walnut meats may be added instead of the olives, or strips of bacon may be placed over the top—in which case the rice should be left uncovered at the last long enough to brown the bacon.—Mrs. W. C. Heim, Dehesa.

Spanish Rice

Fry five slices bacon, add one scant cup rice, enough water to cover, one section of garlic, one large onion, two bell peppers, chopped. Season with salt, pepper, cayenne, chili sauce, can of tomatoes and one pound grated cheese. Cook slowly till done. "Left over" beans or meat are delicious when fixed this way.—Mrs. Harry A. Perry, Ferndale.

Baked Rice

Boil about three-quarters of a pound of rice until about half done; remove from fire; add a little milk and four or more eggs, some chopped mushrooms, parsley and garlic, and onion chopped fine and fried in olive oil. Season with olive oil, salt, and plenty of black pepper; stir thoroughly. Bake in pan well greased with olive oil until nicely browned.—Mrs. W. A. Heckman, Turlock.

Kedgaree

One cup boiled rice, two cups left-over fish (I like barracuda or halibut); season with pepper, salt and butter and one egg. Cook slowly about five minutes. Garnish with hard boiled egg, whites cut up, yolk grated on top. Nice for breakfast.—Mrs. Shults, Spring Valley.

Liver Jambalaya

Chop one pound of liver and stew until tender. Fry one onion in a separate pan and add a pint and a half of cooked rice, then add liver with one-half teaspoon (scant) of cayenne and black pepper; salt to taste. For shrimp jambalaya use one can of shrimps instead of liver.—Mrs. G. W. Haber, Sanger.

Potato Rican Rice

One cup rice, one onion, two tomatoes, one chili, piece of ham, piece of bacon.

Fry out the bacon and ham (cut in small pieces), adding a little lard if necessary. In this fry the onion, tomatoes and green chili. Add the rice until each kernel is covered with grease. Add several cups of water and let boil slowly until the rice is soft and nearly dry. Serve as a vegetable.—Mrs. R. V. Langford, National City.

Rice and Eggs

This dish not only takes the place of meat but also of vegetables. Put six eggs in warm water, bring to boiling point, and cook slowly for fifteen minutes. Boil one cup of washed rice, drain and dry slightly in oven. Cut eggs into neat halves crosswise, take out yolks carefully, and mash with them two sardines. Add a tablespoon of melted butter, half a teaspoon of salt and a teaspoon of pepper, roll into small balls and put back into whites. Turn rice in centers of plates and smooth it over. Stand the eggs in the rice and pour over it one-half a pint of white sauce, garnish with greens and send at once to the table.—Miss Pearl Threewit, Hemet.

Rice Milanaise

Put one cup milk into a double boiler with a slice of onion. When scalding hot, add a cup of cooked rice. Cover and let stand for 20 minutes. Mold into rounds and hollow out the inside of each. Fill with chopped

chicken and decorate with sliced pickled beets.—I. E. J. H., Ontario.

Stewed Lentils With Rice

Wash thoroughly one cup of lentils. Cover with cold water, soak over night and drain. Cover with fresh boiling water and cook slowly for an hour. While the lentils are cooking boil a cup of rice till tender, drain and stand to dry in oven. Do not stir or mix. Melt a tablespoon of butter in saucepan. Add four tablespoons of minced onion. Simmer till onions are soft but not brown. Add two tablespoons tomato catsup, a dash of nutmeg and a pinch of marjoram. Drain lentils, add to onion, stir thoroughly, then add the rice; toss all well together; season with one teaspoon salt and dash of paprika. Serve at once.—Mrs. U. A. Squires, Palmdale.

Rice and Cheese

Wash one cup of rice and boil slowly in two cups of boiling salted water for 20 minutes, or use cold left-over rice. Put alternate layers of rice and grated cheese in a baking dish having a layer of cheese on top, and over this pour one-half cup of milk; put in hot oven until cheese browns on top. Serve the same as macaroni and cheese.—Mrs. La Rue C. Watson, Hilo, Hawaii.

Turkish Rice

Pick over and wash one cup of rice. Cook in one pint of chicken broth well seasoned with onion, celery, salt and pepper. Let the rice cook in this until it is soft and has absorbed all the broth, then add one tablespoon of butter. Have ready one cup of cold chicken, minced; heat one cup of gravy or stock and season it well. Put chicken into gravy, either mix meat and rice, or put meat in center of dish and arrange rice in border around it. I use any cold left-over chicken I may have at hand, using bones and trimmings for making the broth.—Mrs. A. L. Vandiviere, Moreno.

Fried Chicken With Rice

Take one and one-half cup of rice, wash and spread over the bottom of a sheet iron pan. Take a young chicken, cut into pieces, dip into flour and fry to a nice brown, then lay it on top of the rice. Add pepper and salt to taste, and enough cold water to almost cover the chicken, cover so as not to have it dry out, set into oven and cook for about two hours, or until chicken is tender. If rice swells enough to make it look dry add more water. It is well to taste the rice before it is done to see that it has enough salt. When done place chicken on a platter with rice around it, or put into a separate dish, as preferred.—Mrs. L. S., Escondido.

Japanese Stew

Take two medium-sized onions and a half head of cabbage, slice them fine and let cook in water till tender. While cooking season with salt, pepper and a tablespoon of cooking fat, lard, cottolene or meat fryings. When almost done add a pint of canned tomatoes, or four ripe tomatoes. (If ripe tomatoes are used it should be cooked longer).

Take one cup of rice, wash thoroughly, and let cook in salt water till tender. Put in about twice as much cold water as rice. Serve hot with the above.—Mrs. J. C. Rogers, Fullerton.

Rice in Casserole

Into a small casserole put one cup cleaned rice, one-half teaspoon salt, enough boiling water to more than cover—say two cups. Cover, cook in oven for one hour. Do not touch. Remove cover and dry out for ten minutes. Try it.—E. S. F., Madera County.

Curried Rice

This dish is a good accompaniment for stewed chicken. An hour and a half before dinner place one cup of rice in one cup of water on the back of the stove. As the rice begins to swell, add chicken broth from the top of the kettle. Repeat this at intervals until the rice is done. Just before the rice is done season with one spoon of mustard and pepper and salt to taste. This is not a hard times dish, as it requires a chicken in the pot, but is a delectable accompaniment to your Sunday chicken dinner.—Caroline M. True, Lancaster.

Rice Custard

Boil one-half cup rice. Scald one-half cup milk. Beat three eggs, turn in the boiled rice, stir well, salt and pepper to taste. Then add the milk after it has cooled. Butter a baking dish and turn in the mixture. Bake until the custard has set. A little grated cheese on top adds to the flavor. This is a very good luncheon or evening tea dish.—Mrs. J. H. Brohaska, Chula Vista.

Creamy Rice Pudding

Wash one-fourth cup rice thoroughly. Add to it one quart of milk and cook in double boiler until rice is tender (about one and a half hours). Remove from stove. In separate dish beat one egg and add three-fourths cup of sugar, pinch of salt, vanilla to flavor, and nutmeg. Add this mixture to rice and milk and bake in moderate oven ten or fifteen minutes, or until custard is set.

When cold this pudding is creamy and delicious.—Ruth E. Flint, Kelseyville.

Rice Pudding, Known Also as "Creamy," and "Poor Man's Pudding"

Soak for half an hour three tablespoons of washed rice and three tablespoons of sugar (rounded measure), in a quart of milk in a baking dish. Then bake very slowly, stirring up from bottom two or three times. Bake two or three hours, or till rice is soft, whole, and surrounded by a rich, creamy syrup. It should not bake dry, nor be underdone. When just right it is the queen of all rice concoctions, and may be served hot with butter, or cold with cream. Raisins, quartered apples, or prunes, may be cooked with rice to give variety.—Mrs. Ed Conant, Escondido.

Rice as Dessert

One-half cup rice, two sliced apples, one-half cup sugar, one quart milk, one egg. To one quart milk add rice, apples, sugar, pinch salt and cook in double boiler. When nearly done beat egg in rice. Flavor with vanilla or cinnamon. Served with or without whipped cream makes a delicious dessert for about four.—H. A. B., Casa Grande, Ariz.

Rice and Apricot Pudding

This makes a dainty pudding. For it are required one-fourth pound rice, two pints of milk, a little butter, two tablespoons of sugar, two eggs and about seven or eight apricots cut in halves and peeled. Put the rice into a pan with the milk, sugar and butter, and let it simmer gently for one hour. Turn out and when partly cold add the eggs well beaten. Simmer the apricots in syrup until quite tender; butter a mould; place in it a layer of rice about one inch thick, then some pieces of apricot and fill the mould with alternate layers of rice and fruit. Bake in a moderate oven; when done turn out and serve with custard. Other fruits can be used instead of apricots, pineapples, peaches or apples being especially suitable.—A. Butcher, Healdsburg.

Rice Surprise

Wash half a cup of rice in several waters and put into a saucepan with one cup of cold water. Let boil quickly until the water is absorbed; then

(Continued on Page 383)

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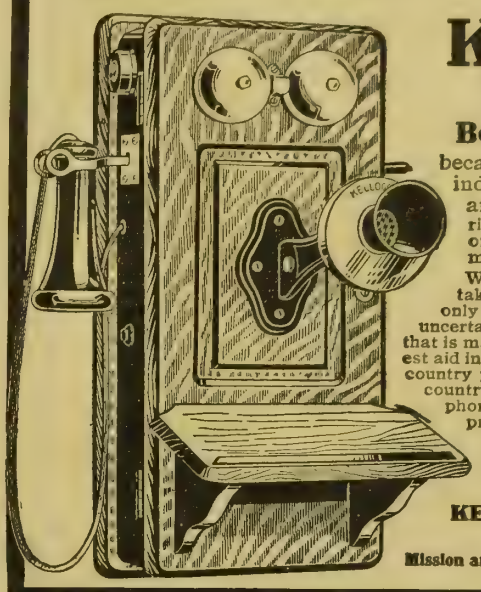

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San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES March 24, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade 4 cents above following quotations:

Creamery Extras .23
Firsts .21
Country .19
Ladle .18

CHEESE

Prices to trade, 1 and 2 cents higher:

California Fresh 14@14½
Cheddar 19@20
Domestic Swiss 20@21
Eastern Daisy 18½@19
Oregon Triplets 17@17½
Longhorn 18½@19
Imported Swiss 32-@34

EGGS AND POULTRY

Prices to trade, 3 cents higher than following quotations:

Fresh Ranch, case counts .18
Candled 20@22
Northern, case counts .21
Petaluma-Santa Rosa .22

Prices to producers:

Hens, lb. 16@18
Roosters, old .9
Broilers, lb. .28
Fryers .23
Roasters, lb. .20
Turkeys 17@20
Ducks .19
Geese .16
Squabs, doz. 3.00

LIVE STOCK

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs., per cwt. 7.60
Prime Steers 7¼@7½
Heifers 6¼@6½
Calves, lb. 8½@9
Sheep—
  Ewes, head 4.50
  Wethers 5.00
  Lambs, head 4.50@4.75

POTATOES

Wholesale selling prices:

Idaho Russet 1.60@1.65
Idaho Rurals 1.25@1.35
White Rose Seed 1.50@1.60
Sweets, lug .70@80
New Potatoes, lb. 5@6
Northern Burbanks, cwt. 1.55@1.65
Salinas 2.00@2.10
Lompocs 2.00@2.10

ONIONS

Wholesale selling price:

Australian Brown, cwt. .85@1.00
Oregon Globes 1.35@1.50
White Globe 4.50@4.75
Yellow Danvers .85@1.00
Sets—
  Yellow .10
  White .12
Garlic 25@30

VEGETABLES

Wholesale selling price:

Asparagus—
  White 10@12
  Green 12@16
Artichokes, Northern, doz. .35@75
Brussels Sprouts, lb. 10@12
Beets, doz. 30@35
Beans, Green, lb. 30@35
Cabbage sack .65@75
Carrots, doz. 30@35
Cauliflower, doz. .90@1.00
Celery—
  Local 3.00
  Northern, crate 4.00@4.25
Chicory .35@40
Cucumbers, Hothouse .75@3.00
Egg Plant, lb. 17@20
Escarole, doz. .40
Horseradish, lb. 10@12
Leeks, doz. .35@40
Lettuce, crate .90@1.00
Mint, doz. .35@40
Mushrooms, Outdoors, lb. .35@50
Onions, Green, doz. bunches .15@20
Oyster Plant, doz. .35@40
Parsnips, doz. .35@40
Peas—
  Telephone 6@7
  Small 5@6
Peppers—
  Bell, lb. 30@40
  Chili, lb. 25@30
Pumpkins, lb. 1¼@1½
Rhubarb, box .75@85
Spinach, doz. .20@22
Squash—
  Hubbard, lb. 1¼@2
  Crook-neck .50@60
Tomatoes, Mexican 2.75@3.00
Turnips .25@30

FRESH FRUIT

Wholesale selling price:

Apples—
  Bellflowers .50@85
  Jonathans 1.60@1.75
  Rome Beauties 1.25@1.75
  Pearmains 1.00@1.25
  Spitzenbergs 1.50@1.75
Avocados, doz. 4.00@8.00
Bananas 4@4½
Berries—
  Strawberries, basket 12@16
Loquats, lb. 12@15
Pears, Winter Nelis, lug 1.50
Pineapples, lb. 5½@6

CITRUS FRUIT

Wholesale selling price:

Lemons 1.00@2.00
Grapefruit, Seedless 1.85@2.25
Navels 1.25@1.85
Tangerines 1.25@1.50
Limes, basket 1.00

DRIED FRUITS

Wholesale prices to retailers are:

Evaporated Apples, Fancy, lb.
  boxes 6½@8½
Apricots 8¾@11½
Nectarines .12½
Peaches 5¾@6¾
Pears 10@11
Prunes 5¾@16
Plums .10

HONEY

Wholesale selling price:

Comb, Fancy, Water White .14
White .12
Light Amber .11
Extr. Water White .7
White 6½
Light Amber 5½
Beeswax .32

NUTS

Prices named by California Walnut Growers' Association are:

No. 1 16½
Budded Walnuts .20
Jumbos .19
No. 2 .12
Culls .9

Prices fixed by California Almond Growers' Exchange, f. o. b. California.

Almonds—
  Nonpareil 21@22
  I X L 20@21
  N P U 19@20
  Drake's Thinshell 17@18
Pecans .17
Peanuts—
California, Raw .5
Japan 4½
  Eastern 7½
Rice Corn 5.00@5.25

RICE

Wholesale selling price:

California 4.75@5.00
Broken 3.75@4.00

BEANS

Wholesale selling price:
Producer's price not far from one dollar under these quotations:

Limas 6.35@6.50
Bayous 6.00@7.00
Lady Washington 6.00@6.10
Pinks 5.65@5.75
Black Eyes 6.75@7.00
Lentils 10.00@12.00
Small White 6.00@6.10
Garbanzos 7.25@7.50

HAY

Prices to producer f. o. b. Los Angeles:

Barley Hay 9.00@13.00
Wheat Hay 8.00@11.00
Tame Oat 9.00@14.00
Alfalfa 9.00@11.00
Volunteer 5.00@7.00
Straw 5.00@6.00

GRAIN

Wholesale selling prices f. o. b. Los Angeles:

Corn, Yellow 2.10
Corn, White 2.20
Wheat 2.65@2.70
California Red Oats 1.95
Cal. Seed Oats 2.10
Texas Seed Oats 2.50
Oats, White 2.15
Oats, Hulled 2.60
Millet 3.75
Popcorn 4.75@5.00
Egyptian Corn 2.20
Barley Seed 1.70
Barley, Hulled 2.05
Milo Maize 2.00
Rye 2.40
Sunflower Seed 7.50

FEED STUFF

Wholesale selling prices f. o. b. Los Angeles:

Bran, Heavy 1.70
Alfalfa Meal 1.20
Alfalfa Molasses, per cwt. 1.25
Beef Scraps 3.00
Beet Pulp 1.25
Cracked Corn, cwt. 2.15
Cracked Wheat, cwt. 2.80
Cotton Seed Meal 1.80
Bloodmeal 3.45@3.55
Bone Meal 1.95
Meat Meal 3.00
Bone, Green 1.65
Charcoal 2.00
Oil Cake Meal 2.50
Fish Meal 3.15@3.25
Rolled Oats 2.20
Middlings 2.00
Rolled Barley 1.65
Feed Meal 2.20
Scratch Feed 2.30@2.50

San Francisco Market

SAN FRANCISCO, March 23, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade, 4 cents above following quotations:

Extras 23½
Prime Firsts .22
Firsts .21

CHEESE

Wholesaler to retailer.

Oregon Y. Am. .16
Young America 12@12½
California Flats 8@11
Cheddar .20
Oregon Twins .14

EGGS AND POULTRY

Prices to trade 3 cents higher than following quotations:

Extras 21½
Select Pullets 18½

Price to producer:

Hens, lb. 16@18
Fryers 25@28
Roosters, old 10@12
Roosters, Young 22@25
Broilers 34@36
Squabs 2.00@2.75
Ducks 15@20
Geese 2.50@3.00
Belgian Hares, lb. 6@8
Turkeys, live, 16@17
  Dressed 18@20

LIVE STOCK

San Francisco prices. gross weight:

Steers 3¼@7¼
Cows and Heifers 3@6½
Calves, lb., live weight 6@9½
Hogs 5@7¾
Wethers 7@7½
Ewes 6@6½
Yearling Lambs 7½@8
Milk Lambs 8@9

POTATOES

Wholesale selling price:

Idaho Rose 1.25@1.35
Idaho Russet 1.25@1.40
Delta Burbanks 1.00@1.40
Salinas Burbanks 1.40@1.50
Oregons 1.50@1.75
Shimas 1.10@1.35
Washington 1.20@1.45
New Potatoes, lb. 4@5
Sweets, cwt. 2.25@2.50

ONIONS

Wholesale selling price:

Onions, cwt. .60@1.00
Garlic, new 17½@20

VEGETABLES

Wholesale selling price:

Asparagus, lb. 3@7
Beans, string 10@12½
Brussels Sprouts, lb. 3@5
Celery—Delta 2.00@2.75
Cucumbers, Hothouse, doz. .90@1.10
Lettuce—
  Sacramento 1.50@2.00
  Southern .85@1.25
Peas, lb. 4@7
Peppers—
  Bell, lb. 3@15
Rhubarb—
  Southern .75@1.00
  Alameda 1.00@1.35
Tomatoes, Mexican 2.00@2.50

FRESH FRUIT

Wholesale selling price:

Apples—
  Newton Pippins .40@85
  Bellflowers .25@50
Bananas, Hawaiian, bunch .75@1.50
Pineapple, doz. 1.00@2.25

CITRUS FRUIT

Wholesale selling price:

Grapefruit, Seedless, new crop 1.50@3.50
Lemons 1.50@2.50
Lemonettes 1.00@1.50
Navels 1.00@2.10
Tangerines, halves .75@1.75

DRIED FRUITS

Wholesale prices are:

PRUNES—1914 crop, bulk basis: 30-40s, 7c; 40-90s, 6½c; 90-100s, 6c. The above are for both Santa Clara prunes and stock from outside sections.

Other Fruits. 50-lb. boxes—	Standard	Choice	Extra Choice	Fncy
Ev'p'd Apples		7¼c	7½c	8 c
Peaches	4 c	4¼c	4½c	5¾c
Apricots	9 c	9½c	10 c	11 c
Pears	7 c	8 c	9 c	10 c

RAISINS

RAISINS—The following prices are f. o. b. Fresno, as given out by the Associated Raisin Company, for immediate shipment, and are guaranteed against a decline till April 1st: Fancy seeded, 16-oz., 7½c; 12-oz., 5⅞c; bulks, 6c; choice seeded, 16-oz., 6⅞c; 12-oz., 5⅝c; bulk, 5½c; Thompson seedless, No. 1, 16-oz. pkgs., 7⅝c; 12-oz., 6¼c; 50-lb. cs., 6½c; loose, Muscatels, 1-crown, 5½c; 2-crown, 5½c; 3-crown, 5⅞c; 4-crown, 6c; Sultanas, 50-lb. cs., 5¾c; bulk, layers, 50-lb. bxs., $2.75; in 20-lb. bxs., 6-crown, $2.75; 5-crown, $2.25; 4-crown, $160; 3-crown, 5-lb. bxs., $1.50; on all bulk stock, 50c additional. Cartons—Clusters, 20 to cs., No. 1, $1.70; No. 2, $2.10; No. 5, 4 to cs., $2.25. Local representatives of the association are asking about ¼c higher, while several of the largest independent packers are quoting ½c under these figures.

NUTS

ALMONDS — Prices fixed by Almond Growers' Exchange to the trade, f. o. b. California:

  Nonpareil .21
  I X L .20
  Ne Plus Ultra .19
Drakes .18
  Wholesale selling price:
Peanuts—
  Unpolished .5@[illegible]
  Polished 6@6½
  Shelled, Jap 6¼@6¾
Italian Chestnuts 6½@7

BEANS

Wholesale selling price:

Limas 5.75@5.80
Pink 4.50@4.60
Black Eyes 6.00@6.25
Cranberry 5.00@5.25
Small White 5.50@5.60
Garbanzos 6.50@6.75
Large White 5.25@5.35
Bayou 5.45@5.60
Manchurian Speckled Bayous 4.15@4.25
Manchurian Butters 4.50@4.75
Red Mexican 5.50@5.60
Red Kidney 6.00@6.25
Horse Beans 3.50@4.00

HONEY

Wholesale selling price:

Comb, Water White 14@16
Amber 10@12
Dark 7@10
Extracted White 7@9
Light Amber 5½
Dark 4@5½
Beeswax 27@32

HOPS
1914

Wholesale selling price:

Sacramento Valley 12½@14½
Sonoma-Mendocino 12½@15
Oregon Clusters 12@15

HAY

Under date of March 20 Scott, Magner & Miller say:

Receipts of hay for the past week were 2982 tons, a trifle less than the previous week, 3309 tons. Trade is extremely light and receipts very large. Fancy grades of red oat hay are extremely scarce. Alfalfa remains about the same as heretofore. Offerings are quite liberal and demand light. Straw remains unchanged.

We quote the average wholesale price of hay in carload lots on today's market as follows:

Fancy Wheat Hay (light
  bales) 11.00@12.00
No. 1 Wheat or Wheat and
  Oat 9.00@10.50
No. 2 Wheat or Wheat and
  Oat 6.00@8.50
Choice Tame Oat 10.50@11.50
Other Tame Oat 6.00@9.00
Barley 5.00@8.00
Wild Oat 6.00@8.00
Alfalfa 6.00@9.00
Stock Hay 4.50@5.00
Straw, per bale .30@45

GRAIN

Wholesale prices.

Alfalfa Seed 14-16
Wheat, Cal. Club 2.35@2.40
Corn, Egyptian White 1.85@1.92½
Corn, Eastern Yellow 1.52½@1.75
Barley, Feed 1.32½@1.37½
Oats, Red, Feed 1.50@1.55
Oats, White Feed 1.80@1.85
Millet 3@3¼
Flax 6@6½
Rye 2.10@2.25
Sunflower 5@5½

FEED STUFF

Wholesale prices.

Alfalfa Meal, car lots 16.00@16.50
Bran, ton 27.50@28.50
Feed Cornmeal, ton 40.00
Cracked Corn 40.00
Rolled Barley, ton 28.50@29.50
Rolled Oats, ton 37.00@37.50
Middlings 32.00@34.00
Shorts 30.00@31.00
Oilcake Meal 38.00@39.50
Cocoanut Oilcake Meal 24.00@25.00

WEATHER CONDITIONS

March 20, 1915.

Report from the various stations of the United States Weather Bureau, by George H. Wilson, director, San Francisco.

	Rainfall Data: Past Week	Seasonal to Date	Normal to Date	Temperature Data—Past Week—: Maximum	Minimum
Eureka	.18	38.07	36.23	64	40
Red Bluff	....	28.28	20.04	82	46
Sacramento	....	12.76	15.96	78	50
San Francisco	....	20.80	18.62	78	50
San Jose	....	17.54	13.77	80	42
Fresno	....	8.70	7.70	80	48
Independence	....	2.84	7.52	74	34
San Luis Obispo	....	23.00	16.63	88	48
Los Angeles	....	14.75	13.06	90	52
San Diego	....	12.75	8.34	82	52

Citrus Fruit Market

LOS ANGELES, March 24, 1915.

One thing peculiar about present marketing conditions is that the trade discriminates against all decayed fruit alike, that is, if one orange in 20 only is decayed, the cut is practically as severely made as if one orange in every three were decayed. The explanation is that the better trade will not take a car showing any decay if it can help it, and with the enormous number of cars to be marketed the trade is very independent. Peddlers and those willing to take chances on the decaying fruit do not seem to discriminate and pay practically the same for 35 per cent as for five per cent decay. One noteworthy point in present conditions is that California and Florida have marketed up to March 1, 27 per cent more fruit than last year same date, and this in face of a year when financial conditions are very difficult. While financial conditions are depressed as at present it is an impossibility to force the market, especially for products which are not in the class of absolute necessities. This depression has cut the heart out of any possible profit for the producer for the reason that overhead expense remains as in the past and every penny of the cut falls on him.

The lemon market is practically the same as the orange market with a very faint promise of improvement in the near future.

Shipments

Shipments of oranges to date from Southern California since November 1, 1914: 12,207 cars; lemons, 1558; total, 13,765. To same date last season: Oranges, 13,533; lemons, 7787; total, 14,320. From Tulare County: Oranges, 5136; lemons, 172; total, 5308. To same date last season: Oranges, 4598,; lemons, 30; total, 4628. From Northern California points: Oranges, 627; lemons, 1. Last year same date: Oranges, 3398; lemons, 5.

CULTIVATOR—MARKETS

NEW YORK, March 22.—Thirty cars navels, one bloods, one navels and navelencias, five navels and bloods, five navels and Tangerines, two navels, Tangerines and bloods, and three cars lemons sold. Market strong on both oranges and lemons. Partly cloudy.

NAVELS—	Avge.
Glendora Hgts., xf., A.C.G. Ex.	$2.25
Foothill, A.C.G. Ex.	1.75
Pinnacle, O.K. Ex.	2.40
Victoria, Imp., A.H. Ex.	2.50
Avenue, imp., A.H. Ex.	2.05
Victoria, A.H. Ex.	2.30
Paul Neyron, S.A. Ex.	2.35
Gold Buckle, R.H. E. High	2.20
Geyser, imp., O.K. Ex.	2.40
Flyer, imp., O.K. Ex.	2.05
Geyser, O.K. Ex.	2.30
Red Globe. Riv. Ex.	2.05
Lotus, O.K. Ex.	2.50
Monogram, O.K. Ex.	1.95
Diamond S., O.K. Ex.	1.70
NAVELENCIAS—	
Geyser, O.K. Ex.	$2.55
Flyer, O.K. Ex.	2.15
BLOODS—	
Camel, O.K. Ex.	$2.05
Yankee Doodle, A.F. Ex.	2.00
Vista Bonita, A.F. Ex. (Ruby)	2.50
Lake Hemet, A.F. Ex. (Ruby)	2.15
Lake Hemet, A.F. Ex. (Malta)	2.00
Mission Indian (Malta)	1.75
SEEDLINGS—	
Pachappa Hill Groves, xf.	$1.85
Pachappa Hill Groves, fy.	1.75
TANGERINES—	
Apex	$2.10
NAVELS—HALVES—	
Red Ridinghood	$ .85
Red Ridinghood	.95
Mahala	1.15
TANGERINES—HALVES—	
Glendora Heights	$1.00
Pinnacle	1.20
Lotus	1.35
Golden Cross	1.10
Red X	.80
Red Ridinghood	.95
Blue Hussar	1.30
Heart of Gold	1.20
LEMONS—	
Whittier	$2.25
Pico	2.10
Silver Lemon	2.40
Prairie Chicken	2.25
Pet	2.30
Greyhound	2.20

ST. LOUIS, March 22.—Seven cars sold. Market is steady.

NAVELS—	Avge.
Duarte	$1.65
Lily, Bonnie Brae Pk. Co.	1.65
Lighthouse, Randolph Ft. Co.	1.60
Carrier, R.H. Ex.	1.90
Garibaldi, R.H. Ex.	1.60
Searchlight, Or. Ex.	1.85
U.S. Brand, Or. Ex.	1.60
LEMONS—	
A.C. Ex.	$2.60
Fountain	2.35
Quaker Girl, S.T. Ex.	3.00
Greenleaf	2.45

CINCINNATI, March 22.—Four cars sold. Market is unchanged.

NAVELS—	Avge.
Greyhound, S. A. Ex.	$1.55
Searchlight, Or. Ex.	1.70
U.S. Brand, Or. Ex.	1.60
LEMONS—	
Pony, S.B. Ex.	$2.10
Val Vista	1.60
Morning Star	1.55

PHILADELPHIA, March 22.—Nine cars sold. Market steady on oranges, lower on lemons.

NAVELS—	Avge.
Hunter, A.C.G. Ex.	$1.55
Hunter, imp., A. C. G. Ex.	1.45
Iris, D.M. Ex.	2.30
Violet, D.M. Ex.	2.05
Maltese, D.M. Ex.	1.90
Airship, F.C. Ex.	1.50
Washington, S.C. Ex.	1.35
Crest, O.K. Ex.	1.25
LEMONS—	
Crest, O.K. Ex.	$1.95
Arab, S.D. Ex.	2.35
Pup	2.10

TANGERINES—HALVES—

Salt Lake	$1.20

CLEVELAND, March 22.—Ten cars sold. Market is steady.

NAVELS—	Avge.
Aurora, Amer. Ft. Dis.	$2.25
Sapho, Amer. Ft. Dis.	1.70
Gold	1.30
Bear	1.30
Parrot, S.A. Ex.	1.95
Martha Washington, Or. Ex.	1.55
Belt, R.H. Ex.	1.70
Arrowhead, R.H. Ex.	1.95
LEMONS—	
Log Cabin, L.F.	$2.50
Hillside Gem	2.25

KANSAS CITY, March 22.—Market higher on navels. Sold by Kansas City Fruit Auction Company.

NAVELS—	Avge.
Las Flores, Asso. O. Dis.	$2.00
El Toro	1.74
LEMONS—	
Commodore	$2.16

PITTSBURGH, March 22.—Fourteen cars sold. Market unchanged.

NAVELS—	Avge.
Orchard, National O. Co.	$2.20
Standard, National O. Co.	1.90
Brownie, Rialto Ft. Co.	1.75
Log Cabin, L.F. Co.	1.55
Hillside Gem. L.F. Co.	1.25
Parrot, S.A. Ex.	1.20
Florencia, Covina Ex.	1.65
LEMONS—	
Maduro, Q.C. Ex.	$1.90
Grove	1.85
Arab, S.D. Ex.	2.20
Pup	2.00

BOSTON, March 22.—Easier and lower. Twenty-seven cars sold.

NAVELS—	Avge.
Orchard, National O. Co.	$2.45
Euclid, Growers Ft. Co.	2.10
Alpha, R. Henderson	2.00
Green Banner, Suth. Ft. Co.	2.00
Standard, National O. Co.	1.95
Eagle Head, Lyons Sons	1.95
Orchid, Dairymple Ft. Co.	1.90
Native, Sutherland Ft. Co.	1.90
Uplander, Growers Ft. Co.	1.85
Elk, Henderson Ft. Co.	1.85
LEMONS—	
Reliable, S.T. Ex.	$2.30
Pet, S.D. Ex.	2.70
Greyhound	2.35
TANGERINES—HALVES—	
Orchard	$1.75
Pinnacle	1.20
BLOODS—HALVES—	
Redlands Best	$1.10
Blue Circle	.95
Pansy	.90
Silver Foam	.80
Alhambra	.90
Rey	.95
Tunnel	.80
Pinnacle	1.00

RICE RECIPES

(Continued from Page 381)

add two cups of milk and two tablespoons of butter. Simmer until the rice is thoroughly cooked and the mixture rather thick.

Rinse out some small moulds, three-quarters fill them with the rice, and make little hollows in the centers. Put one teaspoon of some kind of fruit preserve into each, fill up with more rice, and set aside to cool. When firm turn out on dishes, and pour around them a sauce made as follows:

One pint milk, three egg yolks and two whites, one-half cup powdered sugar, one teaspoon vanilla. Put the milk on the stove and let get hot, beat the eggs and sugar together until light and creamy, then stir into the boiling milk and stir over the fire until it begins to thicken but no longer or the sauce will curdle. Take from fire and stir in the vanilla.

Beat the white of egg that is left to a stiff froth, add one tablespoon sugar, a little vanilla and drop in teaspoons on top of the moulds of rice. This makes an unusually pretty dish if the beaten egg white is colored pink. —Mrs. E. L. Putman, Stockton.

Puffed Rice Candy

One cup sugar, three-fourths cup water, pinch of cream of tartar. Boil until it spins a thread. Have crisp puffed rice in a large dish. Flavor syrup and pour over rice, stirring rapidly until all the syrup is taken up.—Bertha L. McAuslan, Princeton.

LEGAL QUERIES

(Continued from Page 378)

water is being furnished in many cases at an actual loss. The hearing is set for April 6. Now what rights have we in the premises? Again what are the bounds of the authority of the railroad commission in such cases?—Subscriber.

It has been held that a contract for service with a public utility water corporation is made subject to the power of the state to substitute a rate fixed by the proper authorities for the rate agreed upon by contract, and that in such substitution the rate is within the power of the state and does not come within the provision of the constitution of the United States forbidding a state to impair the obligation of a contract. The power of the railroad commission is plenary with regard to public utility water corporations; although it has bounds which could not be stated here. The procedure of the railroad commission is first to inquire into the investment by the water company and to fix such a rate as will make a fair return upon such investment, taking into consideration for the establishment of its rates the history of the company, its possible sources of revenue, present and future, and its probable sources of development, present and future, whether or not it is operated in the most economical manner and also the location which the company serves.

The railroad commission has been of great service to the consumers from utility corporations. There are many instances, however, of decisions which have resulted in apparent injustice, which have been due to insufficient presentation of the case from the consumer's standpoint, such insufficient presentation resulting from either a too parsimonious attitude in the presentation of his side of the case or insufficient investigation or knowledge of the matters to be presented before the commission. It would be for your interest to retain the best counsel and best engineer in your locality that you can procure, and it would seem from your statement that it would be entirely possible for you to show that your rates should not be changed.

Property of Wife

If a woman whose husband does not support her takes up homestead can the husband in case of her death claim any of the property left for the children?—R. M. T.

The earnings and accumulations of the wife while living separate from her husband are her separate property and would be absolutely subject to disposition by her in a will; however, in case of her death without will, leaving more than one child, one-third would go to the husband and two-thirds to the children to be divided equally among them.

Administration of Estate

Real property was purchased by funds inherited by the husband, but title was taken under name of husband and wife, wife undivided one-half owner. In case of death of wife would administration be necessary and in such case what would be the administrator's fee and would it be necessary to sell the home?—Subscriber, Westminster.

In order to clear title to the property an administration of the estate would be necessary. It would not be necessary to sell the home. The husband would have the first right to the administration of the estate and would be entitled to a fee of seven per cent upon the first $1,000 and four per cent upon the next $10,000, but these fees in cases such as this may very frequently be made by contract much smaller.

Reserved from Sale

A sold ranch to B and reserved the bath tub in the house and asked the privilege of leaving it on the ranch. When A went after it B refused to give it up. There was no written agreement, but several persons heard the conversation. Can B keep the tub? If not, what will A do to get his property?

A should bring an action and replevin the bath tub, as it is quite evident that he never sold it.

EVERLASTINGLY

Percy—Lend me a five, old chap, and I'll be everlastingly indebted to you.

Reggie—That's just what I'm afraid of, old fellow.—Pathfinder.

SPRINGS OF CALIFORNIA

Twelve years ago an investigation of the underground water of California was begun by the United States geological survey, and it has been carried on generally with financial cooperation on the part of the state. Later it became apparent that a study of the springs was desirable, particularly of those which yield mineral waters and which are utilized to a greater or less extent by citizens of the state and by tourists as recreation and health resorts.

This work was begun in the summer of 1908 when Gerald A. Waring was assigned to the task of collecting and assembling the necessary data. His report has just been published by the United States geological survey as Water-Supply Paper 338.

The immensity of the area of the state has made the collection of the field data required a task of considerable magnitude. In the original plan it was estimated that two years of field studies would prove sufficient. In midsummer, 1910, however, Mr. Waring was called by the Brazilian government to take charge of general water-supply investigations in the northeastern arid portion of Brazil, and on that account the task of finishing the report on the California springs was left to others.

California, with an area of 158,000 square miles, is the second largest state in the Union. It exhibits wide geographic diversity, for it includes the lowest area in the United States—Death Valley, 276 feet below sea level, and the highest, Mount Whitney, 14,501 feet above the sea. Similarly there is a great diversity in scenic effects, climate, and vegetation. Records obtained at meteorologic stations in the Salton Sink indicate a maximum temperature of 130 degrees in the shade, the highest recorded within the continental United States, while it is probable that minimum temperatures on the higher peaks, like Mount Whitney and Mount Shasta, approach the minimum within our boundaries, a total difference of nearly 200 degress. Records of rainfall in the most arid sections of the southern deserts of the state represent the extreme of aridity in the United States, showing an annual average of less than three inches and periods of 12 months or more with only traces of rain, whereas the precipitation in northwestern California is very heavy, an annual average of close to 100 inches being recorded at a few stations in Mendocino and Del Norte Counties.

In the report it was found impracticable to discuss the springs of California with any regard to order of importance, for this depends on the extent to which they are or may be improved. Some of the springs which are most remarkable from the viewpoint of the geologist or the chemist were in 1908-1910 unused, while those at several large resorts are of relatively minor scientific interest. It is believed however that the report, setting forth the results of impartial observations upon one of the most important resources of the state will prove of value to its citizens as well as to its visitors and that the material will not be without interest to physicians, chemists, geologists, and instructors who may have especial need for such information.

SAUSAGES AND ART

Robert Henri, the painter, was talking about those millionaires who buy, merely to show off, doubtful "old masters" at fabulous prices.

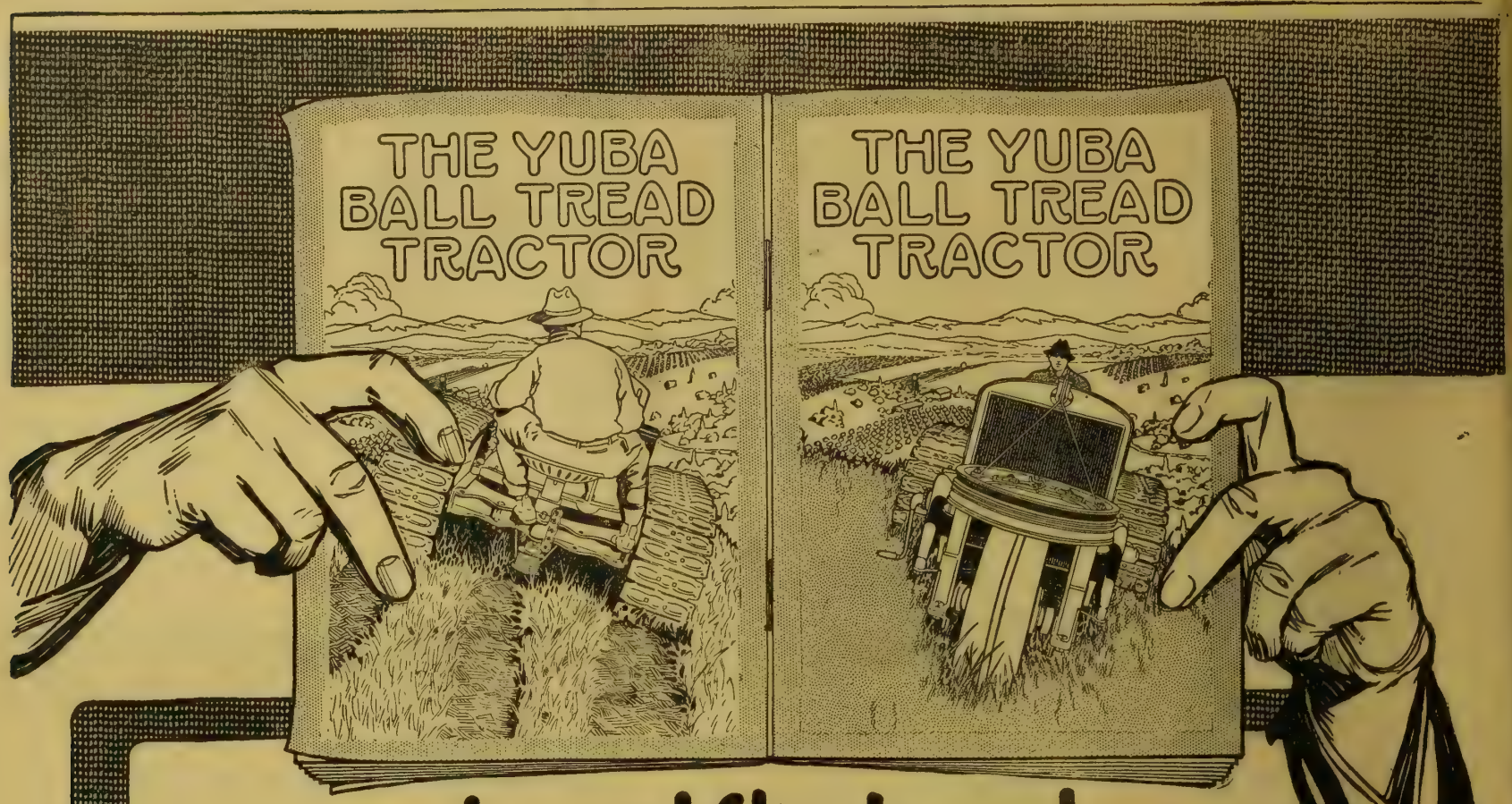
"Their knowledge of art," Mr. Henri said, "is about equal to that of the sausage manufacturer who said to Whistler:

" 'What would you charge to do me in oil?'

" 'Ten thousand dollars,' said Whistler promptly.

" 'But suppose I furnish the oil?' said the millionaire."—Dallas News.

A. F. GEORGE CO.
265 So. Los Angeles St., Los Angeles, Cal.
— AGENTS FOR —
THE YUBA BALL TREAD TRACTOR
See Yuba Tractor Advertisement on Page 384



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We have boiled down every bit of information regarding The Yuba Ball Tread Tractor, its uses and construction, into twenty-four pages of pictures and plain English. It will help you in gathering data regarding tractors.

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Town..... *State*.....

Size of Farm..... *Acres.* *(Check main crop raised.)*

Fruit	*Rice* .....
Grapes.....	*Alfalfa* .....
Grain	*Hops* .....
Hay	.....

C A

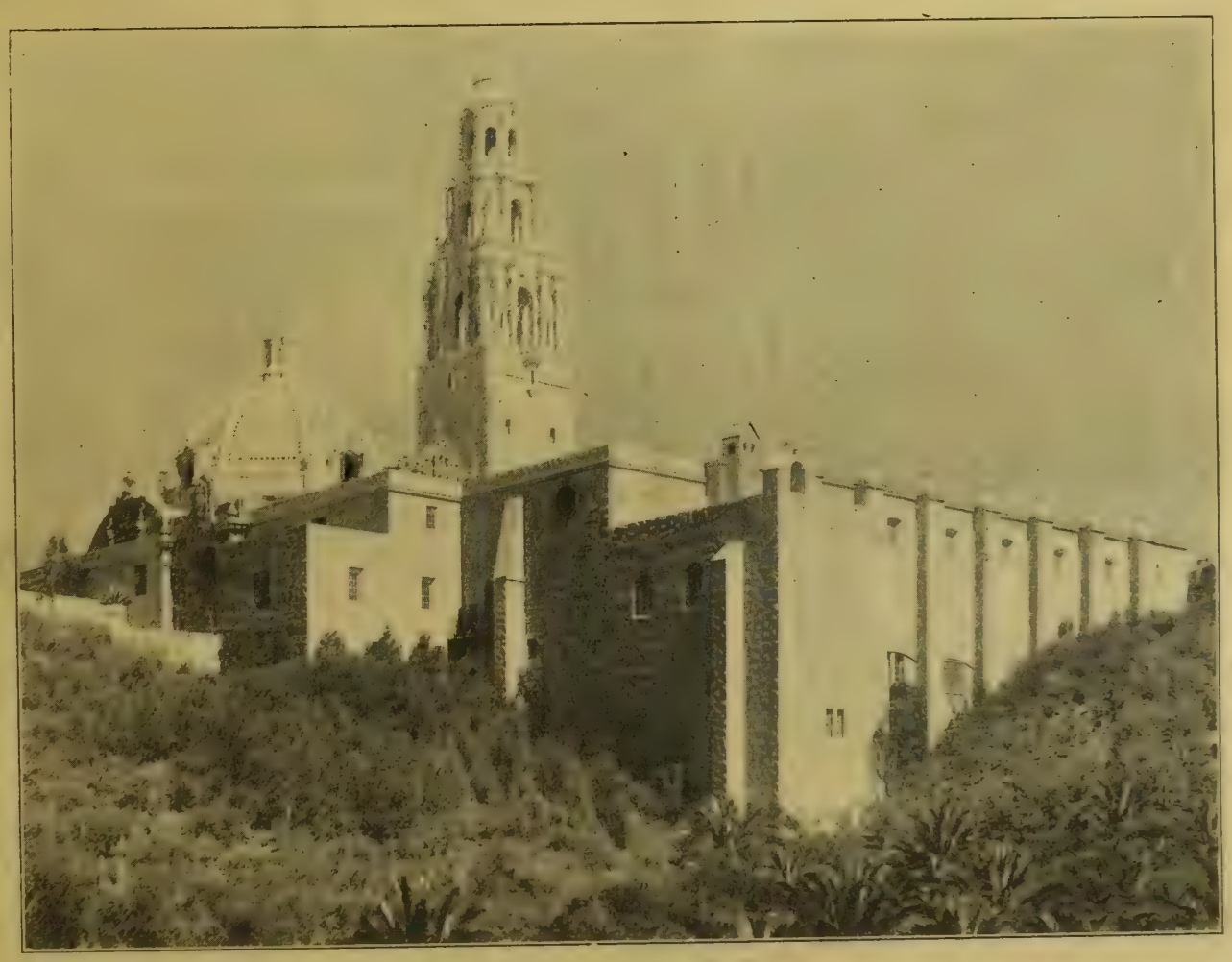
CALIFORNIA CULTIVATOR

Rural Californian combined with California Cultivator

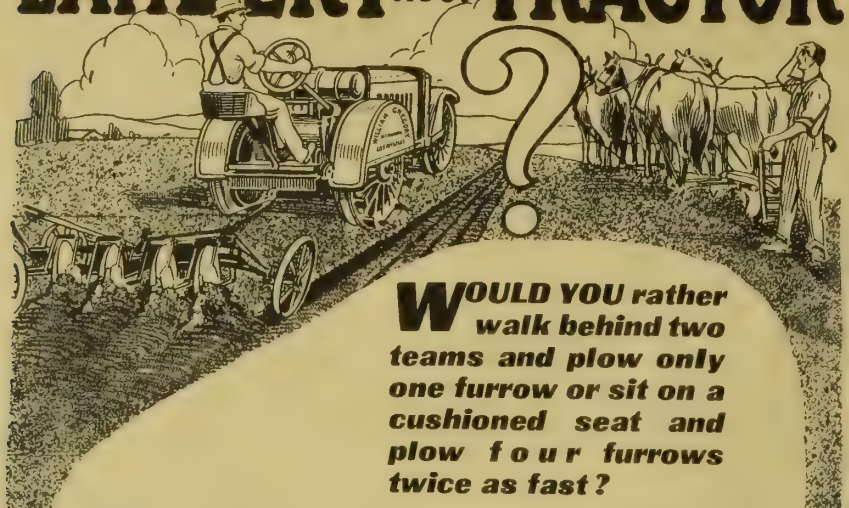
An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES April 1, 1915 SAN FRANCISCO

Tower of California Building at Panama-California Exposition, San Diego



LAMBERT STEEL HOOF TRACTOR



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Of course you'd rather do the latter. You can if you own a Lambert Tractor. It will run all day on less than a dollar's worth of fuel. It easily does the work of 8 or 10 horses and only one man's services are required. You can use it to plow, harrow, disc, cultivate, haul crops to market, for running power machinery and in many other ways. It's the one and only Tractor for ranches of all sizes.

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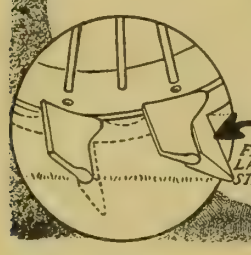

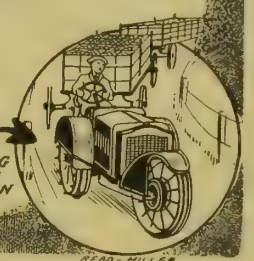

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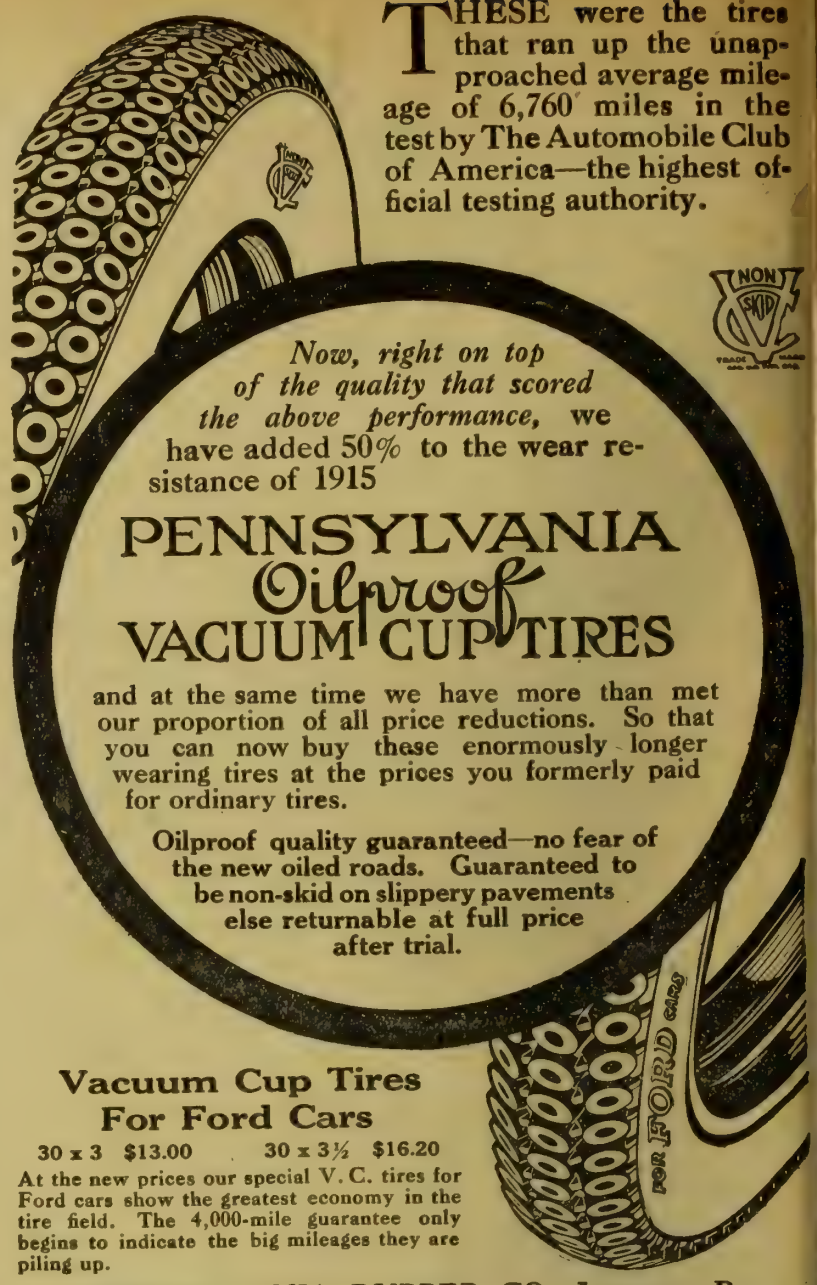

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NOTE—No order filled at these prices for less than $1.00.

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Stock List, March 29, 1915

Please indicate second choice in case variety ordered is sold out.

Apples: 350 Mam. Blk. Twig, 600 Rome Beauty, 460 W. W. Pearmain, 300 Yel. Bellflower, 27 Fameuse, 95 Gravenstein, 40 Delicious, 40 Spitzenburg, 23 Maiden Blush, 150 Ark. Black, 10 N. Spy, 30 Twenty Ounce, 75 Crabs, 5 varieties.

Special: Orders of 200 or more apples at 7c each.

Prunes: 75 Imperial, 200 French, 10 German, 25 Italian, 75 Tragedy No. 2 at 6c.

Plums: 110 Green Gage, 115 Wickson, 145 Satsuma, 20 Burbank, 10 Kelsey.

Peaches: 125 Lovell, 30 Elberta.

Almonds: 30 Ne Plus, 20 Texas Prolific, 5 Drakes Seedling.

Pomegranates: 50 Papershell, 40 Wonderful.

Cherries: 244 Royal Ann, 100 Bing, 75 Morello.

Apricots: 125 Tilton, 120 Moorpark, 115 Newcastle, 55 Hampskirk.

Pears: 185 Bartlett, large, 2 yr., 60 Winter Bartlett, 15 W. Nelis, 40 assorted.

Quinces: 340 Van Deman, 80 Smyrna, 140 Orange, 80 Pineapple, 30 Champion.

Figs: 55 Capri, 60 Calimyrna, 10 Brown Turkey, 65 White Pacific, 90 Verdal Longue, late, 65 Mission, 35 Rose Blanch, 25 Kadota, 35 Celest early, 15 White San Pedro, 255 Brunswick, 150 White Adriatic.

Persimmons: 20 Gosho, 70 Hiakume, 30 Tanenashi.

BUDDED WALNUTS:—35c each. Most of stock listed is 6 to 8 ft., a few sorts 4 to 6 ft. 35 Placentia, 5 Concord, 42 Franquette, 8 Neffs-Prolific, 15 Eureka, 16 Mayette, 40 Chase, 25 Seedlings, 4 to 6 ft., 15c.

CALIFORNIA GRAPES: 40c doz., $2 per 100, $12 per 1000. 25 Blk. Hamburg, 300 Blk. Morocco, 350 Blk. Prince, 500 Golden Champagne, 90 Malvoise, 300 Large Round Red, 325 Mission, 350 Tokay, 20 Thompson Seedless, 200 Sweetwater, 400 Rose of Peru, 80 Verdal, 600 Red Emperor, 20 Golden Chasselas, 15 Golden Queen, 6000 Muscat, $8 per 1000.

AMERICAN GRAPES: 50c doz., $3 per 100, $20 per 1000, 135 Niagara, 25 Isabella, 185 Concord, 250 Pierce, 65 Brilliant, 55 Campbell's Early.

BERRY PLANTS: 35c doz, $2 per 100. 725 Himalaya, 485 Logan, 250 Cuthbert, 150 Surprise, 275 Mammoth, 150 Mercereau Blackberry, 200 Phenomenal, 125 Dewberry, 115 St. Regis.

Currants: 5c each. 50 White, 50 Red, 45 Black.

Rhubarb: 5c each. 40 Crimson Winter, 50 Strawberry, 30 Victoria.

Asparagus: 20c doz, $1.25 per 100.

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Vol. XLIV No. 13 LOS ANGELES: THURSDAY, APRIL 1, 1915 One Dollar Yearly

Panama-California Exposition

San Diego's Beautiful Exposition is Attracting Many Visitors. Architectural and Landscape Work Have Combined to Make This One of the Most Beautiful Expositions of its Kind the World Has Seen

SINCE the raising of the bear flag, the discovery of gold, the telling to the world of the mighty sequoias, the wonderful crops and fruits, the ghest mountain and the lowest val- y in America, and always of its won- rful climate, California has been in e world's spot light. Nineteen fif- en is no exception. The spot light rns easily from Europe's nightmare the world's most beautiful exposi- on. The Panama-California — The xposition Beautiful—The Dream City, on the hills overlooking San Diego, ronado Islands and the Pacific cean is beautiful beyond description. is a bit of old Spain or of Spanish merica on Columbia's soil, but with e old Spain refined and beautified.

It was not my privilege to see re- nt world's expositions, but a San ranciscan who has seen all in re- nt years remarked after a few urs' walk over the grounds of the an Diego Exposition, "Well, I am in y far the most beautiful exposition have ever seen. Its wonderful Spanish atmosphere, its gardens, its trees, its flowers, its quaint old buildings make a picture like unto dreams of Paradise and make me long to live here always."

In the art gallery is a room devoted to "The Genealogy of Exposition Architecture." It's interesting and instructive. In the picture of the Bridge of San Martin, Toledo, Spain; in the Court of the Lions of the Alhambra, a twelfth century structure; in the Tower of Cathedral at Cordova; in the Giralda, Seville, a fourteenth century structure; in Santa Cruz hospital, Toledo, Spain; Church of St. Sophia, Constantinople; the Sagrario Cathedral, Mexico City, and in other cathedrals, public buildings and bridges of Spain and Spanish America may be seen arches, domes, facades and lines which have been reproduced in buildings of the Panama-California Exposition. Here at San Diego is the same beautiful architecture, unmarred by the usual barrenness or squalor so closely associated with those great structures in other countries. Here is horticultural harmony and beauty.

Architectural and landscape work of the exposition have been under direction of Frank P. Allen, who was also architect of the exposition at Seattle. He and his corps of workers have occasion to be proud of their accomplishment.

Some of the buildings are permanent. The beautiful bridge across Cabrillo Arroyo, Puente Cabrillo, the California building and other features, especially the landscape effects, are a permanent heritage.

But, agriculturally?

There is no live stock. But in implements, farm power and farm production, there is a fine showing. Tractors insist on being seen and demonstrations in field and orchard give opportunity to see them as the farmer would use them. Yes, there are orchards and fields within the grounds. Southern California has featured a little 17-acre ranch, a model which every Easterner—and some of the rest of us—covet. On the 17 acres is a $4000 home completely furnished and with large lawn, garage, workmen's cottage, cow stable, citrus orchard, deciduous orchard or plot, a little alfalfa, and garden plots with all kinds of vegetables, poultry yards with record card on each gate showing what the poultry is doing, and—well everything that makes you hanker for the like of it.

Every section of California is represented. Fronting on the Plaza de Panama is Sacramento Valley with a large building filled with Sacramento Valley products. Just below on one side of the approach to the great outdoor organ is San Joaquin Valley, excepting Tulare and Kern, which are in their own building on the opposite side and facing their sister counties. Both contain magnificent exhibits.

Southern California has besides her model farm a large structure filled with exhibits and with rooms for entertaining and resting visitors.

The whole exposition is an example of California glad-handing, for the cozy restful places are beckoning one at every turn.

Every reader of the Cultivator will surely go.

The Feeding Problem

Dr. Leroy Anderson Writes for Live Stock Readers of Feed Value of Cottonseed Meal and Ways of Securing Greatest Return from Least Expenditure

COMPARISON of a few common and new feeding stuffs.

The figures in the table below are all from California Bulletin 132 except for cottonseed and cottonseed hulls, which are from Henry's Feeds and Feeding edition of 1911.

Feeding Stuff	Dry matter in 100 lbs.	Digestible Nutrients in 100 lbs. Protein	Carbohydrates	Fat	Nutritive Ratio
Wheat bran	88.3	11.2	42.2	2.5	1:4.3
Wheat middlings	88.3	12.2	53.4	3.8	1:5.1
Barley rolled	90.0	9.6	63.5	2.1	1:7.1
Corn, Indian	89.4	7.8	66.7	4.3	1:9.8
Rice bran	89.5	10.7	41.8	10.6	1:5.9
Rice hulls	89.0	2.7	30.8	.8	1:12.1
Cottonseed	89.7	12.5	30.0	17.3	1:5.5
Cottonseed meal	90.2	41.1	15.4	11.0	1:1.0
Cottonseed hulls	88.9	0.3	33.2	1.7	1:123.4
Linseed oil meal	89.1	26.1	38.5	6.5	1:2.0
Cocoa oil meal	85.9	16.4	42.4	9.7	1:3.9

The Texas station in Bulletin 47 reports an experiment in which cottonseed meal was fed in quantities varying from two to ten pounds daily to a 1000-pound cow. Other foods in the rations were wheat bran, oats, corn meal, cottonseed hulls, sorghum hay and corn silage. The time was 1898 when cottonseed meal was quoted at $15.00, hulls at $3.50, and wheat bran at $15.00 per ton. Six groups of cows were fed with a change of ration during four periods and the most effective rations per group in any period are given as follows:

Group 1—Six pounds cottonseed meal and 25 pounds cottonseed hulls. Nutritive ratio, 1:5.05.

Group 2—Seven pounds cottonseed meal, 16 pounds cottonseed hulls and 28 pounds silage. Nutritive ratio, 1:4.5.

Group 3—Six pounds cottonseed meal, 18 pounds cottonseed hulls and 35 pounds silage. Nutritive ratio, 1:5.8.

Group 4—Four pounds cottonseed meal, six pounds bran, 18 pounds cottonseed hulls and 35 pounds silage. Nutritive ratio, 1:6.6.

Group 5—Four pounds cottonseed meal, six pounds corn meal, 18 pounds cottonseed hulls and 35 pounds silage. Nutritive ratio, 1:8.1.

Group 6—Four pounds cottonseed meal, six pounds oats, 18 pounds cottonseed hulls and 35 pounds silage. Nutritive ratio, 1:7.4.

The report does not state the effect of large quantities of cottonseed meal upon the quality of butter, but deals quite entirely with economic production of milk and butter. It is well known that cottonseed meal has the effect of producing a hard and tallowy fat in butter, and for this reason the feeding of such large amounts as reported by Texas is discouraged. As compared to corn meal the effect of cottonseed upon the body fat, the Texas station reported in Bulletin 29 that beef tallow from cottonseed fed steers had a higher melting point by 8.7 degrees centigrade than tallow from corn meal fed steers. The effect upon butterfat is even more marked. The quantity usually recommended for dairy cows is from two to four pounds daily per head of cottonseed meal.

Whole Cottonseed

In Imperial Valley whole cottonseed is fed in considerable quantities to dairy stock during the part of the winter season when pasture is short. In December for instance a typical sight along side a milking stable is three piles of feed—one of alfalfa hay, one of milo or sorghum fodder and one of whole cottonseed. At my last visit to the Imperial I found dairymen most enthusiastic over the results obtained by feeding cottonseed.

The flow of milk was increased and some assured me that the actual percentage of fat was materially increased. As to the latter I would like to see some careful experimentation. Some feed as high as six pounds of seed per head daily but the usual feed is two and one-half to three pounds per day. As compared to cottonseed meal, the Texas station found that as a fattening ration cottonseed at $12 per ton was cheaper than cottonseed meal at $26. For dairy stock it is probable that the seed is worth about one-half as much per ton as the meal. In the cotton belt of the South little whole seed is now fed owing to the great demand for cottonseed oil and for the meal in European markets as well as at home. As the oil manufacturing develops in Imperial Valley it is probable that the feeding of whole seed will greatly diminish.

A glance at the table at the head of the column shows how very rich in protein is cottonseed meal. In 90 pounds of dry matter there are 41 pounds of digestible protein and there is one pound of digestible protein for every pound of carbohydrates and fat when the latter is calculated on the carbohydrate basis. The use of cottonseed meal is thus indicated when other available feeds are rich in carbohydrates, as for example, corn silage or any of the corn products and fodders, oat, barley or wheat hay.

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FIGHTING SCALE IN TULARE

Written for California Cultivator
By Chas. F. Collins, Horticultural Commissioner, Tulare County

WHEN preparations were being made for the first campaign against the gray scale (Coccus citricola) in Tulare County in the spring of 1914 there was naturally a great diversity of opinion as to when the work should be begun, how conducted, and how long continued, and each of these questions constituted a fair sized problem for people whom circumstances had heretofore so favored as to make it unnecessary to acquaint themselves with the solution of such difficulties.

With an energy however that is characteristic of Tulare County citrus growers the matter was discussed at public meetings held for that purpose and a method of procedure agreed upon. The first thing to determine was, when could we begin commercial work that would be successful in killing the scale without injury to the young fruit. As the life history of this insect has never been worked out and fumigation never practiced under our climatic conditions, the solution of this question required careful study and painstaking experimental work. The best authorities in the federal and state service were very apprehensive of success and offered little in the way of encouragement to fumigation as it was supposed to be practically impossible at a temperature above 70 degrees Fahrenheit, and it was thought the habits of the scale were such as to make it necessary to confine our operations to our two hottest months of July and August. The supervisors generously assisted in the work by appropriating money for the purchase of 185 tents and equipment, together with material for doing the work, which sum was a charge against the property fumigated and was returned to the county by the growers for whom the work was done. The services of Mr. C. P. Wilkinson, a practical fumigator of Riverside, were secured for conducting some experimental work to ascertain at what time we could safely begin commercial operations.

The young scales began to issue about the middle of April, and on the night of June 10, the first experimental fumigation work was done. Ten badly infested 10-year-old navel trees were covered, and dosages ranging from one-half to three-fourths of Woglum schedule No. 1 were used, resulting in no injury of importance to trees or fruit, which was less than the size of hickory nuts, and a complete killing of all young scale which had issued from beneath the old shells. The old scales, however, and the young still beneath the old shells were found to be more or less immune to the effects of the hydrocyanic acid gas. In all our work nothing but the 96 to 98 per cent sodium cyanide has been used, which is equivalent to 128 to 130 per cent potassium cyanide.

The experiments were continued with constantly increasing success until July 23, at which time the young were nearly all out and work was begun in a commercial way. Mr. H. P. Cundiff, for many years horticultural commissioner of Riverside County and a veteran scale fighter, was secured to superintend the fumigation work which was successfully continued without interruption, except for two or three showers, until November 19. Full schedule No. 1 was used till about September 1, when the cooler weather and maturity of the fruit allowed an increase of 10 per cent in the dosage. This was found necessary, owing to the fact that as the scale advanced in size it was more resistant to the effects of the gas and proved perfectly safe, as no damage resulted to trees or fruit. During the heated period work was conducted at a temperature of 80 degrees Fahrenheit on many occasions and always with perfect success and some experimental work was done at 87 degrees Fahrenheit without injury.

After the commercial work was discontinued experiments were again conducted till December 5 with dosages as high as 125 per cent with almost perfect success in killing scale and absolutely no injury to trees or fruit, proving beyond a doubt this work can be carried on here with entire success from July 20 to December 10, and probably later, practically without interruption so far as climatic conditions are concerned. This practical demonstration that the work can be conducted through a period of 19 or 20 weeks instead of six of eight as was supposed, is of incalculable benefit to the industry, as it gives ample time for control work and overcomes what would otherwise have been an almost insurmountable difficulty.

Various sprays, mostly different forms of oil and distillate emulsion, were thoroughly tested and some commercial work was done with them through the entire season, resulting in conclusive proof that two sprayings were absolutely necessary for effective work and even then the efficiency was far below the average of fumigation at the same cost. It was clearly demonstrated that spraying anything but very young trees for this pest on a commercial scale is not a practical means of control.

This very brief epitome of facts concerning the control work done in the citrus orchards of Tulare County during the season of 1914 is written for the purpose of correcting in a measure the many exaggerated and ridiculous items that have crept into the press from irresponsible sources.

Tulare County horticulture has always been blessed in its freedom from the more serious insect pests and today the gray scale is the only really serious one we have, and with the improved and cheaper methods of fumigation now prevailing and the long season which our climate affords for successful control, this mountain has dwindled to a mole hill. The growers are beginning to regard correct fumigation in the light of an investment yielding large returns rather than an expense, and the enthusiasm with which preparations are now being made for future operations indicates bad luck for the gray scale.

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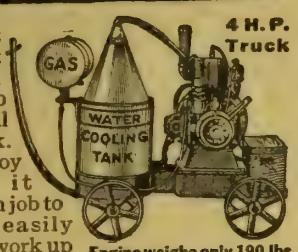

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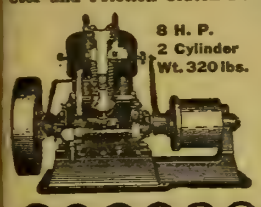

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VALUABLE TREES

In the issue of the Cultivator of the 11th, appeared an item regarding the government having received nearly $100 for one tree, and commenting upon it as being almost unheard of. I have one avocado tree that does this year after year. Last year the yield of fruit was over $400. In the one case the tree is gone, while in the other the tree is still standing, more thrifty than ever.—Wm. Chappelow.

It is interesting to have information as to these valuable trees. The one planted by nature and battling with it on the mountainside affords a somewhat different illustration, however, from the tree in the California garden and under peculiar circumstances. As to single trees, there are others which, it has been claimed, have produced thousands of dollars in a year. At one time the Cultivator referred to an acre of strawberries which produced $2600 gross income and caused great interest at the time, but let this not be taken as an indication of averages any more than the exceptional tree sold by the government. That was of interest in part because the government has not in the past taken charge of these trees and given them attention and protection. This it is now doing and it is satisfactory to know that the trees are making return for the service. We hope the avocado and others of our fruit trees will be as responsive. We believe they will if we use judgment in their planting.

CITRUS MARKET PROBLEM

Written for California Cultivator
By Albert Young

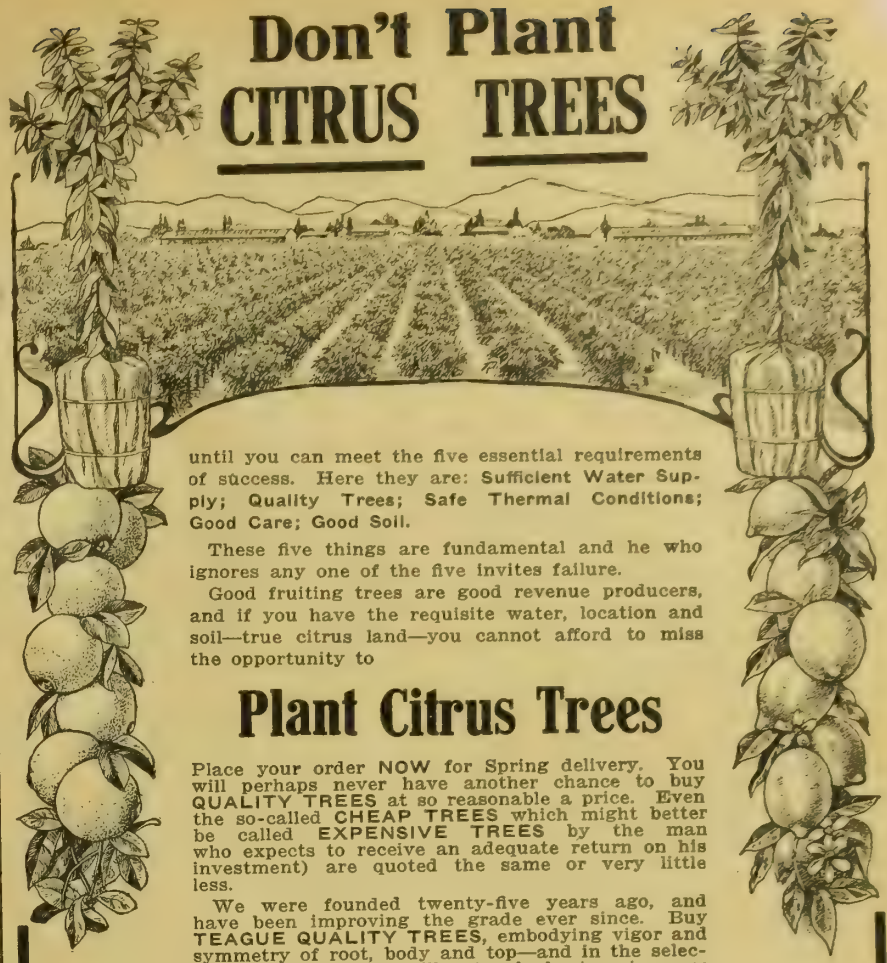
I notice editorials, articles and correspondence in late numbers of your paper embracing a varied discussion as to the low prices—and causes therefor—of California oranges and olives and olive oil. Having interests in California and having spent several months there during the past winter I had occasion to think about and discuss the same question. The prices of oranges were lower than I have before known them in California, and you say the olive growers complain that there is no sale or demand for olives or olive oil. I observe in the local markets that the oranges were very cheap, but when I went to purchase olive oil and ripe olives in the stores of Los Angeles and Pasadena I found very little change in the prices. These standard brands of ripe olives and olive oil were selling at from $3.00 to $4.00 per gallon. How much does the producer get of that?

On returning to Kansas City I took occasion to look into the question of prices in the retail grocery stores of oranges, lemons, olives and olive oil. I found that while the demand and prices for oranges and olives and olive oil in California were limited and oranges at the lowest price, there was no change in the price in these stores for any of these articles from the prices of last year. First-class California oranges are sold here in all the leading stores at from 40 to 50 cents per dozen; ripe olives and olive oil from $3.00 to $4.50 per gallon, a trifle more than the price in Los Angeles. This bears out the conclusion of Mr. G. Harold Powell in your March 18th number in his article, "The Cost of Distributing Oranges," wherein he arrives at the conclusion that the retail dealer who handles these products gets most of the "milk in the cocoanut" when he receives 33 1|3 per cent of the producer's dollar. I found occasionally in Los Angeles and Kansas City that there were "special sales" on these articles at long intervals when you might buy them at a reasonable price. As an instance, I bought a gallon can of very fair quality of ripe olives in a large department store in Los Angeles at 39 cents per gallon. I found that same grade of olives was selling in Kansas City at 75 cents per quart.

There should be some remedy for this inequality of burdens and unless something is done the California Fruit Growers' Exchange will have to establish retail stores in all the cities of the country or else the retailer will absorb all the profit of the business and the producer of these articles will receive but a bare living from the results of his labor.

I trust you will continue the work you have started in seeking a remedy for this state of things or the producer will have to go out of business.

Don't Plant CITRUS TREES



until you can meet the five essential requirements of success. Here they are: **Sufficient Water Supply; Quality Trees; Safe Thermal Conditions; Good Care; Good Soil.**

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Deciduous Fruits

ROOT-KNOT A DESTRUCTIVE DISEASE

NEARLY 500 kinds of plants are already known to be susceptible to root-knot, and it is probable that future observations will greatly increase this number. Known under the names of root-knot, root-gall, big-root, etc., this disease does immense damage out-of-doors in all except the most northern states and everywhere causes damage in greenhouses. It is due to a minute parasite of the nematode family sometimes known as an eelworm, which causes the roots of susceptible plants to become so enlarged that the transfer of water to the stem and leaves is seriously interfered with. On the other hand the entrance of harmful fungi or bacteria is made easier. In the case of cotton, for example, the root-knot parasite may be present in such small numbers as not to cause much harm itself but may nevertheless prepare the way for wilt or black-root, a fungous disease.

The seriousness of root-knot is pointed out in a new publication of the United States department of agriculture Farmers' Bulletin 648, "The Control of Root-Knot," which discusses the most feasible methods of eradicating the disease. Under ordinary circumstances, says the bulletin, the most satisfactory method is to raise in the infested fields for a period of two or three years crops that are immune to the parasite, carefully killing at the same time all weeds and susceptible plants. Of the highly resistant crops the most important are:

Barley, beggarweed, brabham cowpea, broomcorn millet, corn, crabgrass, iron cowpea, peanut, pearl millet, redtop, rye, sorghum, timothy, velvet bean, wheat, winter oats.

In general it will be found desirable to include several of these crops in a rotation in which a summer legume alternates with a winter grain. In the South, where the nematodes are perhaps the most harmful, the two most successful winter crops are winter rye and winter oats. The following rotation is therefore suggested as a practical one in the majority of instances:

In the fall sow winter rye so early that it can make a good growth before it is necessary to plow the land for the next crop. In the spring turn under the rye as green manure and plant corn. Later place cowpeas of the Iron or Brabham varieties, which are resistant to root-knot, in the drill between the rows. The second fall sow winter grain, preferably oats, and either allow it to ripen or cut it for hay while green. The grain should be followed with Iron or Brabham cowpeas harvested as hay. If a third-year rotation is desired, and it is much safer to use it, winter grain should be sowed, allowed to ripen, and followed with resistant cowpeas for hay. Barley or wheat may be substituted for the oats and rye, and after the first year velvet beans and beggarweeds broadcasted instead of cowpeas.

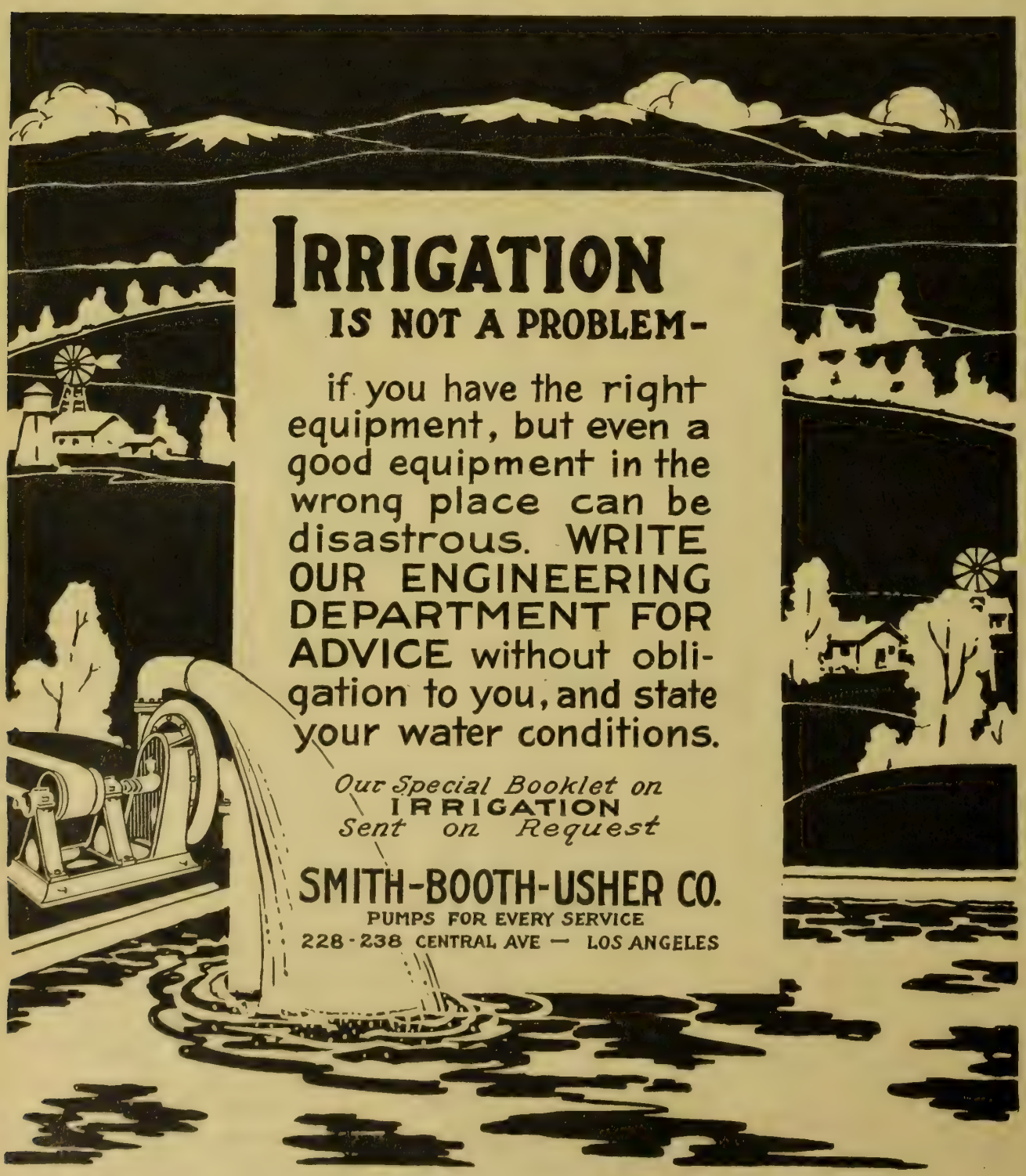
With such a rotation carefully carried out it is possible to control the nematodes. There are however so many ways in which these can be reintroduced that in sections where they are known to be prevalent it is desirable to repeat the rotation every four or five years. If this is done it is well to plant the most susceptible crops immediately after the field has been cleared and to follow these with less susceptible ones until it is time to apply the extermination rotation again.

The presence of root-knot is not always readily apparent. Badly infested plants are dwarfed, wilt readily in hot, dry weather, and are usually a paler green than healthy ones. With less severe attacks, however, these symptoms are not always noticeable, and the reduced yield is not infrequently believed by farmers to be a normal one. Where there is any reason to suspect the existence of root-knot, however, the roots should be examined, and in the case of some tuberous plants like the potato the tubers should be opened and the inside examined to detect the layer of discolored tissue usually found just beneath the skin of diseased plants.

Tubers, nursery stock, and bulbs are common agents for transporting the nematodes from one place to another. In addition, however, this is frequently done by running water and by soil which clings to farm implements, the feet of men, and the hoofs of animals. In heavily infested districts therefore the farmer must be on the lookout to close all these avenues of infection. Seed potatoes should always be selected from fields where a critical inspection shows no evidence of the disease and no parts of diseased roots should be permitted to be mixed in the manure that is to be placed on uninfested land.

Greenhouse conditions are almost ideal for the development of nematodes. The most efficient method of exterminating them is to steam the soil by passing steam into perforated pipes laid at a depth of one foot below the surface of the soil. Where this is impossible the infested soil must be removed, the benches whitewashed with boiling hot whitewash and then refilled with fresh, clean soil. Land that is flooded for a period of from two to six months each year is practically certain to be free from the pest.

Orchards also suffer frequently from root-knot. Unfortunately, however, the eradication of the disease here is more difficult since the extermination of the nematodes by a rotation of immune plants is obviously impossible. Where only two or three trees are found to be infested they should be removed and destroyed and the surrounding soil treated with a solution of formaldehyde at the rate of about two to three gallons per square yard. Occasionally a lavish use of fertilizers and thorough cultivation of the field will aid the plants to outgrow the trouble. The only really safe way however is to make certain that the land is not infested before the trees are planted and then to be equally certain to use only uninfested nursery stock. It is far better in the end to take the time to free the land from the pest than to have the trees remain several years without any appreciable growth, as is too often the case where nematodes are abundant. It is most unwise to plant a very susceptible crop, such as melons, cucumbers or tomatoes in a field that is to be turned into an orchard later.



OLIVE PULP AS FERTILIZER

Mr. E. K. Grant of Wasco writes: "A week or so ago I noticed in your paper where someone had asked about olive pulp as a fertilizer. I am sure that Judge Ross who has an orange orchard north of Glendale experimented along this line several years ago and found it a very poor fertilizer and sometimes injurious. It sure makes a fine fuel for kitchen stoves and heaters if used carefully. Gives out great heat and lasts extra well."

FLORAL EXHIBIT

For years the San Diego Floral Association has held semiannual shows, of course one in the fall for chrysanthemums and other fall bloomers and one in the springtime, though never so early as the show held this year. As a consequence some of our most beautiful spring blooming bulbs have failed to receive the attention they deserve. In order to give opportunity to make an exhibit of daffodils, jonquils and other early bloomers an early show was planned, and it was also planned that it should be one of the

LEFT TO RIGHT, A. D. ROBINSON, EDITOR CALIFORNIA GARDEN; J. R. GORTON AND R. W. SUMNER, BOTH CONNECTED WITH THE STAFF OF LANDSCAPE GARDENING, PANAMA-CALIFORNIA EXPOSITION.

first functions of its kind connected with the Panama-California Exposition. The desired result was accomplished and in the corridors surrounding the California plaza on the grounds thousands of flowers of cultivated bulbs, as well as bulbs from the hillsides of San Diego County, were exhibited.

One striking exhibit was of Watsonias, both pinks and whites, and the wonder was expressed as to how they were scured. We have no answer for it is certainly much earlier than these usually appear.

Another exhibition of flowers is planned by the same organization to be held in connection with the exposition at some later date.

DRY FARMING CONGRESS

The Internation Dry Farming Congress and Soil Products Exposition will be held at Denver, September 27-October 9, utilizing the great Denver Auditorium as the centerpiece and constructing around it on vacant property and streets six or seven temporary buildings properly to house the exposition, not only of agricultural products, but machinery, industrial pursuits, etc. Congress has appropriated $20,000 to make a splendid showing of the work of the department of agriculture, and the legislatures of Kansas, Oklahoma, Nebraska and several other Western states have already acted favorably on direct appropriations for state displays. In many other states, like Arizona, New Mexico, Utah, Wyoming and Montana, existing state agencies will probably take care of the matter. In any event, it is a safe prediction that every state west of the Mississippi River, every one of the four western provinces of Canada, several foreign countries, including Spain, British South Africa and China, will be represented this year at the great exposition at Denver.

The congress offices have been opened in Denver and the campaign is now proceeding from that point with much dispatch.

A TRIP WITH AN ARIZONA COUNTY FARM ADVISER

Following is an account of a recent field trip by A. L. Paschall, farm adviser for Cochise and Santa Cruz Counties of the agricultural extension service, University of Arizona college of agriculture and United States department of agriculture. This will give some idea of how a farm adviser works:

"I left my headquarters at San Simon at 2:00 p. m. On arriving at Benson, 82 miles away, a consultation was held with the principal of the Benson high school regarding the planning of the school garden; the school grounds were then inspected. The forenoon of the next day a field demonstration in garden work and fruit tree pruning was held at the home of Mr. W. G. Goodman at St. David, seven miles from Benson. This was done on a few hours' notice. Ten farmers were present. That afternoon a farmers' meeting was held in the St. David church. Twenty-four people were present. After the meeting four farms were visited, questions answered and information regarding tree grafting, pruning, pasture crops, hog raising and garden culture were given. I spent the night with a farmer, Mr. T. H. McKinney.

"During the next forenoon some homes in the town of Benson were visited in company with Mr. Davis and several visitors, and information was given concerning vegetables for the backyard, and how to care for lawns, small fruits, flowers, trees and shrubbery. That afternoon a farm about 2½ miles away was visited; the owner of this farm sent his son around to his neighbors and in a short time a crowd of 24 farmers had gathered together for a field demonstration in gardening methods, tree pruning, etc. The following subjects were discussed: Kinds of fruits to plant—time and distance to plant; how to head back a young fruit tree; the proper way and time to prune fruit trees; orchard cultivation and cover crops; small fruit culture; the significance of "living at home;" the home garden—especially potato culture; farm crops and rotation; seed selection and breeding; cooperation.

"These subjects were discussed in a practical way from the standpoint of immmediate needs. They will be taken up more in detail in the future. The farmers displayed much interest and asked many questions.

"In the forenoon of the following day three and a half hours were spent at the Benson high school in laying out the school garden, specifying what vegetables to plant, how and when to plant, etc. A talk was next given to 55 boys and girls and four teachers of the high school on the subjects of beautifying the home grounds and home garden and orchard; tree planting; farm accounts and club work. Much interest was manifested and many questions were asked. After the indoor discussion a field meeting was held in the school orchard and garden. Following this, upon request, a visit was made to the home of one of the teachers and advice was given concerning fertilizing, preparing and planting garden, planting trees and shrubbery, demonstration in pruning a few fruit trees, etc.

"While waiting at the railway station for a belated train, five farmers came in to discuss their problems and obtain information about potato culture, dry-farm crops, seed selection, eradication of corn smut, sowing of small grains and how to treat same to prevent smut.

"On the return trip to San Simon the train stopped for 10 minutes at Bowie. There were on hand several farmers who wanted information concerning potato culture, garden preparation and orchard care. And one man requested some instruction in fruit-tree pruning.

"This was my second visit to the Benson region. During my first visit the farmers did not show as much interest. They did not understand the exact nature and object of the work and what I was trying to accomplish. Their appreciation of and interest in this work are rapidly increasing.

"The total cost of this three days' trip, including salary and expenses, was $25.70."

The advice and assistance given by Mr. Paschall on this one trip alone may easily be worth hundreds and even thousands of dollars to those who were fortunate enough to be present. It has been very truly said that a "farm adviser works two eight-hour days every day." From the number of requests which are coming in for Mr. Paschall's services it is evident that he will be extremely busy. He may be reached by letter at San Simon, Arizona.

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Small Fruits Vegetables

THIS MONTH IN THE SACRAMENTO VALLEY

Written for the California Cultivator
By S. S. Rogers

ALL vegetable gardens come under one of three types, namely: truck, home, and market gardens.

In speaking of truck gardens it is generally understood that these are located quite a long distance from the selling point, making it necessary to haul the vegetables by rail or boat into the market, rather than by the use of wagons. Under this heading would also come ranches of those who are specializing upon relatively few vegetables but are growing large quantities of each. This type of gardening is found commonly throughout the entire United States and is a large factor in the production of vegetables. These gardens are generally located within ten to forty miles of the largest cities in the United States; although on account of especially favorable local conditions they may be located several hundred miles from the largest cities. Where such is the case, the vegetables are generally shipped by carload lots to the markets. An example of this kind of gardening is well illustrated in the potato district known as the Delta, in which from 40,000 to 50,000 acres of potatoes are annually produced and are sold throughout the United States.

Of the three types of gardening, the truck gardens comprise much more land than the other two types. The truck grower will often plant from forty to several hundred acres of vegetables. The net profits from these gardens average between $50 and $200 per acre, depending upon location, choice of crops, etc.

The term, market garden, is generally applied to gardens which are producing large assortments of vegetables, located within hauling distance of the markets. These gardens are very important and the land is farmed intensively. The market gardens are found in the immediate vicinity of the largest cities of the United States and generally utilize a rather small amount of land, ranging from five to forty acres.

The profits from a well run market garden are much larger per acre than when truck gardening is practiced. When this type of gardening is carried on under favorable conditions the returns per acre are generally larger than when any other crop is grown.

Home gardening is the raising of vegetables for home use From an economic standpoint this manner of of gardening is of little importance, and in fact many vegetables are raised in a home garden at a higher cost than they could be purchased for; but when this form of gardening is used, the cost of production is generally not considered. These gardens are located throughout the United States wherever vegetables can be grown, and are to be found in the back yards in the cities and towns. The area devoted to this kind of gardening is generally very small; in most places raising only enough vegetables for home consumption with probably a few to sell or give away to the neighbors.

During this month the garden should be well planted, for in many sections of the Sacramento Valley the climatic conditions are favorable for planting of nearly all of the common garden vegetables. Such crops as beans, melons, cucumbers, summer squash, tomatoes, corn, etc., should be planted this month. If beets and turnips are planted immediately they can be harvested from June until August inclusive. Carrots can be planted immediately and can be harvested during the summer and fall.

THIS MONTH IN SOUTHERN CALIFORNIA

Written for the California Cultivator
By O. M. Morris

In gardening operations this month is the most critical time of the year. Delayed plantings should be rushed in at once. On crops already planted weeds should be kept cleaned out and the soil put in preparation for the hot weather soon to come. The ground should be given thorough cultivation and all crops planted or to be planted should be well mulched to insure retention of moisture. Cultivation should follow each shower as soon as the ground is dry enough. All the hardier plants as well as the more tender ones should be put in. However, for cucumbers, melons, okra, roselle and squash there need be no immediate hurry though they may safely be planted during April. If the weather continues favorable, lima beans may be planted the latter part of the month but should cold, damp weather prevail, it would be better to delay planting until the ground becomes warm.

All early varieties of corn may be planted. We would especially recommend the early sugar corn for family use. The planting of field corn can be delayed until the last of the month or during the following month, but the soil should be put in shape at once so as to retain all possible moisture. Tomatoes, egg plants and sweet potatoes can now be planted out. If the ground is in good condition before planting is done a few cups of water around each plant to settle the ground will be all the watering they will require for two or three weeks. It is better to give them a little water in this manner than to keep them wet continually, for this keeps the ground cold and prevents their best development.

The tepary and black eye beans will prove prominent crops the coming year as the demand has practically cleaned up all the available supply, and should the European trouble continue these will be one of the most profitable general crops grown. In localities where beans may be grown to advantage we would recommend large plantings, especially of limas and navies.

Now is the time to plant onions for fall crop. For a good keeping or storing onion the best is the Australian Brown, while closely following in popularity is the Danver. On account of their keeping qualities these are far superior to the whites, which are poor keepers.

A plant that is rapidly becoming known throughout Southern California is the roselle or lemonade plant. Fruit of this plant makes a superb jelly or sauce for the table, and is used in the tropics crushed and made into a sort of lemonade, or cooling drink. Roselle should not be planted too early, but if the weather is favorable the sooner planted the sooner will the crop mature in the late summer. The seed should be planted where they are to remain as they do not bear transplanting. The roselle is grown much the same as corn and beans, planting the seeds in rows in hills about one foot apart, two or three seeds to the hill.

Those having good celery land should not fail to plant a good supply of celery at this time. The plants will be ready for transplanting in June for a fall crop.

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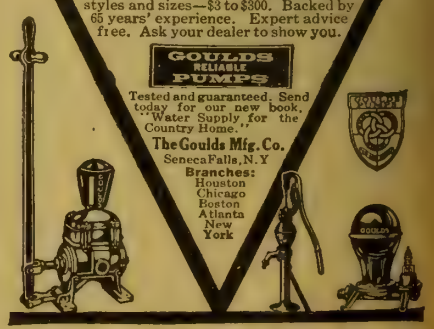

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THIS MONTH IN SOUTHERN CALIFORNIA

Written for the California Cultivator
By O. M. Morris

ALL manner of gardening operations are in order in the flower garden. Everything in both the tender and hardy flowering plants should be rushed in at once.

Hanging baskets should be renewed, either putting in new plants or dividing the old ones and supplying rich new soil. This will insure good results for the balance of the year.

Dahlias and gladiolus and the tuberous begonias should be planted.

Transplant asters, plants that are strong enough or, if no seed of this popular fall flower has been sown, it is not yet too late.

For a hardy bedding plant would suggest the portulaca, or moss rose, for covering bare spots during the hot summer months. This requires considerable heat to come into perfection and grows only during the summer, being strictly an annual, but it is well worth growing for its mass of flowers during the hot summer months.

All manner of flower seeds may be planted, either perennials or annuals. The sooner they are in the better they will be established before the hot weather comes on. Do not fail to try the new annual Sweet William. Seed planted during this month will come into bloom during July. These flowers are far superior to the old type of Sweet William.

Sufficient appreciation has not been shown the Margaret carnation. The seed is inexpensive and one may count on a big bed for cutting within four months from planting. It is advisable to plant the seed in a small bed and transplant, but with light soil satisfactory results may be obtained by planting in permanent location. These make great masses of flowers and while not quite as large as the florist's carnation, they are quite as beautiful.

THE DAMPING-OFF DISEASE

Damping-off is a disease of young seedlings and may be caused by any one of several species of fungi. It occurs mostly in the seed bed, where plants are growing in a crowded condition. It is rarely found in the open field. It is also a common disease in greenhouses, where a relatively high humidity is maintained and where the plants are protected from sunshine and free circulation of the air. The disease usually attacks the seedlings on the stem at the surface of the soil soon after it comes through the ground. It soon girdles the stem and destroys the epidermis. The plant topples over and dies.

Preventive rather than curative measures should be employed for this disease. If damping-off has occurred before, the soil should not be used again, or if used should be sterilized. Any method that will prevent the accumulation of too much moisture in the surface soil and reduce the relative humidity of the air about the plants is advantageous in preventing damping-off. This can be accomplished by practicing the following suggestions: (1) the upper layer of soil should be frequently stirred; (2) a free circulation of air about the plants and exposure to sunshine should be permitted; (3) the plants should be watered in the morning in preference to the late afternoon or evening; and (4) a layer of fine, heated sand should be sprinkled over the surface of the soil. —The Market Growers' Journal.

THE DAHLIA

By A. D. Robinson in California Garden

The season has been generally favorable to late blooming of the dahlia, and where early plantings were cut right back in August the second crop of flowers is now at its best. Experience seems to point to early planting of dahlias, May for preference, or even mid April, with a cutting back to the ground of part of the crop by sections two weeks apart, beginning about August 1, to insure continuous and late blooms. Be sure to mark your tubers if you intend to dig them. There does not seem to be any substantial benefit in lifting the tubers unless they are to be moved or blooming season is to be controlled by time of planting. The seedlings and rooted cuttings are safest left undisturbed, as the tubers being small, they are likely to dry out entirely if lifted. Something of course depends on the soil as stiff, cold clay might cause rot in the wet season. Returning to marking, use tags with copper wire and attach these right at the base of the stalk. Write on the tag the name, if you know it, but especially color and habit of growth, so that you have the necessary data for planting next year. Thus "Mr. Geo. Stevenson, Cactus, yellow, medium" or "Gustave Doazon, Dec. Red, Orange, large" (referring to plant not blossom.)

Don't be in a hurry to cut off your dahlia stalks. If done before the tubers cease activity, it will only stimulate new growth, which will weaken the tuber. Wait until the tops show a tendency to yellow and dry up. This will probably not be before December.

A NATIONAL ROSE GARDEN

The American Rose Society last spring completed arrangements to cooperate with the United States department of agriculture in establishing a rose garden at the nation's capital. This garden is to contain as complete a collection of roses as will grow out of doors in this section of America. The society is furnishing the roses, while the department has set aside two acres of ground at its Arlington farm for the garden. This garden already contains about 320 varieties of roses, but there are many hundred kinds not yet included, and eventually the site can accommodate as many as 2,000 varieties if they can be secured.

Any grower of roses who thinks he may have roses not already in the national collection has been invited by the American Rose Society to contribute a specimen plant. Correspondence concerning such plants should be sent to Mr. Alexander Cumming, Jr., of Cromwell, Connecticut, who is chairman of the society's committee on gardens. A list of varieties already grown and a plan of the garden will be sent to those interested on application to the department of agriculture.

An Overproduction of Apples ?

The present demand for apples in the United States, including those used for export, is placed by the Department of Agriculture at 55,000,000 barrels. If that many apples were raised in this country there would be no overproduction. Figures from the Department of Agriculture show there has been an average annual decrease of 25 per cent in the apple production during the last nine years. The serious shortage that exists for apples is attributed largely to the dying out of the old orchards and the insufficient plantings of new ones.

The Yucaipa Valley, eight miles from Redlands, altitude 2400 to 3000 feet, is the place to plant an apple orchard, and this is the time of year to visit Yucaipa and see what you would have if you had planted four years ago. It is not too late to make a start.

Come to Redlands and let us take you to Yucaipa and show you our five, ten and twenty acre tracts at $285 per acre, on very easy terms. One share of stock in a Mutual Water Company with each acre.

Redlands & Yucaipa Land Co.

DIKE & LOGIE, General Sales Agents

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LAND: Level, clean, strong; no brush or stumps; ready for plowing; between two railroads and within 1½ miles of stations on Southern Pacific and Western Pacific. In the Upper Sacramento Valley.
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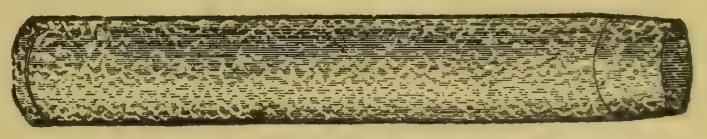

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Farm Bureaus

Ventura County, Wm. B. Parker, Adviser, Ventura

Ventura avenue, April 2.
Fillmore, April 5.
Camarillo, April 9.
Nordhoff, April 12.
Oxnard, April 14.
Moorpark, April 15.
Saticoy and Santa Paula, April 21.
Somis, April 26.
Mound, April 27.
Simi, April 28.

San Diego County, H. A. Weinland, Adviser, San Diego

Jamul, Thursday, April 1.
Jamacha, Friday, April 2.
Director's meeting, Saturday, April 3.
Encinitas, Monday, April 5.
Del Mar, Tuesday, April 6.
Vista, Wednesday, April 7.
San Luis Rey, Thursday, April 8.
Fallbrook, Friday, April 9.
Bonsall, Saturday, April 10.
Escondido, Monday, April 12.
San Marcos, Tuesday, April 13.
Ramona, Wednesday, April 14.
Julian, Thursday, April 15.
Alpine, Friday April 16.
Dehesa, Saturday, April 17.
Spring Valley, Monday, April 19.
Lemon Grove, Tuesday, April 20.
La Mesa Heights, Wednesday, April 21.
El Cajon, Thursday, April 22.
Special meetings with Dr. Cady, Friday, April 23.
Office, Saturday, April 24.
Chula Vista, Monday, April 26.
National City, Tuesday, April 27.
Nestor, Wednesday, April 28.
San Ysidro, Thursday, April 29.
Mission Valley, Friday, April 30.

Kern County, R. R. Mack, Adviser, Bakersfield

McFarland, Director, P. M. Peterson, Friday, April 2, 7:30 p. m.
Bakersfield, Director, M. J. Adams, Saturday, April 3, 2 p. m.
Wasco, Director, W. T. Fowler, Monday, April 5, 7:30 p. m.
Delano, Director, R. H. Hiett, Wednesday, April 7, 7:30 p. m.
Rio Bravo, Director, F. W. Haag, Saturday, April 10, 7:30 p. m.
Panama, Director, A. B. Robinson, Monday, April 12, 7:30 p. m.
Rosedale, Director, J. Waters, Wednesday, April 17, 7:30 p. m.
Tehachapi, Director, L. T. Jenkins, Tuesday, April 20, 7:30 p. m.
Muroc, Director, C. E. Clark, Wednesday, April 21, 7:30 p. m.
Willow Springs, Director, H. W. Mongold, Thursday, April 22, 2 p. m.
Bakersfield, Director, M. J. Adams, Saturday, April 24, 2 p. m.
Arvin, Director, R. Haven, Monday, April 26, 7:30 p. m.
Shafter, Director, E. U. Combs, Wednesday, April 28, 7:30 p. m.

Napa County, H. J. Baade, Adviser, Napa

Salvador, April 3.
Coombsville, April 6.
Browns Valley, April 7.
Calistoga, April 8.
Soscol, April 9.
Soda Springs — Napa, Directors' Meeting, April 10.
Carneros, April 12.
Fly District, April 14.
Wooden Valley, April 17.
Howell Mt., April 18, 3:00 p. m.
Rutherford, April 19.
St. Helena, April 21.
Pope Valley, April 23.
Mt. George, April 24.
Berryessa, April 28.

The subject of "Live Stock on Every Farm" will be discussed at these meetings. It is to be hoped that the keeping of live stock will become more general in this county, for it is very essential that every farmer should produce the meat consumed on the ranch.

Yolo County, Niles P. Searls, Adviser, Woodland

Rumsey, April 1.
Guinda, "Red Spider Control," April 6.
Esparto, "Red Spider Control," April 7.
Winters, "Red Spider Control," April 12.
Davis, April 14.
West Sacramento, Bean Growing," April 16.
Clarksburg, "Bean Growing," April 17.
Knights Landing, April 21.
Yolo, April 28.
Woodland, April 29.

The farm bureau has taken up a campaign for the county-wide control of hog cholera and of the red spider. A Hog Raisers' Association, for the cooperative control of hog cholera, is being organized. The disease has become alarmingly prevalent at this early date, and a strong organization is promised.

The almond and prune sections suffered heavy loss from red spider attack last year, and it is proposed to make an educational campaign, and to follow this with farm bureau agents, who will go from orchard to orchard, giving warning of initial infestation.

San Joaquin County, Frank J. Lyons, Adviser, Stockton

Acampo, Director, J. H. Clancy, April 2.
Stockton, Directors' Meeting, April 3.
Thornton, Director, G. 'L. Barber, April 5.
Lodi, Director, H. T. Bailey, April 8.
Lockeford, Director, E. M. Locke, April 12.
Linden, Director, E. L. Davis, April 14.
Murray Township, at Livermore, Monday, April 12.
Pleasanton, Wednesday, April 14.
Oakland, Friday, April 16.
Irvington, Tuesday, April 20.
Centerville, Friday, April 23.
Newark, Tuesday, April 27.
Niles, Wednesday, April 28.

Glenn County, W. H. Heileman, Adviser, Orland

Bayliss Center, April 1 and 2. Night meeting, April 2.
Ord Center, April 5 and 6. Night meeting, April 6.
Larkin Center, April 8 and 9. Night meeting, April 9.

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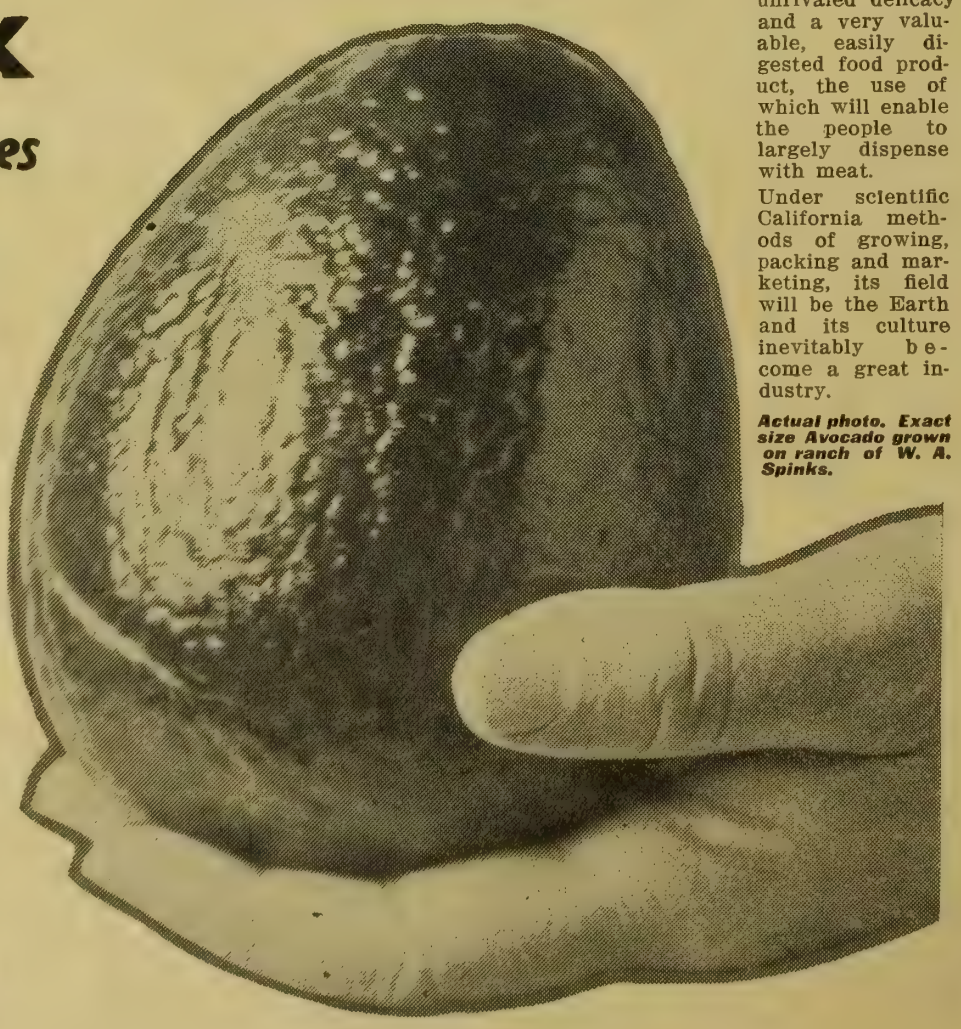
FACTS YOU OUGHT TO KNOW

Avocados will grow and thrive in California. Properly selected varieties will stand more cold than oranges, require no more water nor general care, do not so readily harbor pests, make nearly twice the growth per year, eventually produce several times the number of fruits per tree, and make most beautiful ornamental trees. The fruits grown in California are entirely superior in richness and flavor to those grown in the Tropics, and find ready sale at fabulous prices.

The Avocado is the most important fruit in the world, being at once an unrivaled delicacy and a very valuable, easily digested food product, the use of which will enable the people to largely dispense with meat.

Under scientific California methods of growing, packing and marketing, its field will be the Earth and its culture inevitably become a great industry.



Actual photo. Exact size Avocado grown on ranch of W. A. Spinks.

"As to the value of the Avocado fruit, no one on earth can question that. It is the most nutritious, easily digestible and delicious of all fruits and if it can be purchased in quantity will sooner or later be eaten by everybody everywhere."— Luther Burbank. Extract from letter of Feb. 20, 1915.

Vigorous field grown trees, 2-year-olds from the bud—of rapid-growing, cold resistant and prolific variety 1¼ inches in diameter or larger, $2.00 each. Will bear fruit in from two to three years. Lower prices on quantities. Take advantage of the times and buy at these low prices. Write for complete literature.

Keep this ad in your scrap book and look at it in ten years from now.

W. A. SPINKS
Duarte, (Los Angeles Co.,) Cal.

Codora Center, April 12 and 13. Night meeting, April 13.

Jacinto Center, April 15 and 16. Night meeting, April 16.

Orland Center, April 19 and 20. 14.

Ripon, Director, J. P. Watkins, April 15.

Manteca, Director, J. W. Graves, April 16.

Escalon, Director, E. A. Clough, April 19.

Holt, Director, R. G. Cople, April 21.

Waterloo, Director, R. G. Benjamin, April 23.

Tracy, Director, H. A. Frerichs, April 26.

Alameda County, Walter Nixon, Adviser, Hayward

Hayward, Monday, April 5.

Castro Valley, Friday, April 9. Night meeting, April 20.

Probable organization at Elk Creek, April 22 and 23.

Probable organization at Newville, April 26 and 27.

Work around Hamilton, April 29 and 30.

Boys high school clubs have been organized at Willow, Orland and at Princeton. The Princeton club is in Colusa County, though it draws largely from Glenn County in attendance.

The schedule is arranged to permit Wednesday of each week for the closing of center work in the various districts, for boys' clubs and special work. Saturday of each week is set aside for reports, routine work, directors' meetings and special trips.

The work in the county is as yet in its organization stages.

SAN DIEGO FARM BUREAU ANNUAL

In California there are 13 farm bureaus, which means that the farmers in 13 counties have organized themselves to advance their own interests and to aid in the work of the farm adviser. Of these 13 counties 11 have farm advisers installed. A farm bureau consists of representatives sent from farm "centers" or "locals" as they are sometimes called. The farm adviser's appointment is made by the state university and it is made possible through the Smith-Lever bill and through funds furnished by the state university and by the county. One of the first demands made by the state university before its funds can be used to aid in this work is that at least 20 per cent of the farmers of any county shall be organized into farm centers and a farm bureau.

One of the first counties in California to organize was San Diego, and the second annual meeting of its farm bureau was held in front of the big organ on the Panama California exposition grounds at San Diego on the 20th. The first farm adviser of that county was Mr. James A. Armstrong, but owing to his having been called to work along similar lines in Arizona his San Diego County work has been taken up by former County Horticultural Commissioner H. A. Weinland. From Mr. Weinland's report made at this annual meeting we learn that there are 528 members of the bureau in that county. Each of these members pays dues at the rate of one dollar, or rather the dues amount to 75 cents, and 25 cents is paid for a subscription to the official organ of the bureau. This bureau begins the new year's work with a balance in the treasury of $237.

SAN DIEGO COUNTY FARM BUREAU ON EXPOSITION GROUNDS. COUNTING THE VOTE AT ANNUAL ELECTION.

J. W. SHERWOOD, W. A. DORAN, J. A. CAMPBELL, THE NEW PRESIDENT; J. A. CAMPBELL, MRS. J. R. BLAKISTON, MR. BLAKISTON.

One of the first events of this annual meeting was the hearty endorsement given to former Adviser Armstrong for the excellent work done while located in San Diego County. Addresses and reports were made by retiring officers. The new officers elected were: J. A. Campbell, president; J. R. Blakiston, vice-president; Messrs. Doran, Culbertson, Bland and Edwards, directors.

Of course Prof. B. H. Crocheron was present and made a most admirable address touching upon the work, not only in San Diego County, but referred to the fact that better work and more satisfactory marketing conditions had been secured by the cooperation of farmers in these farm bureaus, this in addition to any benefit which may be secured through the work of the farm adviser. In fact, he wished it understood that the work of the farm bureau and the farm adviser were distinct, though best results were secured through their working together. The farm bureau has nothing whatever to do with the government, while the farm adviser is directly connected with the United States department of agriculture. Much good work is being accomplished by farm bureaus where there is yet no farm adviser. Even where there is a regularly established adviser the bureau has larger powers and opportunity for more immediate financial advantage for its members. For instance, the farm adviser is prevented from acting as agent or in any way conducting business operations for the farmers. He may secure and disseminate information, but the direct handling of the products of the farm or supplies which farmers may wish to purchase is out of his jurisdiction because of his connection with the federal service. The adviser must make report in duplicate each week to his state leader at Berkeley, and one of these reports is at once forwarded to Washington so that every adviser in the various counties of California has a weekly report filed for permanent reference in its proper place in Washington.

Leader Crocheron referred to many incidents in California where material benefit had been secured through the farm bureau organization and through farm adviser work. For instance, in Humboldt County the planning of irrigation systems or drainage systems, the purchasing of pure bred stock, the securing of lime much needed by the soil in that section, and other features were referred to. In Yolo County cow testing associations have been organized which have greatly increased the earning power of many districts. In Ventura County a squirrel killing campaign has been one of the principal features of the farm bureau work. Two other lines of activity in the same county have been the encouraging of more general swine husbandry in certain sections and of bud selection and more productive orchards in others. In Kern County the efforts of the farm bureau have been directed toward the organization of creameries and cooperative marketing concerns and the encouraging of local fairs. Perhaps the most beneficial work of all has been along the cooperative marketing line. The same problems which are being threshed out by these bureaus in California are being worked out in practically every other state in the Union. This matter of affiliation with other organizations is an inspiring feature of farm bureau work.

SOME ATTENDANTS AT A FARM BUREAU

County Farm Adviser Weinland Receiving an Attendant on Farm Bureau Day.
E. W. Major, Formerly of the State University, Now In Charge of the Dupee Ranch at Santee, and Professor Clarke, Discussing Beauties of the Exposition.
Ben F. Thorpe, in Charge of Large Ranch Property Near Oceanside, and Mr. Henderson, His Assistant.

STEAM PRESSURE CANNING OUTFITS

Can your Fruits, Vegetables, Corn, Meats, Fish, etc., for home use and for sale at a big profit. Outfit more than pays for itself the first year. 11 different sizes. Book of Canning Recipes free with outfit. Tells how to can everything. Write for Catalogue B.

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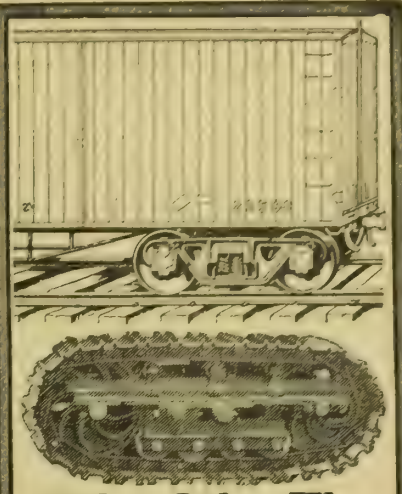

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That's the plan of construction in the "Creeping Grip" tractor. It lays and carries its steel track. It rides smoothly, creeping over the soil with a firm grip. It loses no power in slippage—it never packs the soil—saves money in fuel bills because of the greater power delivered—at the draw bar. Here's the tractor that cuts the cost of plowing and gets crops in on time. The

"Creeping Grip" Tractor

can enter soft fields in early spring when other tractors must lie idle waiting for wet spots to dry. By comparison the creepers are lighter on the soil than an empty wagon. They climb and oscillate over obstructions, carrying the machine on a center axle. Two points of contact rest on the ground, thus avoiding jolts on the machine. The frame rides on 3 points of suspension, which eliminates binding on bearings—upkeep cost is reduced to a minimum.

Write for Catalog

Prices, $1100.00 and up

Creeping Grip tractors have been tested and are now in use in all parts of the South and West. Let us tell you how you can save money with one on your farm.

On view 639 Mill St. April 2nd

Bullock's Orchard Tractor

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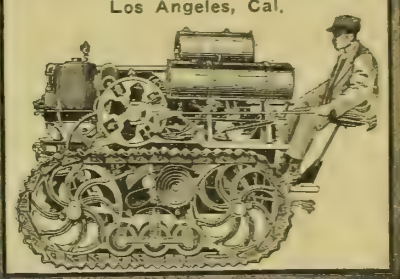
Los Angeles, Cal.



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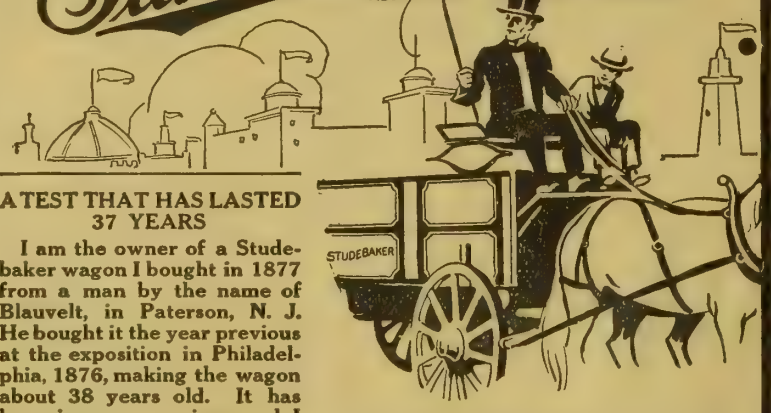

A TEST THAT HAS LASTED 37 YEARS

I am the owner of a Studebaker wagon I bought in 1877 from a man by the name of Blauvelt, in Paterson, N. J. He bought it the year previous at the exposition in Philadelphia, 1876, making the wagon about 38 years old. It has been in use ever since and I am using it now.

Henry DeRonde,
Spring Valley, N. Y.

His Studebaker came from the "Centennial," at Philadelphia in 1876

AWAY back in 1876—the year of the "Centennial" in Philadelphia—Dealer Blauvelt of Paterson, N. J., bought a Studebaker Farm Wagon there and sold it, a year later, to Henry DeRonde of Spring Valley, N. Y.

The wagon has been in constant use ever since, and is in use now—a long term of service for a wagon.

But Mr. DeRonde's wagon is a Studebaker, and long-lived Studebaker Wagons are found all over the United States.

Built for lasting service

You see, it is the way the Studebaker is built that makes it last so long. Air-dried wood, tested iron and steel, good paint and varnish, all count.

But the main fact is that Studebaker has been building wagons for 63 years and knows how.

Studebaker could not afford to build a cheap wagon. The motto of the house for six decades has been: *build not the cheapest, but the best.*

Any wagon salesman will tell you that a Studebaker wagon is built to last. And long after an ordinary wagon has been sent to the scrap heap a Studebaker keeps right on doing its work and earning money for its owner.

Suppose it does cost a few dollars more, isn't the increased life of a Studebaker worth it?

Studebaker Buggies and Harness are also built to outlast others.

STUDEBAKER, South Bend, Ind.

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An engine which will burn fuel costing three cents per gallon, and at the same time is an engine with 90 per cent less parts, is the engine for the rancher to buy.

A LETTER FROM A USER OF THE NATIONAL OIL ENGINE

Kingsburg, Cal., Dec. 19, 1913.

National Steam Pump Co.,
Los Angeles, Cal.

Gentlemen:

I bought the first NATIONAL Oil Engine sold in this State. Any one wanting an engine let them come and see my 15 H. P. pulling a 6-in. centrifugal pump lifting thirty feet throwing two cubic feet moving one foot per second, using low grade fuel. I will answer any letter.

Truly yours,
(Signed) L. E. HURLEY.

We guarantee the saving in fuel expense and purchaser's own judgment will tell him that in doing away with 90 per cent of the small, delicate and complicated parts, springs, gears, etc., that he is getting away from engine trouble when he invests in a National. 1915 catalog now ready.

NATIONAL STEAM PUMP COMPANY

Upper Sandusky, Ohio

Address California Representative, J. C. WIGHT,
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"Campbell" Gates Diamond Gates

ANDERSON FLUME GATE COMPANY

Redlands, Cal. **Phone Black 96**

"Campbell" and Diamond Gates will reduce your cost of water and labor to a minimum. Our specially adjusted Gate for pressure system when used in capped stands requires no valves. Send for price list today. Sample Gate postpaid 10c.

General Agriculture

NO SHORTAGE OF FOODSTUFFS LIKELY

THE 1914 wheat crop of the United States was estimated to be 891,000,000 bushels. The estimated surplus carried over from the 1913 crop was about 76,000,000 bushels. There was, therefore, a total available supply of 967,000,000 bushels. As the normal annual per capita consumption of wheat in the United States is about 5.3 bushels, 520,000,000 bushels should meet our normal domestic requirements for food; in addition, 90,000,000 bushels are required annually for seeding. Six hundred and ten million bushels, therefore, should supply the normal domestic demand. This would leave a surplus of 357,000,000 bushels. Of this surplus, about 210,000,000 bushels were exported by January 30. This left 147,000,000 bushels, or 40,000,000 bushels more than our average annual export for the past five years, for export between February 1 and the appearance of the new crop, or for carrying over into the next crop year. The amount is sufficient to permit the export of nearly 1,000,000 bushels a day until July 1, before which time the new crop will begin to be available. This is about the average recent exportation.

The large demand for our wheat arises from the fact that there was an estimated world's shortage of over 400,000,000 bushels outside of the United States, from the fact that the Russian exportable surplus of 100,000,000 bushels is not available generally, and from the fact that the belligerent nations are eager to secure food supplies. If it were not for these things, we should be discussing ways and means of disposing of our tremendous surplus of food products.

As has been stated, the new American crop will begin to appear before July. The Argentine crop is now coming on the market. It is estimated that from that source there will be available 100,000,000 bushels. A surplus of 75,000,000 bushels or more from India will be available in May and June. The increase in the fall-sown wheat acreage of the United States in 1914 was 11.1 per cent, or over 4,000,000 acres; in the northern hemisphere generally the acreage of winter wheat shows an increase of from 3 to 33 per cent, as follows: Denmark, 3 per cent; Italy, 5 per cent; Switzerland, 10 per cent; United Kingdom, 10 per cent; United States, 11 per cent; India, 22 per cent; Canada, 33 per cent.

But suppose a shortage in wheat should develop in the next three months, what would be the situation? There is a great surplus in other food crops in the United States, a number of which can be used as substitutes. Wheat does not constitute more than 12 per cent of the normal diet, about the same as poultry and eggs. Meat and dairy products constitute 48 per cent; vegetables, 11 per cent; fruits, nuts, sugar, fish, and other items the remaining 19 per cent. There are larger supplies of corn and other grains, meat animals, dairy products, potatoes, and fruit at the opening of 1915 than for many years. The most important competing products are corn and potatoes. This is shown by the fact that while the normal consumption of wheat is 5.3 bushels, in Maine it is only 4.7 bushels and in Michigan 5. In the wheat-growing states, where wheat is abundant, such as Minnesota, the average is 7.2, whereas in the South, where corn is much used, the average is 4 bushels. Normally about 3 per cent of the corn crop is consumed as food. Of our total crop about 80,000,000 bushels would be used for food, the remainder for other purposes. The remainder could be used for foods and substitutes used for animals. The potato production in the United States averages 3.8 bushels per capita. This year the available supply is 4.1 bushels. The average price of meat animals was 7 per cent cheaper in January than a year ago, butter 2 per cent lower, the price of chickens slightly lower, of potatoes 35 per cent lower, and of apples it was 37 per cent lower.

It would seem that the United States is not likely to be threatened with a shortage of foodstuffs.—United States Department of Agriculture.

BIRDS, BENEFICIAL AND INJURIOUS

Whether a bird is beneficial or injurious depends almost entirely on what it eats. In the case of species which are very abundant or which feed to some extent on the crops of the farmer, the question of their average diet becomes one of supreme importance, and only by stomach examination can it be satisfactorily solved. Field observations are at best but fragmentary and inconclusive and lead to no final results. Birds are often accused of eating this or that product of cultivation, when an examination of the stomachs shows the accusation to be unfounded. Accordingly the biological survey has conducted for some years past a systematic investigation of the food of those species which are most common about the farm and garden.

Within certain limits birds eat the kind of food that is most accessible, especially when their natural food is scarce or wanting. Thus they sometimes injure the crops of the farmer who has unintentionally destroyed their natural food in his improvement of swamp or pasture. Most of the damage done by birds and complained of by farmers and fruit growers arises from this very cause. The berry-bearing shrubs and seed-bearing weeds have been cleared away, and the birds have no recourse but to attack the cultivated grain or fruit which have replaced their natural food supply. The great majority of land birds subsist upon insects during the period of nesting and moulting, and also feed their young upon them during the first few weeks. Many species live almost entirely upon insects, taking vegetable food only when other subsistence fails. It is thus evident that in the course of a year birds destroy an incalculable number of insects, and it is difficult to overestimate the value of their services in restraining the great tide of insect life.

Bees and Their Care

BEE KEEPING IN MONTEREY COUNTY

Written for California Cultivator
By William Hackman

Most of our beekeepers are looking orward to a very profitable season or 1915. There will be a lot of peole here to attend the great show and ney will consume a vast output of alifornia's greatest of all nectars hich is made by the busy little oney bee. Our beekeepers should rive to make everything worth while r the bees in 1915. The loss thus ar through the winter has amounted to very little, either by draft or isease, as the winter has been very ild. The manzanita is now in full loom in nearly every nook where is in any way sheltered from the old winds, and the bees seem to ork upon this quite freely during ie warm part of the day. It is certainly one of the greatest helps the eekeeper has, as nothing stimulates rood rearing more than this first nectar of the season from the manzanita. ext for pollen comes the wild mustard, closely following the blossoming of the manzanita. Then about ie first of April the sage begins to oom out very full and the little oney bee goes right into general usiness for all he's worth.

INTERNATIONAL CONGRESS OF BEEKEEPERS

At the December convention of the alifornia Beekeepers' Association at os Angeles it was decided to hold ie next state convention in San rancisco this fall at such time as ay be decided on by the executive ommittee. That committee this ear is as follows: Harry K. Hill, hairman, Willows, Glenn County; W. . Allen, Ventura County; J. G. Gilrap, Ceres, Stanislaus County. The llowing are ex-officio members of ie executive committee. Prof. Willis ynch, president of state association, tockton; A. B. Shaffner, secretary, os Angeles.

Our committee has conceived the lea of making that convention an nternational congress of beekeepers. his seems to be the only reasonable onclusion, in view of the great Paama-Pacific Exposition in San Franisco to last from February till Deember; and also the Panama-Californ ia Exposition at San Diego, this year. There has never been a more opportune time for a beekeepers' congress of the world. Our committee is busy considering and planning on the best convention ever held, and the time is not yet definitely settled; but it will occur in September or early October.

We make this early introductory announcement to the beekeepers of the world, of every land and clime, of every nation and people, to arrange to meet with us, and to help us in the preparation of a program that has never been equaled.

We want the name of every prominent beekeeper of all countries who will be likely to attend the exposition and who might be induced to take part in a five-day program. We urge early action, that we may make all proper arrangements; and we ask all beekeeping journals to copy this call.

Address all communications to A. B. Shaffner, 4232 W. First Street, Los Angeles, or to the chairman of the executive committee, J. G. Gilstrap, Ceres, California.—J. D. Bixby, in Western Honey Bee.

SIZE OF BEES

Some time ago not a little was said as to getting bees of larger size, in the hope of getting larger crops of honey. Some, however, were of the opinion that increased size does not necessarily mean increased crops. Prof. Graf (Prak. Wegweiser) says that, just as it happens among men, that men under size often accomplish the most, so it is among bees. He has been breeding from the best, and it so happens that his best bees are under the average in size.

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Los Angeles County
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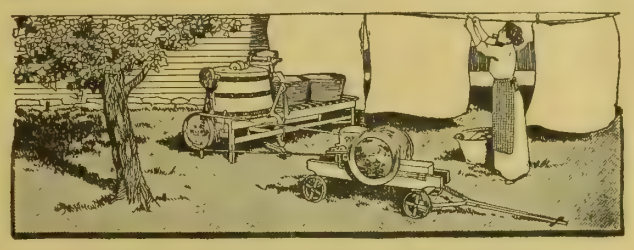

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New Triumph One Horse Engine. Just the engine for light work about house and barn, such as running washing machine, pumping water and operating other small machines. Saves every member of the family work and worry.

A reliable, efficient, low priced but high grade engine. Easy to start, smooth running, requires no attention when in operation, economical in use of fuel and perfectly safe in and around buildings. All working parts are back of the fly wheel out of the way—a neat outfit in every respect.

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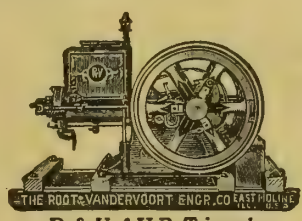
The R. & V. Triumph line of engines is also made in 2, 4, 6, 8, 10, 12 and 16 H.P. sizes, stationary and portable. Every farm can use one or more of these engines to advantage.



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They are dependable gasolene engines—always develop rated horse power.

An extra ring over the piston pin prevents scoring and ruining cylinder. This is an unusual precaution for lengthening the life of a gasolene engine. This careful attention to details is followed in constructing every part of the R. & V. Triumph.

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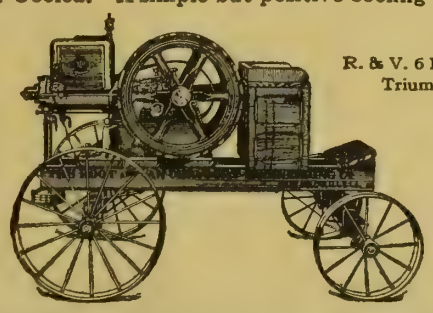
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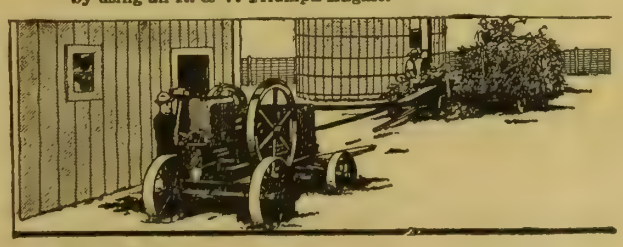
The gasolene tank for every R. & V. Triumph Engine is most conveniently and safely located—on practically all of the stationary engines it is in the sub-base.

Write for free booklet "Letting Gasolene Do It." This book tells how you can save time every day in the week by using an R. & V. Triumph Engine.



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With Quick Detachable Shares

John Deere Wheel Plows, known the country over as "Quality Plows" are now fitted with John Deere Quick Detachable Shares—an exclusive John Deere feature.

These shares are popular with farmers—they make hard work easy.

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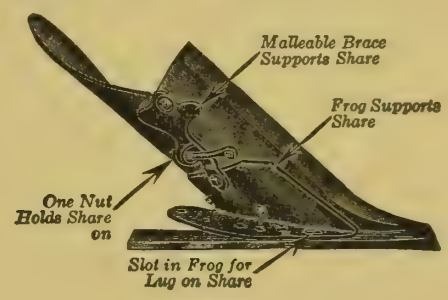
Unscrew One Nut—That's All

Unscrew one nut and the share comes off—slip share on, tighten the one nut and you are ready for work.

The share can be removed in thirty seconds and replaced in sixty seconds. Takes from eight minutes to half hour to change old style bolted shares.



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1. No trouble to change shares.
2. Eighty per cent of time saved.
3. No danger of damaging share.
4. Share is drawn up closer.
5. Share is stronger—not weakened by bolt holes.
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We have beautifully illustrated booklets on the following plows with John Deere Quick Detachable Shares:

New Deere Sulky and Gang
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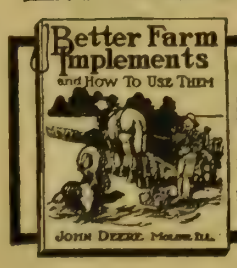
John Deere Two-Way Sulky
(Side Hill or Irrigated Land)

John Deere Engine Gangs
(For Traction Engines)

Write for the booklet above that you want and we will send it to you free.



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The California Cultivator

Rural California Combined with the California Cultivator

A Journal of Horticulture and Agriculture

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Thursday, April 1, 1915

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

WHEAT

Comparison of wheat prices in 1915 and 1914 is most interesting to the wheat producer and, possibly we may safely add, to the consumer. The United States over an average price of 83.1 cents prevailed in 1914, while in 1915 the price at same date was $1.33. It is also interesting to note that the production of this country this year, together with its holdover from last year, was the greatest ever. - Presumably prices will materially decline during the next few months. However it is to be noted that nearly all countries outside of the war zone are producing greatly increased crops.

FARM MARKETS

The legislature of Idaho has passed, and the governor has signed, a bill calling for the creation of the office of director of farm markets. The director shall be appointed by the governor and it shall be his duty to promote in the interest of the public more economical and efficient distribution of farm commodities. He shall maintain a market news service, including information as to crops, freight rates, commission rates, and any matter which may be of service to the producer or the consumer. In fact, he shall act as a clearing house of information between producer and consumer. It shall be his duty to investigate the methods of commission merchants and others who receive, solicit and in any way handle the produce of farms. It shall be his duty to take legal action if necessary.

CORN

The word, "corn" is bantered about so recklessly and applied to so many different things that it has ceased to have a very definite value in our language. Of course, in a large sense the word means the seed of any cereal or grass, and it is commonly so used in England. It the United States it is usually applied to Indian corn, but in the Imperial Valley "corn" means kaffir or some of the sorghums. Still more objectionable is the practice of adding maize after milo. Milo is in no sense a maize, and this combination of words is without sense and most confusing to anyone who wishes to know what grain is referred to. It seems to us that with the general application of the word "corn" to Indian corn, or the true maize, that this use should be followed in this state. If each locality makes different use of the same terms, it makes a most embarrassing situation to one who would use these words when many sections of the state and the country are to be informed.

RIPE OLIVES

We all ate olives—excuse us, California Ripe Olives. And they were fine, thank you. The Los Angeles Chamber of Commerce and doubtless nearly every other C. of C. in California kept open house and served ripe olives. As we stood near the table from which the young ladies were serving them we heard repeatedly from Eastern visitors, "Well, I never ate olives like that before." With each little parcel of olives given out were "Ten Reasons Why You Should Eat California Ripe Olives."

"Have a delicious flavor.

"Have a high food value.

"Can be given to children in place of candy.

"Can be eaten freely with no ill effects.

"Are an economical food.

"Are a typical California fruit.

"Make delicious salads.

"Are a good brain food.

"Are allowed to ripen on the tree (all fruit is better ripened on the tree).

"Eat them and boost California, Nineteen Fifteen."

PATRIOTISM AND PRODUCTION

The Dominion of Canada is making an appeal to all its farmers to produce as never before. The slogan of this campaign is "Patriotism and Production." In a circular recently issued, the department says:

"Patriotism without production is an empty sound. If ever there was a time when by your deeds you are required to be known, it is now. Now, when the Empire is at war; now, when many of the regular channels of supply are closed; now, when men in millions have been summoned from the paths of industry to the inferno of destruction. In entering upon the campaign in which it is now engaged, the department of agriculture of the Dominion has entered upon a task that should do untold good. It is not that our farmers needed altogether to be prompted to benefit themselves, but that perhaps some of them do not entirely recognize the seriousness of the present and the more than probable critical conditions of the future. If the war were to end tomorrow, there would still be need for every effort in productiveness, for many years must elapse before the devastation that has been caused can be remedied or repaired. Unhappily, the probabilities are that the giant conflict will continue for many months yet, in which case the mind of man cannot fathom or foresee the damage that will have been done to every form of industry, to agriculture in particular, by the waste of life, by the wrecking of property, and by the spreading of desolation. It is in repairing the damage others cause that the farmers are called upon to aid. It is their mother country that cries to them."

By the way, we see no reason why patriotism and production may not go together in America as well as in those countries more nearly affected by war conditions.

LIVE STOCK ASSOCIATION

The American National Live Stock Association ended its 18th annual convention at San Francisco last has served for six years, insisted Friday evening. President Jastro, who on retiring from active work as executive officer. In retiring he assured the members of his interest in the welfare of the association and said that he would continue to do all in his power for the welfare of the cattlemen.

The proceedings of the convention were without special note other than some little feeling was expressed as to freight rates. Members were free in charging the railroads with demanding excessive rates. President Sproule of the Southern Pacific was called on by President Jastro, and he replied that he has no cause to plead, that the public and the railroads "stand on common ground. Neither should ask for special privilege. All we ask is a fair field and a fair deal."

Dwight B. Heard of Phoenix, Arizona, was elected chief executive to succeed H. A. Jastro of Bakersfield. I. T. Pryor of San Antonio, Texas, is the new first vice-president. The other vice-presidents are J. B. Kendrick of Cheyenne, Wyoming; C. M. O'Donnell of Bell Ranch, New Mexico; M. K. Parsons of Salt Lake City, Utah; Wallace Huidekoper of Billings, Montana; Isaac Baer of Meeker, Colorado; W. J. Todd of Maple Hill, Kansas. John W. Springer of Denver, Colorado, is treasurer, and T. W. Tomlinson of the same city is secretary. S. H. Cowan of Fort Worth, Texas, is attorney.

El Paso was selected as the meeting place for the next annual gathering.

The resolutions adopted are as follows:

Demanding import duty on live stock and its products; indorsing the work of the bureau of animal industry and the various sanitary officials of western states for their work in the eradication of "foot and mouth disease epidemic;" demanding more thorough inspection of the wholesomeness of imported meat food products; demanding protection from the federal government for American live stock owners in the republic of Mexico; requesting adequate inspection of live stock and meats imported from Mexico; asking for funds to carry on the work of suppressing infectious diseases; indorsing the work of agricultural colleges; opposing the prohibitive tax on oleomargarine; indorsing the administration of national forests; favoring federal control of public grazing lands; thanking the railroads for certain rate readjustments from Montana westbound; asking for an appropriation for the destruction of predatory wild animals; protesting against the proposed advance in railroad rates on live stock, and asking railroads to readjust westbound rates on live stock.

University of California experts are investigating a new disease affecting pears near Auburn, Placer County.

Agricultural Notes

The American Association of Nurserymen will hold it 40th annual convention at Detroit, Michigan, June 2 to 25.

The Australian government is buying and killing sheep and beef cattle supplying direct to local markets Other measures are being adopted t lower cost of food supplies.

Lemons valued at $1,180,570 were invoiced through the American consulate at Catania, Sicily, for the United States during last year compared with $1,447,514 worth for 1913.

New York celebrated potato week from March 29 to April 3. The state agricultural college proposed the plan urging consumers to buy in large quantities and growers to sell at low figures for that one week.

More than 28,000 square miles of territory were released by the secretary of agriculture on March 1 from the Texas fever quarantine. The release order affects 32 counties in the United States. San Diego County in California is included.

The fruit growers in the province of Mendoza, Argentine, have formed a cooperative society for the sale of fruit in Mendoza and other large cities, so as to give an outlet to the large fruit crop of the Andine regions and at the same time create a market for grapes.

A large demand for cattle has arisen in Russia and Siberia, in consequence of which large exportations from Chosen are taking place. The latest order is for 50,000 head, 20,000 of which are to be Korean cattle, the balance to be supplied by Shantung Province in China.

No European pine trees will be permitted to be imported into the United States after July 1, a quarantine order to this effect having been signed by the secretary of agriculture. This action has been taken to save pine trees from the pine shoot moth which has long done much damage in European forests.

The importation of all Indian corn from Java, India, and parts of Oceania has been prohibited by a recent order signed by the secretary of agriculture. This action has been made necessary by the presence in corn from these regions of a disease known as Sclerospora Maydis, which causes the leaves of the corn plant to turn brown and dry up.

According to the official statement just issued, the inhabitants of Petrograd paid, during 1914, $10,000,000 more than in 1913 for actual necessities of life. The advance in prices was due to the war. The following are the articles that showed the largest percentage of increase in price over the preceding year: Salt, 50 per cent; rice, 56 per cent; groats, 57 per cent; flour, 18 to 20 per cent; butter, 12 per cent; meat, 26 per cent; sugar, 14 per cent; eggs, 3 per cent.

During the past four or five years experiments have been carried on in the southern part of French Indo-China for the purpose of turning to some profit the water hyacinth, which incumbers the waters of Cochin China and Cambodia to such a degree that is has become a menace to navigation. The most extensive and successful of these experiments have been in use of the fiber in the manufacture of rope, twine, matting, paddy sacks, boxes and chairs, sofas, cradles, and other articles of furniture. It has been mixed with silk to form a somewhat stiff but durable cloth.

Agricultural News Notes of the Pacific Coast

Northern California

The Butte County rice exposition will be held at Chico, May 24-29.

Large plantings of Thompson Seedless grapes are being made in Yuba County.

The California Cured Fruit Exchange reports slow demand for dried peaches.

Boys' agricultural clubs are being organized in the schools of Orland, Glenn County.

Several thousand acres of almonds have been planted during the past season at Pennington, Sutter County.

Grass Valley, Nevada, is planning for the shipment of a larger quantity of fresh deciduous fruits than any preceding year.

Butte County's board of supervisors has passed a resolution authorizing the purchase of $150,000 worth of state highway bonds.

Eighteen thousand acres of fine land has been reclaimed near Meridian, Sutter County, and is now being planted to various crops.

The Woodland Cured Fruit Association of Yolo County has affiliated with the California Cured Fruit Exchange for another year.

Farmers of Yolo County are making more persistent effort to eradicate hog cholera which has prevailed for some time in that county.

Poultrymen are calling for a state commission on poultry which shall have power similar to the state horticultural and other commissions.

The San Francisco Chronicle states that every available acre of bottom land in Yuba and Sutter Counties is to be planted to rice this season.

The bureau of correspondence instruction of the University of California shows an enrollment of 2,502 in the classes.

The Yuba County chamber of commerce has installed an information bureau at its headquarters in Marysville for the benefit of visitors who are arriving in bunches now.

A Los Molinos, Tehama County, rancher has just purchased a bunch of pure bred Jerseys consisting of 16 cows and a bull. He has sold all his grade cattle and will give his un divided attention to Jerseys.

The Anderson Creamery Company of Anderson, Shasta Company, is making arrangements to enlarge its plant so that it can produce 6000 pounds of butter per day. This will make this creamery the largest in Northern California.

Farmers of southern Lassen County met recently at Doyle and decided to push the formation of an irrigation district which contemplates the reclamation of 200,000 acres. It will call for the issuance of bonds to the extent of $3,500,000.

Many residents of the Sacramento Valley are disappointed in the exhibit which has been made at the Panama-Pacific Exposition, and more at the returns which the valley is not receiving. A committee has been working on a plan which calls for more satisfactory exhibits.

Central California

It is reported that 20,000 acres of raisin grapes will be planted in Kings County this year.

Merced County is now interested in rice culture and several plantings will be made this spring.

Fumigation work in Tulare County will be done under the direction of county officials this season.

Fresno will next September entertain delegates to the 22nd annual International Irrigation Congress.

An apple blossom festival is proposed to take the place of the Apple Annual this year at Watsonville.

The San Joaquin Sugar Company of Visalia is inducing farmers of Merced County to put in sugar beet acreage.

The Tulare County Protective Association is now interesting itself in the marketing end of the citrus business.

The Dinuba Grange has suggested the advisability of securing a farm adviser for the Alta Irrigation District.

At the recent annual meeting of the Corralitos, Santa Clara County, Fruit Growers' Association L. E. Elliott was elected president.

Fruit growers of the Youngstown colony in Stanislaus County have formed an association to market their canning fruits the coming season.

R. M. Roberts, agricultural demonstrator for the Santa Fe, says that there are 3500 acres of apples and pears in excellent condition in the country about Tehachapi.

Efforts are being made to have Raisin Day, April 30, declared a school holiday by every school in Fresno County. All of Fresno's city schools have a holiday on that day.

Melon growers at Turlock have incorporated under the name Cooperative Cantaloupe Growers. The principal object of the corporation is to handle the marketing end of the business.

Raisin growers of Fowler, Fresno County, have appointed a committee to secure new contracts for the Associated Raisin Company. The committee is meeting with marked success in its work.

Nearly 100 orange growers of Tulare County, at a meeting called recently by the officers of the Tulare County Protective Association, unanimously went on record as favoring a continuance of orange testing and certification of shipping fruit.

The Apple Annual Association, in its recent meeting at Watsonville, elected the following directors for the ensuing year: O. D. Stoesser, J. E. Gardner, W. R. Porter, Mateo Lettunich, Luke Scurich, Geo. W. Sill, J. H. Thompson, E. A. Hall, J. H. Rowe, W. J. McGrath, R. H. Goodchild, E. Steinhauser and C. H. Baker.

The Stanislaus County Cow Testing Association has started a campaign to increase its membership. The following officers have been elected for the ensuing year: State Dairy Inspector C. A. Starkweather, president; J. W. Scott, vice-president. Other officers elected are: Directors, C. L. Morse, W. L. Bowen and E. F. Young.

Southern California

Bean planting has begun in the Garden Grove section of Orange County.

There will be a considerable acreage of beans planted in Imperial Valley this season.

Some dairymen of Orange County maintain that there is an oversupply of dairies in that county.

The Orange County Fruit Exchange estimates that it will handle 1300 cars of Valencias as against 1000 last year.

The Citrus Association packing house at Olive in Orange County is to be constructed and ready for business by May 15.

Twenty-nine carloads of sheep from an Arizona ranch were received last week at Brawley to be fattened on green pasture.

The Tustin Lemon Association of Orange County is putting up a temporary packing house which will hold about 15 carloads of lemons.

The Santa Ana Valley Growers' Association has decided to re-lease its present packing house instead of building as was proposed.

On March 1 the price of milk was reduced by the creameries in Los Angeles County from $2.35 to $2.00 per 100 pounds to the producers.

J. M. Davison of Arlington has been elected trustee of the Poultrymen's Association of Southern California. He will represent the Riverside district.

The Southern California Milk Producers' Association has been organized with a membership of more than 300 milk producers to supply the creameries of Los Angeles.

The annual meeting of the Hemet Cured Fruit Association will be held April 24. During the season just closed 445 tons of apricots were dried and processed by the association.

Seventeen years' litigation has been settled between settlers in the Perris Valley and the irrigation company. Settlement was made by a compromise. This will clear the titles on all land involved.

The La Habra district of Orange County will soon have a new orange and lemon packing house on the La Habra electric line. This association is a new one. About 500 acres of young orchard are owned by its members.

The Poultrymen's Association of Southern California has divided Southern California into five districts to facilitate managing of its business. The centers of these districts are Los Angeles, Gardena, San Garbiel, Pomona and Riverside.

United States Date Inspector Shamblin, together with Bruce Drummond, in charge of the date experiment stations at Indio and Mecca, is making inspection of all date plantations in the valley with the view to conducting a strict campaign against date scales.

Imperial Valley expects soon to receive a shipment of 2,000,000 lady birds to combat aphis in the cantaloupe and barley fields. These will be sent from the state insectary at Sacramento to County Horticultural Commissioner Waite and he will distribute them to the fields.

The Coast

Monmouth, Oregon, will soon have a new cheese factory.

The storage of eggs is very slow in starting this spring in Washington.

Twenty-five carloads of horses were recently sold at auction at the union stock yards at Caldwell, Idaho.

The cattlemen of Williams, Arizona, have voted against the building of drift fences on forest reserves.

The Utah Fruit Growers' Association has made the Utah Farmer its official organ. The Farmer is printed at Lehi.

Wool buyers in the district of North Yakima, Washington, are not finding holders very anxious to dispose of their clip.

A Pure Bred Beef Breeders' Association has been organized among stockmen of the Gallatin Valley, Montana.

Oregon hens claim they have the lead in the International Egg Laying Contest being held in connection with the Panama-Pacific Exposition.

A statement made by dealers operating in the Yakima Valley of Washington shows that there are in that district some 250 cars of apples in cold storage.

It is proposed to build a potato starch factory in Jefferson County, Oregon. The farmers are planning to plant more heavily to potatoes than ever before.

The University of Arizona is starting poultry clubs among boys and girls of the state. L. S. Park of the university extension service is in charge of the work.

Some one is proposing to utilize the wild grasses growing along the Colorado river bottoms for manufacture of rope. This wild hemp is said to make a first class product.

By a recently enacted bill the state of Arizona accepts the provisions of the Smith-Lever bill and appropriates sufficient funds each year to meet the increase provided by that law.

Arizona was well represented at the convention of the American National Live Stock Association at San Francisco last week. Two special cars carried the Arizona representation.

The Lake Chelan district of Oregon is planning to produce a new fruit product in the shape of compressed fruit bricks. Fifty pouds of apples are compressed into a ten-pound brick.

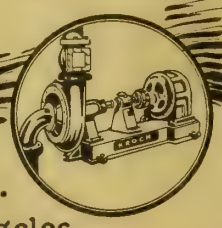
The by-products committee of the North Pacific Fruit Distributors has issued a formal program of work to be undertaken by the cooperating associations represented by its members.

Fruit growers of Colorado have organized a general selling concern which will handle products of the members. It is expected that the organization will handle at least 75 per cent of Colorado's fruits.

The shipping organizations of the Northwest, representing a tonnage of 16,000 cars, have formed an organization known as the Northwest Fruit Shippers' Council. The president of the governing board is H. F. Davidson, of Hood River, who is president of the North Pacific Fruit Distributors of Spokane.

Krogh Pumps

You should take no chances on your water supply — Krogh Pumps will supply all water for the San Francisco Fair. Consider for yourself why they were chosen.



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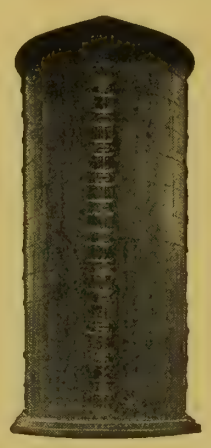

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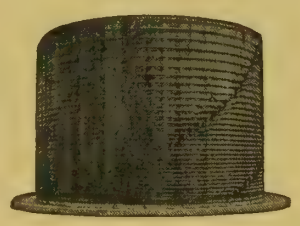

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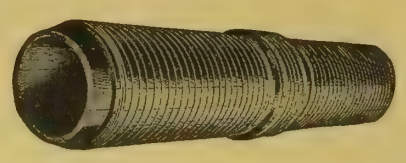

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Live Stock and Dairy

LIVE STOCK NOTES

Written for California Cultivator
By Sacramento Valley Contributor

NOTHING should be hauled to market that can be made to go on foot." This is a good maxim to print in big letters, frame and hang over the fireplace.

This means that all rough feed on a farm should be fed to animals, and its liberal construction would include as "marketed on foot" hogs that might be hauled in a wagon to market or dairy products, for both the hog and the dairy cow are "on foot" transformers of grain and forage into animal products of high "per pound" value.

Although the entire grain and forage crop of California could doubtless be profitably converted into meat and milk, a change in the plans of all who are growing barley, wheat and alfalfa could not, and surely will not, take place in one year or ten, probably never—but there are many individual farmers who could gradually work over their plans and year by year equip their places for the care of live stock to consume the feed they produce.

And when a farm is changed over from grain and forage production, the hay and grain to be sold as such, to a stock farm where most of the stock marketed is grown on the place, there will be a big increase in the average income per year.

During the past ten years there has been an increase in the output of all staple farm products except corn, hogs, cattle and sheep, and in the production of meat making animals there has been a marked decrease. In 1899 there were 50,000,000 cattle in the United States, in 1909 only 41,000,000. In the same period the number of sheep decreased from 61,000,000 to 52,000,000, and hogs from 63,000,000 to 58,000,000.

This would make it appear that the production of meat animals for the next decade, and probably for all time, will be one of the best businesses in the world, and particularly so in California's big valleys where climate is favorable to the continuous even growth of animals and where maximum crops of grain and hay can be raised. And where live stock is raised and the manure put back on the land, either by the animals themselves while at pasture, or with a manure spreader, the crops of grain and hay can be made greater year by year and a system of agriculture built up that will endure for generations.

Silage for Horses

Silage is not generally considered as a horse feed. It is first of all a high class feed for dairy cows. Now all of the big feeders of beef cattle throughout the corn belt and well out into the range country in Texas and Oklahoma are feeding silage, and it is considered indispensable by many feeders of sheep.

But the average man, somewhat informed on the subject of feed and feeding, will say without hesitation that silage is not much of a horse feed.

Now comes a report from the Middle West from a prominent horse breeding farm where high class and pure-bred horses are bred and raised. The splendid condition of the stock being commented upon by a visitor, the owner was asked to explain it—if there was any reason except ordinary good care and handling. In reply the visitor was directed to look around behind the barn where he say a silo. He was told that a small amount of silage, four or five or six pounds per head, was fed daily throughout the entire year, as much as a tonic or conditioner or appetizer as anything else, but that it apparently kept the digestive tract in good condition and was an important factor in the general thrift and well being of the stock.

Care must be exercised, however, in feeding silage to horses; it must be clean and free from mould. Mouldy silage will cause indigestion and other troubles.

Give the Mules a Chance

At seasons of the year when there is no work to be done the mules and other work animals are turned out to rustle for themselves. And generally it is perfectly all right that they should be. The mules are better off for the exercise and the variety of feed they get, the place is the better off to have the fields cleaned up somewhat and to have the manure from the stock well distributed over the land, and the time that would otherwise be devoted to feeding the stock and cleaning out stables, if they are kept up, can be used to good advantage at a hundred and one jobs all around the farm.

But—there often comes a time when the feed gets short and the weather a little rainy or rough, when all of the stock, or perhaps only a few of them, begin to go back with their hair standing up too straight and with flesh lost. Then it is that it pays and pays well to take these animals up and give them plenty of good feed and such shelter as they need. For shelter a dry bed in a shed out of a draft is ample in the Sacramento Valley.

It is a fine thing to have the stock out of the way for awhile, but it must be remembered that a time is coming soon when a big day's work will be required of all work animals and when such time comes it is poor economy to hire a man to work a team a day when the team is fit to do only two-thirds of a day's work.

No other grain or good hay that is fed throughout the entire year produces such pronounced results as does that fed in this way.

Danger in Skim Milk

Much disease has been spread through skim milk. Tuberculosis in hogs throughout the principal dairy sections of the Middle West is traceable largely to this source, and now creamery skim milk, contaminated from the product from one producer, is responsible for the spread of foot and mouth disease in Dupage County, Illinois. A farmer in an infected district made light of the disease and took milk to the creamery from a cow suffering from the malady. As the skim milk was not pasteurized and all of the patrons of the creamery took skim milk home to feed to the calves and pigs, 24 farms were soon made seats of infection.

In central Wisconsin, so common has hog cholera in hogs become, where skim milk from the cows is a common feed for hogs, one small pork products concern has great difficulty in securing hogs that are of high quality as far as the meat is concerned and free from all disease. They now obtain practically all of their supply from hogs grown on dairy farms where the cows are all tuberculin tested and where only the skim milk from the cows in the home herd is fed to the hogs. And great care must be taken in these herds to keep them clean. All cows or heifers or bulls that are bought must be tested for tuberculosis, and breeding hogs that are added must come from herds that are known to be disease free.

And in spite of all this skim milk is one of the most valuable feed assets on a farm, and if it is not possible to secure it from sources known to be free from infection, it should be pasteurized or boiled to kill all disease germs. If pasteurization in a regular pasteurizing outfit is not possible, a thorough boiling at home, before feeding, should be given. The same applies to buttermilk.

CALF FEEDING

The proper growth and development of the calf is equally as important as the care of the full-grown cow, for good cows cannot be made out of poorly fed calves. Whether the calf is destined for the dairy or for the bles, the true principle is to in a thrifty growing condi- end is reached. It is ary that the calf be fat—in fact, it is better not to be so. The feed should be such as to produce bone and muscle to form a strong framework with which to produce milk or upon which to lay fat in the time of maturity. The mother's milk, if it be not too rich in fat, furnishes the best food for the purpose, but in our commercial dairying butter fat can be disposed of at a higher price if made into cheese or butter and a substitute offered which is cheaper.

If the calf is to be raised on skim milk as the principal food, it should receive fresh whole milk for the first ten days or two weeks. Then substitute skim for whole milk, a little at first, and increase gradually until, by the time the calf is three weeks old it may receive no whole milk whatever. As soon as this substitution begins add a small handful of wheat middlings to the ration and increase the quantity gradually as the skim milk is increased. Induce the calf to eat dry grain and hay as soon as possible and give the milk simply as a drink. It will be remembered that skim milk is highly nitrogenous, and to make it a perfect food requires the addition of carbonaceous material. Nothing supplies this any better than corn meal, but owing to its high price rolled barley may be used, mixing barley, wheat, bran, and middlings in equal parts and feeding from one to two quarts per day by the time the calf is two months old.

In the case of feeding whey one may begin when the calf is about two weeks old by adding a little to the regular ration of whole milk and increasing the portion, as suggested above with skim milk, until the calf is a month old, when the milk may be taken away entirely. Unlike skim milk, whey is more largely carbonaceous, owing to the removal of the casein as well as the butterfat. Thus the grain ration should contain more protein than for skim milk feeding, and for this reason some linseed oilcake meal should be added to the middlings as soon as the whey is fed. Whenever the calf can be induced to eat the grain dry, give a mixture of two parts each of bran and middlings and one part of linseed meal. The calf develops a stronger digestion if it can be early induced to eat hay and its grain dry, and drink the milk or whey alone. The chief difficulties in feeding whey arise from permitting it to sour before feeding and depending upon it as the sole food. While it may be possible to raise fairly good calves on skim milk alone it should never be attempted with whey, because the latter contains only about two-thirds as much food substance as the former. Both should always be fed sweet. The amount of grain necessary depends upon the quality of hay or pasture to which the calf has access. The hay should preferably be alfalfa.—Jaffa and Anderson, in Bulletin 132, California Agricultural Experiment Station.

WHY PURE BRED STOCK?

A lady unfamiliar with live stock asked the writer this question, "Why is pure bred stock best?"

In the first place pure bred stock is best because a perfected product. It has been selected and bred and every possible improvement introduced and added from time to time in order to supply certain needs of man of an animal profitable in the highest degree.

Every standard breed is a specialist in its line. The dairy cow is like a machine developed for the purpose of converting forage plants and grain into milk and butterfat with the least possible waste. Common stock was the crude working model from which she was produced.

She is a finished product, or perfected machine, whose capacity for manufacturing the above commodities has been increased by hundreds of pounds over the capacity of the original model.

Then we have the beef breeds designed to convert the same plants into another article of food called beef. They are adjusted in a way to divert food into an opposite direction from the milking strains, making equally valuable the different products from the same materials.

Then we have a big machine for carrying heavy loads and moving freight, called the drafter. Another, the light runabout, or pleasure horse. He was once the nation's pride and is still the most admired of all animals. He is a marvelously fine running machine and the nearer he approaches the pure blood the better he is.

A few contend that grades are equally as good as full bloods. While grades are good and quite satisfactory, their main recommendation is the fact that they may more easily and more cheaply be obtained. While it is a fact that grade animals have made a number of world's records, it is also a fact that they were enabled to reach distinction because of the pure blood in their veins. In a few instances, race horses of unknown breeding or supposedly common blood have approached or even set world's records. But, in every instance, on careful investigation of their ancestry, a dominant purple strain is revealed.—Farm Stock and Home.

In securing expensive sires much can be gained by breeders in purchasing desirable animals. The cost of an animal, the best that can be had, might be prohibitory for one man or even two or three men, but when a dozen or two dozen share the cost it would not cost the individual a large amount. Then the cost of keeping could be reduced the same way.

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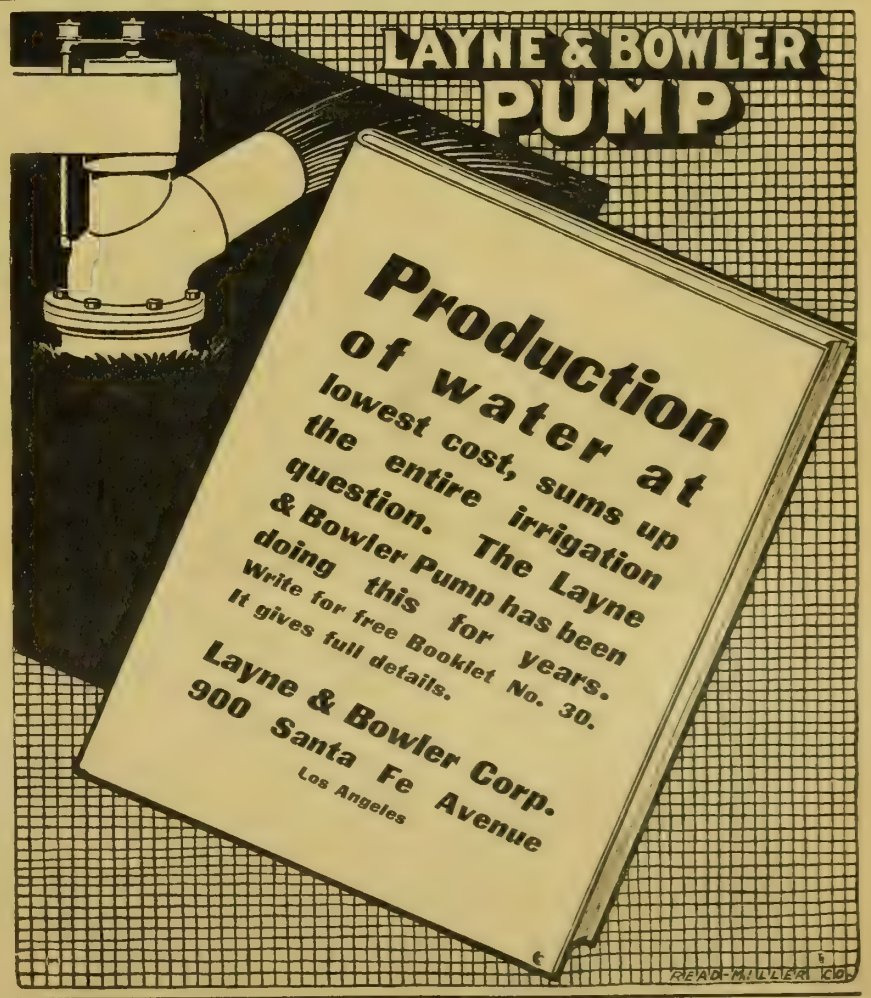

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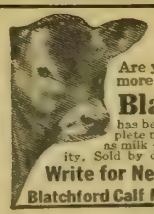

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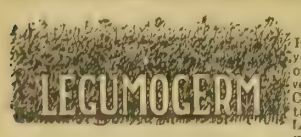

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CONVENTIONS TO BE HELD AT PANAMA-PACIFIC

Chief D. O. Lively, of the Department of Live Stock, Panama-Pacific Exposition, writes giving dates of national and other live stock breeders' conventions to be held in San Francisco the coming fall as follows:

American Associaton of Importers and Breeders of Belgian Draft Horses, October 2.

American Shire Horse Association, October 4.

American Shorthorn Breeders' Convention, Ortober 22.

American Galloway Breeders' Convention, October 23.

American Aberdeeen Angus, October 25.

State Humane Association, October 25.

Red Polled Cattle Club, October 26.

California Creamery Operators' Association, October, 28, 29 and 30.

American Poland China Record, November 3.

American Milch Goat Record Association, November 3.

Romney Sheep Breeders' Association, November 4.

Continental Dorset Club, November 5.

American Southdown Breeders' Association, November 6.

American Hampshire Swine Record Association, November 6.

American Oxford Down Record Association, November 8.

American Angora Goat Breeders' Association (Angora and Mohair Goat Day), November 9.

Duroc Jersey Swine Breeders' Convention, November 9.

O. I. C. Swine Breeders' Association, November 10.

American Tamworth Association, November 10.

Chester White Swine Breeders' Record Association, November 11.

The American Shropshires Registry Association, November 11.

National Mohair Growers' Association, November 11.

American Berkshire Association, November 12-13.

American Yorkshire Club, 12-15.

Continental Dorset Club, November 13.

American Buff Plymouth Rock Club, November 18.

American Cornish Club, November 19.

Buff Minorca Club of America, November 20.

American Buff Plymouth Rock November 20.

American Buff Plymouth Rock Club, November 20.

National Columbian Wyandotte Club, November 20.

American Cornish Club, November 24.

American Pigeon Fanciers' Association, November 24.

National Pet Stock Association, December 2.

A LESSON ON PIGS

In this year's pig raising contest of the boys' pig clubs of North Dakota, the average profits per litter, with pork at 6 cents, were: For the Poland China, $38.10; for the Duroc Jersey, $42.26; for the Yorkshire, $48.33; for the Chester White, $34.30; for the Cross breed, $26.38.

The average profit of the 24 litters that stood highest was $61.04.

Corn, barley and oats were the main feed used. Shorts, screenings, rye and speltz were also used. Nearly all used pasture, two-thirds of them fed considerable milk. The value given the foods were as follows. Corn, 49 cents per bushel; oats, 32 cents; barley, 45 cents; rye, 57 cents; bran and shorts, $19.00; screenings, $10; skim milk, 25 cents per hundred weight; grass pasture, $3.49 per acre. —W. E. Vaplon, State Leader Boys' and Girls' Clubs, Colorado Agricultural College.

BUTTER WON'T COME

Answering a query as to frothing cream in which the butter will not gather, in the National Stockman and Farmer, a writer says:

Difficult churning is usually due to the failure to develop the proper amount of acid in the cream. When cream sours, the butterfat particles unite more readily, and during the winter it is sometimes diffcult to get the proper acid developed. Usually, however, if the cream is held at the proper temperature normal souring will take place.

Separate the cream at once and place it in cans that have been washed and then scalded with boiling water. Keep this cream cold and add other cream to it after it has been properly cooled, until the day before churning. The churning should be done at least once a week, preferably twice. The night before churning the cream should be gradually warmed up to 70 degrees to 75 degrees Fahrenheit and held at that temperature until the next morning, when it should have a slightly sour taste. In order to hold the cream over night it may be necessary to put the can of cream in a tub of water, which should be 75 degrees and if the temperature goes down, a little warm water may be added the last thing in the evening. The following morning the cream should be cooled to churning temperature, and held at that temperature for about an hour, then churned. The churning temperature will depend upon the way the cows have been fed and somewhat upon the breed of cow, usually 60 degrees is sufficient at this time of the year. If, however, the butter comes soon and soft at this temperature, then a somewhat lower temperature should be used the next time, or, if on the other hand, it requires more than a half hour to churn and the butter becomes very hard then a higher temperature should be used. Do not have the churn over one-third full and then churn at such speed that the cream will dash each time.

With this treatment of the cream you ought not to have any difficulty in getting butter.

Occasionally, however, there are cows that do produce abnormal milk, especially if they have been milking a long time without having a calf, or if they are not fed sufficiently. It would pay to give a cow grain in addition to silage. The physical condition of the cow should also be observed. See to it that the bowels are kept in good condition. With sufficient silage there ought not to be any difficulty in keeping animals in a laxative condition. A dose of salts or a bran mash often affects the cows so that they will produce normal milk when they would not be doing so otherwise.

According to investigations a dairy cow will recover for human food about 25 per cent of the dry digestible matter consumed; a hog about 15 per cent, and a steer about 3 per cent. This, togehter with the fact that a good dairy cow will return $2 worth of produce for every $1 worth of feed consumed, should be a covincing argument in her favor.

The cow pays for her board every day if she is the right kind. And the up-to-date dairyman doesn't care to keep any but the right kind.

Are you troubled by rats and mice gnawing your harness? That's because you've used harness dressing containing animal oils which always attract rodents.

EUREKA HARNESS OIL

contains no animal oils,—and rodents won't touch harness that's treated with it. Eureka nourishes the leather fibre—keeps your harness soft, pliable and strong. Have your harness man dip your harness in Eureka Harness Oil. Or buy a can and apply it yourself. It's easy—and it *pays*. Make your harness last longer. Dealers everywhere.

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In All the Counties

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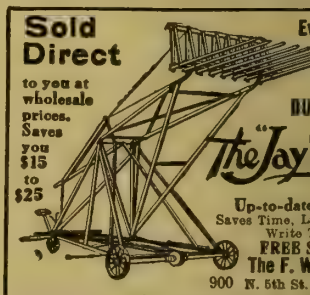

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Potato Pointers

By Horticultural Commissioner A. J. Cook in Monthly Bulletin

Very few agricultural products are so worthy to be knighted as the potato. It is a staple food article, and we have only to give its composition to indicate its rare worth. True, it has hardly more than two per cent of protein, yet we know that protein can be greatly reduced if the conserving starch or sugar is in abundance. Potatoes contain 18 per cent of starch. Starch is nature's favorite carbohydrate. In all the past starch has been a coveted food element. We thrive on what has nourished us from our infancy and from the infancy of the race. Potatoes carry only one-tenth of one per cent of fat, the hardest food element to digest, and 78 8-10 per cent of water. We have only to remember this last to gain a higher appreciation of the protein content of the potato. Where else other than in the potato field can we secure such a return per acre? Good husbandry may expect 500 bushels per acre of these nutritious tubers, a wealth of production scarcely equaled in any other field of agriculture.

We see then that whatever strikes at our potato industry is a certain menace to the welfare of the state. It is an alarming fact that our potato production in some of the best potato sections has been reduced to one-third of its former magnitude, and the end is not yet. In the recent past some growers have planted to reap little or nothing. Yet we are free to say that this decline is wholly owing to bad husbandry. Some of our growers, the wise and prudent ones, have produced banner crops, upward of 500 bushels per acre. Others in Oregon, Washington, Idaho, Colorado, Wisconsin and Maine are equally successful. The British Isles, Germany and The Netherlands eclipse even our best spud men in their production. Germany is reported to produce eighty million tons of potatoes annually. This is more than a ton per capita. If this report is correct, it is very suggestive. Is it not wise and worthy, then, to make every effort to improve our cultural methods, that we may reinstate the old-time success in the production of this excellent food product? We can not afford to do otherwise, as good clean seed is greatly in demand, and he who produces this will top the market in the prices he receives for his seed potatoes.

There are two potent causes for the decline in our potato production: diseased seed and infected soil. There are three fungous diseases that are now very prevalent in our state, all of which affect the potato, tubers or vines, or both: the common scab, which disfigures the tubers; the rhizoctonia fungus, which affects the vines and roots so that the growing potatoes secure too little nutrition and fail to develop, thus looking like a bunch of grapes, hence the name "little potato." These often appear above ground. The third is the fusarium wilt, which also blights the vines and the roots and later the tubers, which become diseased and are often destroyed. These last two affections are much more serious than the scab and are the principal factors in the destruction of the potatoes, not only in California but throughout the United States.

Scab and rhizoctonia are carried in the soil which has previously borne diseased potatoes, and so contains the germs, ready to inoculate newly planted seed. This is also true of fusarium wilt. Both these diseases also carry on affected seed, hyphae, or sclerotia, which serve as the seed to spread the destruction. These two evils are alike, in that seed affected by either one yields to treatment, if immersed for two hours in corrosive sublimate, 1 to 1000—1 ounce to 8 gallons of water—or in formalin, 1 ounce to 2 gallons of water.

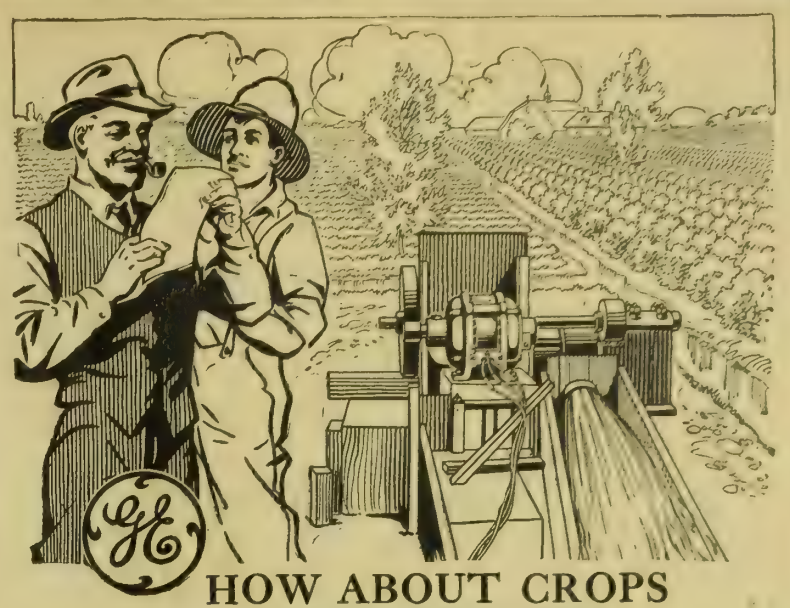
The rough eruptions (scab), so ugly in appearance, quickly reveal the presence of scab. It does not reduce the yield, but so mars the tubers that the price is materially lessened. The thick peel to remove the disease is also a considerable waste.

The destructive rhizoctonia appears as specks of dirt from the size of a pinhead to quite sizable patches. We know that these are not dirt, as their close adherence prevents removal when placed under the hydrant. We can, however, scrape them off with the finger nail without wounding the potato, which we can not do if the spots are scab. When thus removed the potato is not wounded. Of course, scab, which often resembles rhizoctonia, can not be removed without breaking the tissue. We should always treat the potatoes as described above if the eruptive scab or the closely adherent rhizoctonia is present. Indeed, it is always a safe precaution to treat apparently sound seed, lest a very slight infection is present, so minute as to escape detection.

The third fungus, worse than rhizoctonia and far worse than scab, is the fusarium wilt. This blights the vine, kills the roots, stops growth and is fatal to the crop. The vines die prematurely, and the potatoes that survive affection, or are not sufficiently diseased to be observed on the exterior surface, will often show the work of the fungus if a slice is cut from the stem end of the tuber. A discolored spot, usually a ring on the cut surface, indicates that the disease is present and that the seed is unfit to plant. We note then that the presence of fusarium wilt is shown in the meager crop, premature dying of the vines and the discolored spot or ring on a slice cut from the stem end of the potato. Such evidence should lead to rejection of all such tubers for seed purposes. This disease is so prevalent in most parts of the country that even when we find no sign of its presence it is a wise precaution to cut a generous slice from the stem end of the potato before planting.

A tainted soil is as sure to result in fungous affection as affected seed. Such poisoned soils are not quick to lose the toxic germs. It is believed that six years, possibly eight, are required to rid tainted soil of the fungous germs or the presence of nematodes. This explains why a long rotation of crops, six or eight years, so desirable in general agriculture, is imperative in growing potatoes. The crops included in the rotation should be such as would not favor the potato fungi. In Europe some cereal occupies the last two or three years of the rotation. I need not say that rich, well aerated soil, like that of a well-kept garden, good cultivation and abundant water are desirable in potato culture. It pays richly to fertilize heavily. A generous supply of stable fertilizer, nitrates and phosphates in good quantity will pay well. I know a potato

(Continued on Page 407)



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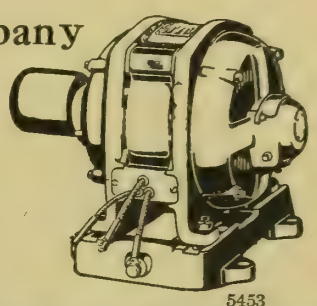

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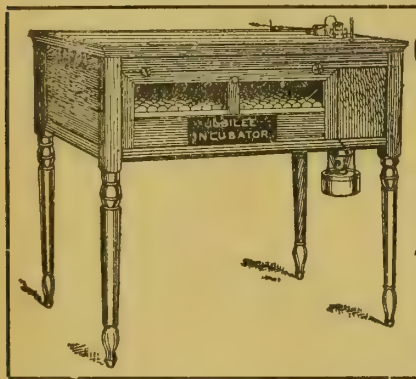

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See Announcement at Head of Editorial Page

Poultry for Profit

RATIONS IN EGG LAYING CONTEST

By V. O. Hobbs, in Charge of Egg Laying Contest at Mountain Grove, Missouri

THERE is no doubt that cheapness and availability of a ration have a big influence in its use. In many sections cottonseed meal is available and is much cheaper than beef scrap. The Missouri station is making a test of the efficiency of cottonseed meal to ascertain whether the protein of cottonseed meal is as efficient as the protein that comes from beef scrap. So far the results from the cottonseed meal rations have been good. Three pens of hens are being used in this test. Two of them are being fed on a mash with the principal source of protein cottonseed meal and one check pen that is fed on a mash with beef scrap as its source of protein.

Here are the rations that are being used:

LOT 1.

	Lbs.
C. S. meal	15
Corn meal	15
Crushed oats	12
Bone meal	8
Cracked corn	42
Oats	8
	100

1:4.5 plus.

LOT 2.

	Lbs.
C. S. meal	15
Wheat bran	15
Corn meal	12
Bone meal	8
Cracked corn	42
Wheat	8
	100

1:4.5 plus.

LOT 3.

	Lbs.
Beef scrap	11
Wheat bran	15
Corn meal	10
Bone ash	8
Cracked corn	47
Wheat	9
	100

1:4.5 plus.

Add salt in the proportion of 1 lb. to every hundred pounds of the ground feed.

The pen fed on ration No. 1 leads last month in egg production by a small margin. In feeding this ration we have used one pint of grain to each ten hens. The fact that the grain ration is wide caused us to reduce the amount of grain that we usually feed so as to force the hens to e at plenty of the mash. They are eating about the same amount of mash as they do grain.

The White Orpingtons have taken the lead in the honor roll as the first in the list of pens for the month of February, and a White Orpington hen, 277, is leading the list of the ten highest hens. The Orpington class has demonstrated that they have the ability to repeat in February as they have walked off with the February honor three times before.

The ten leading pens for the month are all dual purpose fowls. Pen 43 White Orpingtons, Wisconsin, won the cup for February, laying 113 eggs.

The six highest hens thus far during the contest are White Orpington, Barred Rock, White Rock, R. I. White, S. C. W. Leghorn, Buff Orpington.

Feed prices have soared high and times have been hard, but we have never before witnessed such a widespread interest in the poultry work. This interest is not confined to one section, but is nation-wide. The best breeders are reporting a good egg business thus far. We just wonder if the underlying cause is due to the fact that necessity is driving people to discard the non-laying type in order to get stock that will show a net profit on the high-priced feed that they must use. It is certainly no time for guesswork, and we are glad that poultry people and farmers are seeking the

SOMETHING ABOUT THE NEWEST AND BEST BOOK, "POULTRY FOR PROFIT"

Readers of the Press poultry department, who for several years have read the helpful articles on poultry culture by Mrs. Jean A. Koethen will be interested in the announcement that Mrs. Koethen has written a poultry book. The Press is in receipt of a copy of this work, called "Poultry for Profit," and has no hesitation in commending it to either the "backlotter" who keeps a few chicks for his own pleasure, to the fancier who works to the "standard," and to the commercial poultryman who makes a business of poultry culture.

Before its publication the manuscript of "Poultry for Profit" was submitted to practical poultrymen, to experts and simple poultry enthusiasts, and all agreed that it was more comprehensive, more readable and vastly more helpful than any similar poultry book yet published. It covers the widest range, discussing breeds, feeds, diseases, housing, marketing and answers the thousand and one questions that even the expert poultryman sometimes has to ask and the amateur is ever asking.

The new book is adequately illustrated, is handsomely printed and is altogether attractive. It comprises 225 pages and is published by the California Cultivator in Los Angeles. It sells for $1.—Riverside Press.

Tells why chicks die

E. J. Reefer, the poultry expert of 905 Main St., Kansas City, Mo., is giving away free a valuable book entitled "White Diarrhoea and How to Cure It." This book contains scientific facts on white diarrhoea and tells how to prepare a simple home solution that cures this terrible disease over night and actually raises 98 per cent of every hatch. All poultry raisers should certainly write Mr. Reefer for one of these valuable FREE books.

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are very carefully selected to give the best results.

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truth and laying plans to stock up with the kind that will show results.

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We see everywhere the results of the continual hammering of the men enlisted in spreading educational propaganda. The American people are beginning to realize that the poultry business is on a surer basis than ever before and that a man can put his money into it with a better guarantee of success than in former years.

As we watch the trend of the poultry world we cannot help but feel that both fancier and farmer must pay more attention to the egg side of the work. The contests have served to put this feature prominently forward and they are creating a big demand for eggs from strains that can demonstrate ability to perform in the laying house as well as the show room.

Many are taking advantage of this great interest to stress the ability of their flocks to produce eggs when they do not measure up to a high laying standard. There will necessarily follow in the wake of this great interest, men who are willing to misrepresent but on the whole, this great awakening augurs well for the future.

We are of the opinion that the poultry work is getting down to a basis of other lines of farm work in a hurry. In fact, it has more promise than ever before of good earning power on the investment and will earn a safe labor income above the expense.

There are many who could develop suburban lots and others who could buy a suburban acre close to a car line and make a good income from poultry and still keep their regular business in town. Not every fellow who thinks he is called to give his entire time to the work really is, but many can get happiness and profit from poultry as a side line with small investment and not take the risks that a larger investment requires.

A TRAVELER'S VISIT TO AN EGYPTIAN HATCHERY

Here is an interesting bit from an article on the Nile, which first appeared in the Dublin Magazine, and was reprinted in Littells' Living Age, 1844:

"One of the sights which amused me most was a chicken hatching oven. This useful establishment is at some distance from the walls (of Cairo), and gives life to some milions of chickens annually. It seems that the hens of Egypt are not given to sedentary occupations; having been hatched themselves by machinery, they do not feel called upon to hatch. They seem to consider that they have discharged every duty in society when they have produced the egg—no domestic anxiety ruffles their bosoms; they care not whether their offspring becomes a fowl or a fritter, a game cock or an omelette.

"We entered a gloomy and filthy hut in which a woman was squatting with a dark, little naked imp at her bosom. She sat sentry over a hole in the wall, and insisted clamorously on backsheesh (a bribe). Being satisfied in this particular, she consented 'to sit over,' and we introduced ourselves with considerable difficulty into a narrow passage, on either side of which were three chambers strown with fine mould and covered with eggs, among which a naked Egyptian walks delicately as Agag, and keeps continually turning them with most hen-like anxiety. The heat was about 100 degrees, the smell like that of Harrowgate water, and the floor was covered with egg shells and struggling chickens. The same heat is maintained day and night, and the same wretched hen man passes his life in turning eggs. His fee is one-half the receipt—he returns fifty chickens for every hundred eggs that he receives."

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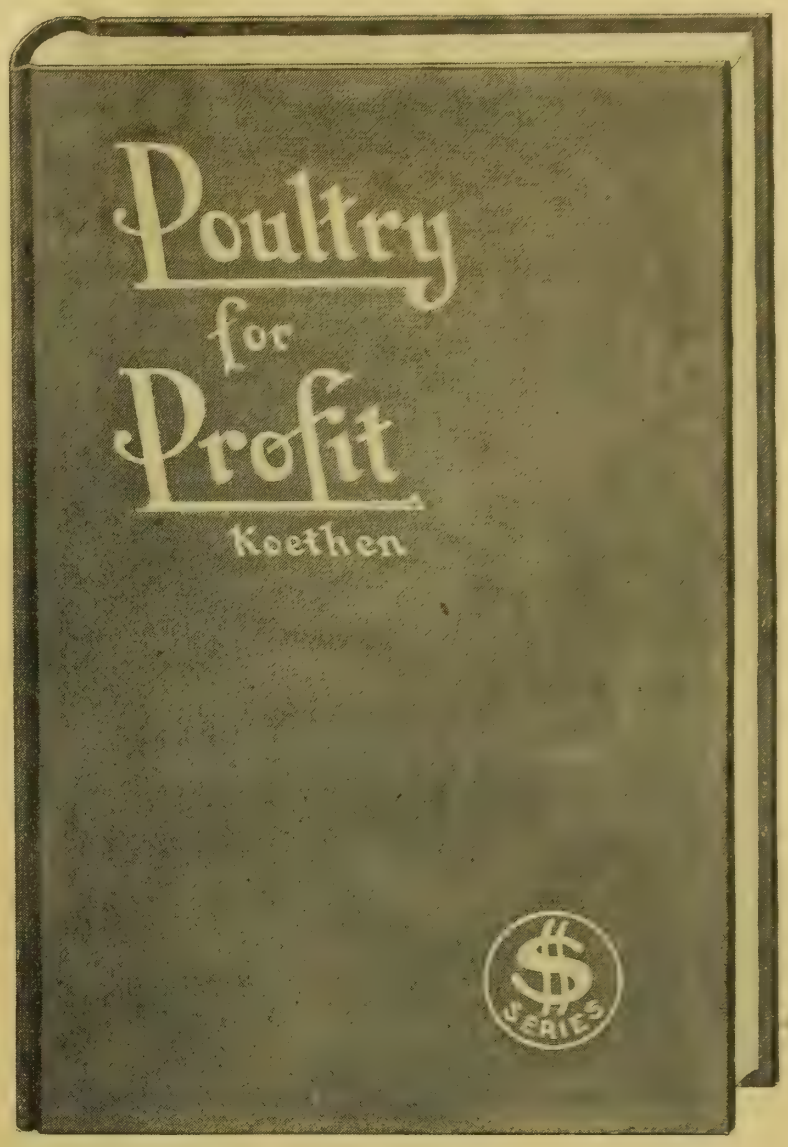

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by

Jean A. Koethen, Graduate of University of California

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100,000 Citrus Trees—Choice Seedlings and Buds. Wanted, a budder. Butler's Morning Side Nursery, Lamanda Park, Cal.

Before Planting Olives, Avocados, Feijoas, Rhubarb or Cactus, get my free booklet. Bishop's Nursery, Highland, Cal.

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For Sale—Navel, Valencia and lemon trees, three-quarters inch and up, 20c loose root, 25c balled. Budded Avocados, 4 to 7 feet high. Address Box 54, Glendora, Cal.

Very Fine Sweet and Sour Orange Seed-Bed Stock — PRICE REASONABLE. MIGHT TRADE FOR GOOD AUTO OR TEAM. ORANGE COVE NURSERIES, OROSI, CAL.

For Sale—Field-grown, budded avocados. Harman, Ganter, Taft; 2 feet to 7 feet high, $1.00 to $3.00. A. Z. Lane or A. B. Rogers, Glendora, Cal.

For Sale—Seed-bed and nursery stock. Will trade for city, beach or Covina property. Phone 357 Azusa Ex., S. N. Benton.

For Sale—The finest Valencia Trees in Tulare County. Threequarters up. C. H. Weed, 907 Mill St., Porterville, Cal.

MACHINERY

USED TANKS, PUMPS, ENGINES, WINDMILLS,
RANCH MACHINERY
SPECIAL PRICES ON
HAY MACHINERY THIS WEEK

Six mowers, 5 and 6 ft., $28 to $35, gears, bearings nearly new.

Champion Binder, $75; Header, $95; 3-Gang Disc, 15-in. Mouldboard Riding, 6-Gang Tractor Disc, Holt 60-h. p. Tractor, cost $4000, $750; Southwick Power Baler; Whitman Empress Baler; Mounted Hand Sprayer, tank and pump, $12; harrows, potato and beet machinery. Fan Mill, Corn Sheller, Power Ensilage Chopper; small ranch tools.

ENGINES, PUMPS, BOILERS

Eighty H. Boiler, Smith Valle steam engine 14x18 and Compressor 12x18, used less than one year. Pumps 300 inches, price $1000, cost $6000. Fine for mine, sawmill, pumping plant, nearly new. Sold account closing estate. Absolutely cheapest serviceable material can be produced for. Pioneers in our line. DEMMITT CO., UPSTAIRS, 120 N. Main, Los Angeles.

Gas engines, centrifugal and deep well pumps, motors, and everything pertaining to irrigation, for sale and exchange. If you want a complete plant or any part write us; we are experts in irrigation; advice and estimates cheerfully given. Will buy, sell or exchange. Reliable and responsible, everything guaranteed as represented. Machinery & Motor Exchange, Inc., 733-735 San Fernando St., Los Angeles. Main 6382, F-3433.

We Carry—A complete line of irrigation machinery; consisting of engines, motors, pumps, clutch pullies, belting, well casing, etc. These goods are first class and guaranteed to be satisfactory. Our prices will interest you. Let us know your requirements. New or second-hand plants furnished. Commercial Iron Works, 497 Fifth street, San Francisco.

For Sale—Used and new gas engines, 2 H.P. up, rebuilt and fitted with modern equipment. 22 years' experience enables us to repair and rebuild gas engines correctly. Get our prices. Lloyd, 806 N. Main, Los Angeles.

6x6 Belt Driven, Double Acting Air Compressor—$65. Triplex boiler feed pump 3x6 belt driven, $75. Ballou's Nursery, Pasadena, Cal.

For Sale—Foos Distillate Engine, nearly new. Near Pasadena. Address Box 144, Altadena, Cal.

RABBITS

Leading Rabbitry in America—Flemish Giants a specialty. Prize winning and heavy weight stock. Scored and sold on their merits. Inquiry and inspection solicited. Catalogue on request. Empire Rabbitry, Empire, Cal.

Richey Reds are beauties; won 19 ribbons in one year. Fine bucks for sale and young stock reasonable. Mrs. C. A. Richey, R. 8, Box 557, Los Angeles.

BEES AND HONEY

Beekeeping—Instruction book free—explains honey productions, profits, prices, supplies, bees and management without stings. Spencer Apiaries, Iris Avenue, Nordoff, Cal.

HORTICULTURAL PRINTING

Catalogues for the seed and nursery trade. The live stock and poultry industries are a specialty with us. Two thousand illustrations to select from. Write for prices and samples. The Kruckeberg Press, 237 Franklin St., Los Angeles.

POULTRY

Baby Chicks—As good as the best regardless of price, for April, May, June. White Leghorn, $8.00 per 100; $76 per 1000. Brown Leghorn, $10.00 per 100; $95 per 1000. Leghorn chicks shipped each week. Book to order. R. I. Red, Barred Rocks, Buff and White Orpingtons, Black Minorcas, White Wyandottes; 50% deposit, balance C. O. D., and chicks must be first class or we will refund deposit on return of chicks. Hawkeye Hatchery, Turlock, Cal.

At Five California Shows I won 112 firsts, 55 seconds, four times best bird in show and many specials. Utility and show stock. Eggs and chicks of Black, Buff and White Orpingtons, Rose and S. C. Reds, White and Blue Leghorns, Silver Campines, Anconas, Salmon Faverolles, Polish and Cornish Games. Free mating list. Holman Poultry Farm, Stockton, Cal.

White Plymouth Rock Incubator Chicks—Also White, Brown and Buff Leghorn and Black Minorca, all from Standard bred Exhibition Stock, and Hoganized. Place your orders now for April delivery. Send for Booklet of prices. Mahajo Farm, P. O. Box 597, Sacramento, Cal. Hatchings from mature stock only—22,000 Incubator capacity.

Administrator's Auction Sale—At Pasadena, corner Grand avenue and Columbia street, Saturday, April 10th, 10 a. m. A large variety of farm implements, chicken houses, incubators, brooders, bone mills, fencing, lumber, etc. For list of property, call or write A. Phillips, administrator, 472 P. E. Bldg., Los Angeles, Cal.

COSACO FUMIGATING NEST EGGS
Guaranteed to exterminate all lice, etc., in the nest, and on the hen. Will retain strength for months. Less trouble than Liquids or Powders. 10c each, $1.00 per dozen postpaid. Don't send stamps. I. H. Caister, 1309 Dewey Ave., Los Angeles.

Poultry Wanted — We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. National Poultry Co., successors to Allaway & Layton Co., 607 E. Third St., Los Angeles, Cal.

Baby Chicks—Rhode Island Reds and White Leghorns. My guarantee safe arrival, full count, strong, vigorous; fine bred chicks, Leghorns, $9.00 per 100. Will lay in five months. Reds, $11.00 per 100. Will lay in six months. J. W. Lyon, Gardena, Cal.

Chicks! Chicks! Chicks!—No money down, terms C.O.D. Select Leghorns $8; Minorcas $12; R. I. Reds $12; Barred Rocks $12.50; Buff Leghorns $12, and Aconas $12.50 per 100. No less than 100 shipped. Can ship large numbers. Write C. A. Darwin, 709 S. Main, Los Angeles, Cal.

MacFarland Strain White Leghorn eggs, $1.50 per 15, $5.00 per 100; chicks, $10.00 per 100 from our thousands of heavy layers. Order now, any quantity. Big plant, lowest prices, best stock. Newton Poultry Farm, Dept. 3, Los Gatos, Cal.

Eggs—Ancona, R. I. Reds, Black Minorca, $1.50 per 15. Mammoth Bronze Turkey eggs, 20c. Chicks, 15c. White Rock Rooster, $3.00. Partridge Rock, $3.00. Pullets, $1.50. Mrs. W. L. Duvall, Franklin Ave., Pomona, Cal.

Baby Chicks—Eggs for hatching. Pure bred, R. I. Reds, White and Buff Leghorns, Black and White Minorcas. Eggs $6.00—100; Chicks $12.50—100. White Wyandottes higher. Gem City Yards, Los Gatos, Cal.

Baby Chicks—White Leghorn, Brown Leghorn, R. I. Reds, Barred Rocks, Black Minorcas and Anconas. We guarantee satisfaction. Write for price-list. The ORLAND HATCHERY, Orland, Glenn Co., Cal.

Fine Strong Day-Old Chicks—Selected setting eggs from excellent strains of ducks, hens and turkeys. Leading breeds. Some of our ducks lay twice daily. Black Bros., 455 Lucas avenue, Los Angeles, Cal.

S. C. White Leghorn Baby Chicks and Hatching Eggs that are Top Notch. Write for particulars. Prices reasonable. Ten years in business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

White Rock Eggs—For hatching, from select mated birds with heavy egg producing record. All healthy fowls. Seven cents each, $1.00 per 15. Ben F. Thorpe, Bonsall, Cal.

Petaluma Hatchery—The one that's different. We challenge the hen, or anybody else. Don't compare prices, compare quality. Circular free. L. W. Clark, Petaluma, Cal.

Revanew Strain—White Wyandotte eggs, $3.00 for 15, from prize winning stock; 221 pen average, chicks, 25c. Mrs. W. L. Duvall, Franklin Ave., Pomona, Cal.

Petaluma and American Brooder Stoves with new and exclusive features, Write for free catalogue. American Brooder Stove Company, Oakland, Cal.

Wyckoff Strain White Leghorn Eggs—$1.00-$1.50. Eastern Stock. Also White Holland Turkey toms. Alice Merriam, Route 2, Pomona, Cal.

Rhode Island Reds—Great laying strain, baby chicks; reduced prices for rest of season. Rainescourt Poultry Ranch, Zelzah, Cal.

Baby Chicks—If looking for the best—get Golden Buff Leghorns or White Minorcas. Sandridge Hatchery, Kerman, Cal.

Barred Rocks—Only eggs for hatching, $5.00 per 100; chicks, $12.00 per 100 in April. Send for circular. G. L. Hawley, Madera, Cal.

Goodacre Blue Ribbon Strain of heavy layers. Send for 1915 catalogue. Twelve First prizes at Los Angeles show, Jan., 1915. Goodacre Bros., Compton, Cal.

For Sale—Cornish Indian Game eggs from a few choice birds, $1.00 per setting. C. G. Wright, Kerman, Cal.

POULTRY

Just Out—The Cultivator Poultry Book, "Poultry for Profit," by Jean A. Koethen. Published by the Cultivator Publishing Co. Highly endorsed by experts. Over 200 pages, 50 illustrations. Contains simple methods of avoiding and overcoming difficulties. A guide to poultry success under Western conditions—it tells what to do, why to do it, and how to do it. Nicely bound in cloth. Price $1.00 postpaid, or with Cultivator one year, $1.75. Send orders to Cultivator Publishing Co., 115-117 North Broadway, Los Angeles, Cal.

Eggs and Chicks — From prize winning birds, Golden Buff Orpington and Barred Plymouth Rocks. Excellent winter layers. Settings of 15 eggs $2.00 to $1.50, $5.00 per 100. Chicks $15.00 per 100. K. L. Kirby, Oakdale Poultry Farm, Watsonville, R. D. 2.

Barred Plymouth Rocks—Winners at New York and California's leading shows. Laying strain unequalled. Eggs for hatching from seventeen Champion matings. Eighteen years breeding Barred Rocks exclusively. Write for catalogue. C. H. Vodden, Los Gatos, Cal.

Ancona Eggs—Select stock, $1.50 per 15, $6 per 100. Baby chicks 15c each. Mammoth Pekin Duck Eggs, $1 per 12, $6 per 100. Baby ducks 20c each, $17.50 per 100. J. P. Clough, 3980 Peralta Ave., Fruitvale, Cal.

Day-Old Chicks—From healthy, vigorous, heavy-laying, free range stock of S. C. White Leghorns. Price $7.00 per hundred. H. P. Hansen, R. 4, Box 177, Petaluma, Cal.

Selected Single Comb White Leghorn eggs for hatching that will improve your flock. All hens 220-egg type. $1.50 per fifteen eggs; $8.00 per 100. Jay Maxwell, Madera, Cal.

Barred Rock Eggs from Wagner strain; first-prize winners $1.00 per 15; cockerel mated pen $2.50. Roselle Jelly Plant seeds 10c per package. Mrs. C. A. Richey, R. 8, Box 557, Los Angeles.

Trapnested White and Buff Leghorns, records 120-279 eggs per year. Eggs, chicks, stock. Arthur R. Schroeder, R. 18, Box 179-D, Mountain View, Cal.

Safety First — Feed your baby chicks Croley's Dry Mixed Chick Feeds manufactured by Geo. H. Croley Co. Inc., 631-637 Brannan St., San Francisco, Cal.

Baby Chicks (White Leghorns)—Shipped on approval. Examine at your home before remitting. No weak ones charged for. Schellville Hatchery, Sonoma, Cal.

Pit Games—A few choice specimens for sale. Write for prices. Delivered your station. O. L. Crane, R. D. 3, Santa Rosa, Cal.

White Wyandottes—White Rocks, cockerels, $2.50; eggs, $2-15; $7-100. Ramona Farm, Box 1361, R. D., Sacramento, Cal.

For Sale—Barred Rock Cockerels, also Barred Rock, R. I. Red, Anconas, Buff and White Orpington chix. Enoch Crews, Santa Cruz, Cal.

Hatching Eggs—Hoganized S. C. White Leghorns four dollars hundred, thirty-five thousand. Chicks $9 per 100. D. Clayton, R. 2, Modesto, Cal.

Pheasants—Ringneck and Golden. Eggs for hatching. T. D. Morris, Agua Caliente, Cal.

MISCELLANEOUS

Free for Six Months—My special offer to introduce my magazine "INVESTING FOR PROFIT." It is worth $10 a copy to anyone who has been getting poorer while the rich, richer. It demonstrates the REAL earning power of money, and shows how anyone, no matter how poor, CAN acquire riches. INVESTING FOR PROFIT is the only progressive financial journal published. It shows how $100 grows to $2200. Write NOW and I'll send it six months free. H. L. Barber, 430, 28 W. Jackson Blvd., Chicago.

For Sale — Miscellaneous Bargains—240 acres sugar and yellow pine timber, four miles from Tuolumne, Tuolumne Co., Cal. Sixty-horse power steam boiler and 40-horse power engine. One 18-months-old boar weighing 350 pounds. One sow weighing 300 pounds. Safe in pig. Six fall boar pigs weighing from 40 to 60 pounds. All registered O. I. C. hogs. All the above priced for quick sale. Address G. H. DuBois, San Martin, Cal.

Free Illustrated Book tells of about 300,000 protected positions in U. S. service. Thousands of vacancies every year. There is a big chance here for you, sure and generous pay, lifetime employment. Just ask for booklet S-85. No obligation. Earl Hopkins, Washington, D. C.

For Rent—In San Joaquin County, 25 acres, 10 in alfalfa with pumping plant. No buildings. To a reliable man I will give this rent free for work in his spare time. Must have his own team with implements, etc. Box 142, Oakland, Cal.

"Smith's Pay the Freight"—To reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St., San Francisco.

TURKEYS

Stearns' Turkeys—Won 19 first prizes at Los Angeles in January—more than all other turkey entries put together. Bronze, Black and White Holland eggs, $3 to $5 a dozen; Buff and Narragansett, $4; Blue and Bourbon Red, $5. M. M. Stearns, Claremont, Cal.

Mammoth White Holland Turkeys—A few fine toms for sale. Also eggs in season from two very select pens. Orders given prompt attention. Prices on application. Address H. McKusick, Box 733, Calexico, Imperial County, Cal.

Turkey Eggs—From the largest and best flock of MAMMOTH BRONZE TURKEYS in the world. Can fill orders from ten to one thousand eggs. Write for special prices. Geo. A. Smith, Corcoran, Cal.

For Sale—Bourbon Red turkeys and eggs for hatching. My birds won all the honors in the Alameda County Poultry Exhibition in Oakland, 1914. A. E. Balmer, Alhambra Valley, Martinez, Cal.

Giant Bronze Turkey Eggs—For hatching from extra choice prize winning stock. Mrs. Nellie Hart, Holtville, Cal.

SCHOOLS AND COLLEGES

Telegraphy — Stenography, bookkeeping, English branches. Positions guaranteed. Mackay Business College, Los Angeles.

LIVE STOCK

Ohio Improved Chester White (O. I. C.)—Entire herd immunized against hog cholera. Nothing but immunized stock sent out. Extra fine lot of fall pigs, both sexes, ready for shipment during February and March. Three herd boars used. All stock crated and registered. Make reservations now. C. B. Cunningham, Mills, Sacramento Co., Cal.

Pure Bred Duroc Jersey Boars—Raised by Peters and Lamson of Imperial Valley are offered for sale by B. D. Forbes and can be seen at the V. D. Reductions Companies ranch, Durbin station near Covina, or enquire at the office of the company, 722 San Fernando Bldg., Los Angeles. Cholera Immune.

Hogs—Forty head of BIG TYPE POLAND CHINA boars of any age. Sired by IOWA WONDER, who is a son of A WONDER, the greatest hog living or dead. No females to sell at present. On account of large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

For Sale—Registered Tamworth swine—boars, sows and gilts of this famous bacon hog. This breed commands a premium on the market. Our original sows from the University Farm at Davis. Sweetwater Fruit Company, Bonita, San Diego County, Cal.

Blue Ribbon Herd Duroc-Jersey Hogs—Bred Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 firsts, 13 seconds, 6 thirds, 7 fourths, 1 fifth. Will show 1915. For prices, write Jno. P. Daggs, Modesto, Cal.

Grape Wild Farm Thoroughbreds—Guernsey Bulls of A. R. Breeding. BERKSHIRE HOGS. Finest herd in the state All ages for sale. A. B. Humphrey, proprietor. Mayhews, Sacramento Co., California.

For Sale—One pure bred Guernsey bull. He is of the Langwater family. Four years old. For further information, inquire of Dr. D. J. Turner, of Gridley, Cal.

For Sale—Registered. Berkshires:. 25 choice pigs of best breeding from the best strains in America. For prices and description address H. L. Murphy, Perkins, Sacramento Co., Cal.

Blatchford's Pig Meal weans pigs easily and safely; no trouble; no milk. Write for free folder, "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

For Sale—At all times, Jacks and Stallions, driving and saddle horses. Price and stock guaranteed. Phillips and Kingsbury, 1112 T Street, Sacramento, Cal.

Red Rock Ranch, Glen Ellen, Cal.—High-class Duroc Jersey hogs. Specialty registered pigs at weaning time. If interested write.

For Sale—Young registered Berkshire boars and sows; fine, strong stock. Boars ready for service. Stanislaus Ranch Co., Crows Landing, California.

Registered Berkshire Boars—Of all ages—one farrowed December 1, 1914—$15.00. Riccomi Bros., Mountain View, Cal.

Saanen Grade Swiss Goats—About 80 high grade to select from. Henry Siemer, 1213 W. 5th street, Los Angeles.

Berkshires—Registered and grade stock. Boars and bred sows. C. H. Thompson, Novato, Cal.

Glenview Poland China—Stock for sale Chas. R. Hanna, R. F. D. No. 3, Riverside, Cal.

Poland Chinas—Young stock; either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

M. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale.

For Sale—One mammoth jack and 14 mules. Zack Tompkins, Sunnyvale, Cal.

SEEDS AND PLANTS

Rhubarb Plants—Now ready and going fast. Never has there been a better season for planting. Latest developments have perfected eastern marketing and Rhubarb has stepped into the first rank in commercial importance. Correspondence solicited with intending planters. Starting right is more than half of success. Get my new book, "Winter Rhubarb, Culture and Marketing." Will send a copy free to all who purchase plants. Selected Plants—all No. 1 size. Burbank's Crimson Winter, 75c per doz.; Wagner's Giant, $1.50 per doz. Quantity prices on application. Reginald Bland, San Luis Rey, San Diego Co., Cal.

SUDAN GRASS SEED recleaned, inspected by Superintendent State Experimental Farm. FREE FROM JOHNSON GRASS, 25c per pound, in any quantity, f.o.b. Lubbock, Texas. Full instructions when and how to plant, cultivate and harvest, sent free with each order. Standard Sudan Seed Co., Lubbock, Texas.

For Sale—Non-irrigated, San Fernando Valley Grown Seeds. Black Seeded Chilean and Angeleno Melon, 80c per lb.; Improved Hybrid, Golden Beauty and Pineapple Casaba, $1.50 per lb. First class seeds direct from the grower. M. C. Sutton, Van Nuys, Cal.

For Sale—Berry plants at cut prices for April. California Surprise Raspberry and Himalaya Berry; latter fine for hedges, etc. Each 50 cents per dozen, $1.50 per 100. E. S. Stilson, Lamanda Park, Cal.

Sudan Grass Seed—Write for 15-day special offer on this wonderful forage. Seeds and plants of all kinds. Special prices on apple and pear trees. Giant winter rhubarb and spineless cactus. Black Bros.' Nursery, 455 Lucas avenue, Los Angeles, Cal.

Spineless Cactus—Strictly first class. Very reasonable prices. The real thing—not slabs with the spines brushed off. You can save money by writing to me. Nick Kass, Lincoln, Cal.

Sudan Grass Seed in fifty-cent packages. One package plants seventy-five acres next planting. Enough to plant ten acres for five dollars. Jones County Seed Co., Anson, Texas.

Berry Plants, Rhubarb, Cacti—It will be worth your while to send me a postal right now if you are interested. Louis F. Scribner, P. 2, Pasadena, Cal.

Avocado Seed for Sale—J. H. Walker, 1547 Las Palmas avenue, Los Angeles, Cal.

SEEDS AND PLANTS

For Sale—Genuine Luther Burbank Spineless cactus, per thousand, $150.00. Orders received now. Oscar Maurer, Del Mar, San Diego County, Cal.

Feterita Corn Seed—The corn that puts the Du in Duroc, the Po in Poland, the Ber in Berkshire Hogs. For sale by John P. Daggs, Modesto, Cal.

Spineless Cactus—10c. Be sure and investigate this fast growing strain before buying. Slabs now ready for planting. Karl S. Bailey, Taft, Cal.

Burbank Spineless Cactus—All the best varieties for forage and fruit. Guaranteed. Send for catalog and price list. G. D. Cummings, Los Altos, Cal.

Luther Burbank and Mediterranean Spineless Cactus Plantations—Robinson Citrus Nurseries, R.F.D. No. 35-A, San Dimas, Cal.

Attention Dairymen—Plant Sorghum for green feed or ensilage. Seed for sale in lots to suit. A. L. Sayre, Madera, Cal.

Rhubarb—Crimson Winter, $3.00 per hundred. Good strong, one-year plants. Currier Bulb Co., Seabright, Cal.

Pure Sudan Seed—Any quantity, 20 cents per pound. Money to accompany orders. F. M. Grundy, Lubbock, Texas.

FARM LANDS FOR SALE

VICTORIA, AUSTRALIA, WANTS SETTLERS

Special inducements; government land, railways, free schools; cheap irrigation; 31 years to pay for farms adapted to alfalfa, corn, grains, fruit, etc.; climate like California; ample markets; reduced passages; special excursion being arranged. Free particulars from F. T. A. Fricke, Government Representative from Victoria, 687 Market St., San Francisco, Cal., Box X.

For Sale—By owner, 40 acres heavy loam now in alfalfa, also suitable for any kind of fruit, 1½ miles from town of 1000 population, three depots within three miles. Pumping plant on this place which develops 65 inches of water. Can be irrigated from canal. Ground all level. Small house and barn. Plenty of shade trees. Price, $7,000, $4,000 down, balance five years' time. Will sell East 20 or West 20. Melvin T. Crew, R.F.D. No. 2, Box 85, Orosi, Tulare County, Cal.

Forced Sales—I specialize in finding owners who are forced to sell on account of heavy mortgages; property in all parts of California. My system brings in some great bargains in land. Send for my lists; tell me your wants. VICTOR BURKE, Los Gatos, Cal.

250 Acres Near Sonoma City, large portion level (now in crop), balance rolling, fine pasture, some wood, well, never failing spring, etc. This is a particularly good location (42 miles from S. F.) for a whole milk dairy. Price, $12,500. Terms, $1,500 cash, balance in six years. R. C. Waller, 625 Market St., San Francisco.

California Land—Money making little farms, high class, low priced properties in all counties; first mortgage loan on farms bearing 7 to 9 per cent. Call or write the oldest land office in California. C. M. Wooster Co., 303 Phelan Bldg., San Francisco.

County Sectional Maps—Showing vacant government land, $2.50 any county. VERY PLAIN. Easy to see and select your choice. Booklet and circulars FREE. Write Joseph Clark, Searcher of State and U. S. Records, Sacramento.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

For Sale—160 acres river bottom land. Address C. E. Johnson, owner, Yermo, Cal.

For Sale—Orange, olive, peach and rice land. Close in, on good terms. Fred Hart, Exeter.

Free—Brand new list of Santa Cruz Ranch Bargains. Wilson Bros., Santa Cruz, Cal.

Send for My Lists—Of Santa Clara Valley, San Joaquin Valley and Northern California exchanges. What have you? Victor Burke, Los Gatos, Cal.

MOTORCYCLES

Order Your Motorcycle accessories and motorcycle parts direct by parcel post and save money, as we carry a complete stock, spring tandems, tires of all makes, lamps in all sizes, horns, and everything pertaining to motorcycle accessories, we have it. Also a fine selection of used motorcycles, consisting of the following makes: Excelsior, Indian, Thor, Harley and many other makes. We pay the freight on any motorcycle you buy from us. Write for a price list. Fred H. Bente, mgr. Excelsior Agency, 1550 Market St., San Francisco, Cal.

WANTED

We have parties that want farms and ranches improved and unimproved. If you want to sell or exchange your place list your property with us at once for quick results. Write for listing blank and other information. John E. Drendel Company, Inc., 212 Hearst Bldg., San Francisco.

Farms Wanted—We have direct buyers. Don't pay commissions. Write describing property, naming lowest price. We help buyers locate desirable property free. American Investment Association, 12 Palace building, Minneapolis, Minn.

Wanted—To hear from owner of good farm for sale. Send cash price and description. D. F. Bush, Minneapolis, Minn.

Wanted—To hear from owner of good farm for sale. C. C. Buckingham, Houston, Texas.

"Don't worry. Fortune is a dame
You have to woo with smiles.
Whate'er her mood, you must not blame
Nor criticise her wiles.
Trust God in shadow and in sun,
And luck will come your way,
But never, since old Time begun,
Has worry won the day."

Frost—Do you think the auto has an ennobling influence? Snow—Well, speaking personally, we have been fined and refined.—Judge.

POTATO POINTERS

(Continued from Page 403)

grower who applied $50 worth of fertilizer per acre last year and sold his potatoes for $150 per acre more than he received for those grown in like soil not fertilized. In Great Britain and Germany whole potatoes are planted, as a cut surface favors fungous attack; small potatoes are also planted, but only from selected hills which had yielded a large product of the best quality. Also in Europe rather immature seed is favored, and time is gained by sprouting the tubers before planting.

Eelworm and Tuber Moth

This nematode and insect are also both enemies of the potato. Neither is as serious as is fusarium wilt or rhizoctonia. The eelworm is more harmful than the moth and is widely distributed, while the moth is not found except in California and to a limited extent in three or four other states. The nematode has attracted attention in California for only a few years, but the moth has been known for more than twenty years. Eelworms live for years and so are comparable to fusarium wilt and rhizoctonia as destructive soil agencies. They cause an uneven or mammillated surface on the tubers and darken the fleshy part, especially close to the peel. The roughened surface quickly reveals this affection, and eelworm potatoes should never be planted. The tuber moth bores through the tubers and blackens the tissue. Keeping the potatoes well covered during the entire growing season and removing all, even the smallest, from the field as soon as dry after digging should never be neglected. The potatoes should be placed at once in moth-tight sacks, as the moths continue to work after the potatoes are stored, and thus it is imperative to carefully guard against their presence in the sacks, pits, bins, boxes or cellars where the potatoes are stored. The solution of the tuber moth problem only requires great caution.

In order of damage from these several potato enemies we give the following: Fusarium wilt, rhizoctonia—a close second,—eelworm, tuber moth and potato scab.

Summary

1. Plant only on disease-free soil.
2. Plant none but clean, sound seed.

(a) That from hills of great production of best quality of tubers.

(b) That from hills where the vines were green and vigorous to maturity.

(c) That which is entirely smooth and perfect, showing no disease when cut.

3. Treat all seed with either formalin or corrosive sublimate just before planting.

4. Cut off a generous slice from the stem end of the tuber as the seed is planted.

5. Keep growing potatoes well covered; leave no tubers on the ground when dug, and sack, as soon as the tubers are dry after digging, in moth-proof sacks, this to protect against tuber moth.

6. Only plant perfectly smooth seed which will insure against eelworms.

If all of these points are observed, we shall secure a large production which will be in demand at top prices.

"Men who have had backbone have moved the world often before reaching the prime of life. Backbone means other men looking to you; the want of it, your looking to other men. Others may not believe in you, but that 'cuts but little ice,' it is when you do not believe in yourself."

THE MISCHIEF-LOVING CROW

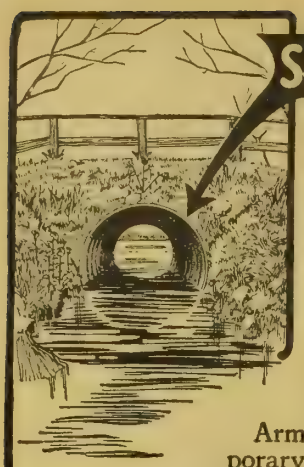
Writing of the many amusing characteristics of the crow, in Harper's, Walter Prichard Eaton tells of the annoying way in which a certain pet crow pestered a totally inoffensive dog and a lamb.

"It was curious to watch his instinct to hide things manifest itself in a hundred odd ways, to the human mind not in the least related to a food-supply. Any small object which was bright and shining particularly attracted him, and he would spend hours attempting to hide bits of broken crockery or glass in the dog's fur or in his ear. Don's ear was a favorite hiding place. Jim would get a bit of crockery in his beak, hop upon the dog's head, drop it neatly into his ear, and then carefully fold the earflap down over the aperture. If Don objected and raised his ear again, Jim would once more grab it and fold it down scolding meanwhile. If Don were wide awake he did not seem to mind this performance in the least, but if he chanced to be sleepy he would get up with a bored air, shake out the crockery from his ear, and with the look of one who says, 'For Heaven's sake, why can't they leave me in peace!' walk away to some other place. Nothing discouraged, Jim would slowly follow along behind him, keeping an eye cocked meanwhile for a fresh bit of shiny stuff (even a bright pebble would do), and, when Don once more lay down, the entire operation would be repeated.

"One could never be certain at these times how far Jim's actions were purely teleological—the exercise in captivity of instincts upon which the endurance of the wild species depends—and how far there was mingled with them an almost human love of teasing. For Jim unquestionably loved to tease. Of that there could no doubt. He knew, too, just as a dog knows, who could be teased and who couldn't. There were two lambs on the place, one a stolid creature, and the one of totally different temperament, highly excitable, in fact, Jim discovered the difference after a single trial. As they were frisking about one day he lit first on the back of one and then on the back of the other, sinking his claws into the wool with a good grip, flapping his wings, and cawing delightedly. One lamb paid no attention to him, but the other immediately took fright and began to buck like a bronco, or rather an animated sawhorse, and then to cavort about the pasture lot. Thereafter Jim confined his attentions entirely to her. He never tried to ride the other lamb, but again and again he would pounce down suddenly upon the poor timid one's back, set up a great flapping and cawing, and speedily enjoy a free ride over a goodly portion of the surrounding landscape."

PROLIFICACY OF POLAND-CHINAS

The Standard Poland-China Record Association resents the statement sometimes made that the Poland-China is not a prolific breed. A circular of the association says: "Upon inquiry to nearly 100 breeders of this breed, asking for the average number of pigs farrowed per sow, in their herd, for a term of three years, the average was 9¾ pigs per sow. One herd had an average of 9¾ for a term of five years, from 40 head. Another had an average of 10 pigs from 25 sows for a term of five years. Others for terms of three and four years, gave averages of 8½ to 10, with high litters of 15 to 18 pigs. This is a good performance, when it is considered that many of the sows making the above averages were just gilts with their first litters."



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THE small bridge on a public highway is often a menace to life and limb. It is a source of constant worry and expense. The heavy traffic to which modern roads are subjected is likely to cause the total collapse of an ordinary bridge, blocking travel and entailing damage suits.

Armco Culverts do away with the use of temporary or uncertain material for culverts and small bridges, cut out the heavy maintenance costs and make travel safe and sure at all seasons and under all conditions. They withstand the floods of spring and the ice of winter. Properly installed they last for immensely long periods without need of repairs or attention.

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resist rust because made of a pure iron, almost wholly free from those foreign substances that cause steel and ordinary iron to rust out and go to pieces. They possess great strength and are tough enough to stand the strain of shifting and settling foundations.

When the drainage problem in your community comes up for consideration, insist on the elimination of troublesome and dangerous bridges and throw the weight of your influence on the side of Armco Culverts. See the Triangle Brand on every section.

There is a manufacturer in your vicinity. Write him or
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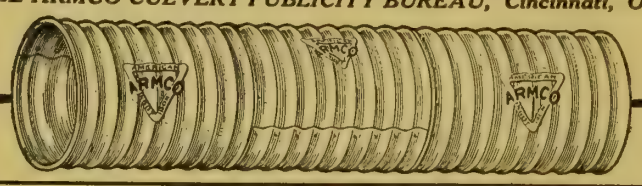

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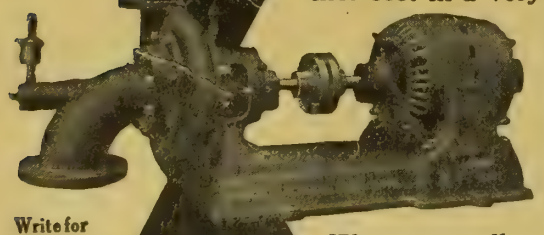

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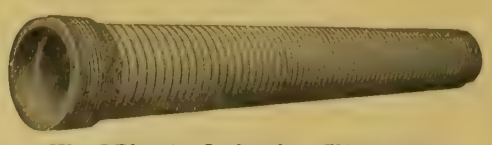

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Send for copy Mining Catalog No. 7, Tank and Pipe Booklet. All full of valuable information.

Advertisements in California Cultivator are Guaranteed
See Announcement at Head of Editorial Page

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.
Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Double Insurance

The agent of our local farmers' mutual fire insurance company is agent for a similar company of an adjoining county. When the risk offered exceeds the limit of the local company he places part of it in the other. Both policies have a clause stating "if any other insurance, whether valid or not is carried upon the property without a special agreement in writing upon the policy or attached thereto, the policy shall at once become void." The agent is entirely disregarding this clause and writing policies in both companies upon the same piece of property without any permits for the double insurance, claiming that it is unnecessary. Does this jeopardize the value of these policies? Could the insurance company compel the payment of assessments against a person holding such policies?

The clause stated is one contained in the standard insurance policy of California and means exactly what it says. In case of fire upon your place it is very probable that any stockholder of either of the companies could restrain payment of loss for breach of the condition of the policy, and therefore it behooves you to see that the agreement for additional insurance is endorsed thereon. In fact it is exceedingly doubtful if a county fire insurance company could take additional or double insurance in this way. As this clause states that the policy is void it is doubtless true that you could not be compelled to pay assessments.

Roadway

I have a homestead and the road has been changed a number of times and now goes across the corner of my field. I got the consent of all the neighbors who use the road to let me plow it up and fence my field. I made a good road around my field (the new road I made is still on my land), the neighbors are all satisfied to go the new road, but one. He said if I didn't put in gates he would cut the wires, and now he won't shut the gates and he tries to get the other neighbors to go through with him.

Unless the road has been legally declared or your neighbor has obtained rights by prescription to the old road, he is a mere tresspasser and you can deal with him as you would with any trespasser.

Laborer Injured

A farm laborer was injured by mowing machine six months ago. Employer paid surgeon's and nurse's bills. Is he further liable under the compensation act, or rather outside of it, for the farm employer is exempt under the provision of that act. Has the commission power over this case? Lawyer for injured man threatens to bring suit. Would it be better to settle if nominal sum will do it?—Subscriber, Ontario.

The employer is not liable for damages suffered by the employee in consequence of the ordinary risks of business in which he is employed or negligence of another employee, unless the negligence was committed in the performance of the duty employer owes by law to the employee or unless the employee causing the negligence was incompetent. The employer is liable, however, when the injury results from the wrongful act or neglect of his foreman having a right to direct the services of the injured employee. The workman's compensation act does not apply to farm labor. The amount which the laborer would be entitled to recover would be entirely within the discretion of the jury and would not be limited merely to surgeons or nurses bills. As none of the facts which give rise to the injury are stated, it is impossible to give futher advice.

Bitten by Dog

If a neighbor's dog on his own land bites you what can be done to the dog? Can you be prevented from killing the dog?—Subscriber, Lower Lake.

A dog may be killed only when actually engaged in mischief. It makes no difference where he bites you, one has no right to kill the dog after the bite. Your only action is a civil one against the owner of the dog for damages caused. The owner of the dog has a right to have dogs upon his premises for the protection of his home and property.

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Anonymous

We are receiving so many unsigned letters and the department is becoming so filled that there must be some reduction, therefore we are again compelled to announce that anonymous communications will not be given attention. As soon as a letter is opened the signature is looked for, and if not found—no matter how helpful a question it may be—the waste basket will get it. This is an invariable rule and yet there is scarcely a day that unsigned letters are not received at the office. In some cases these letters have the full address of the writer on the envelope, and it is possible the envelope has been thrown away before this fact is observed, so it is best always, in addition to putting the name on the envelope, to attach it to the letter. We scarcely ever use the name, and certainly will not when it is indicated that name should be withheld.

Again, subscribers will send remittances in a letter and on the same sheet ask a question intended for the editorial department. It will expedite matters if the question or matter intended for the editorial department is written on a separate sheet with full name and address on it. It will then receive immediate attention.

Vomiting from Overfeeding

What shall we do for a calf two months old which has been having as feed a gallon and a half of milk and two tablespoons of calf meal night and morning? It runs in green pasture in daytime and is fed hay at night, and after feeding vomits the milk. It is rather stupid with ears dropped down. It seems to have had too much to eat and drink.—Subscriber, Soledad.

It is rather uncommon for the larger breeds of animals to vomit but they do sometimes. It is occasioned by overfeeding. Reduce the feed by cutting out some of the kinds, either the green pasture or the hay. Mix one ounce of turpentine and eight ounces of raw linseed oil and give a large tablespoon of this morning and evening.

Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Cottonseed

Is cottonseed good food for hogs and horses?—Subscriber, Imperial.

Experience in the southern cotton states shows cottonseed meal to be a good feed for horses. Two pounds per day seems to be the maximum amount fed in experiments reported at Iowa station. One and one-tenth pounds of cottonseed meal per head daily was as effective in maintaining the horses in good condition as 1.4 pounds of linseed oil meal. The cottonseed meal was fed in combination with corn and oats. Cottonseed meal has the highest proportion of protein of any of our feeds. Alfalfa is also rich in protein. Hence cottonseed meal should not be fed with alfalfa alone. It goes well with grain hay or sorghum or maize fodder if you are feeding such to your horses in Imperial. Some horses do not relish the meal and it may be necessary to mix it well with rolled barley or chopped alfalfa to get them to eat it.

"For hogs, cottonseed meal is not considered a good feed. Experience has shown that they may thrive on it for a while but usually in from four to six weeks some die. Not all die, but enough to remove profits. The Oklahoma station reports an experiment in feeding a grain ration of one-fifth cottonseed meal and four-fifths corn meal in which one-fourth to one-half the pigs died in five to seven weeks. Henry says that "if cottonseed meal is not fed continuously for over 40 days and does not form over one-fourth of the ration, and if the pigs are freely supplied with green forage or grazed on pasture, the risk from this feed is slight."

"Let us hear from Imperial Valley farmers as to their experience in feeding cottonseed products to different kinds of stock.—L. A."

Ration for Sows

My sows have to be shut up without green feed. Which is best for them, maize and water, or milk?—Subscriber, Imperial.

By maize, we presume the subscriber means milo of the dwarf variety which is so largely grown in Imperial. Milo seed has a comopsition somewhat similar to that of Indian corn and a similar, though not equal fattening value. Hence much of it should not be fed to sows that are soon to farrow unless they be very thin in flesh. It sounds rather strange to hear one say green feed is not available in Imperial Valley. If pasture is not at hand for the sows to range on, is it not possible to cut the alfalfa and feed to them green? Succulant food is necessary for best results with pregnant sows and nothing is superior to green alfalfa. If sows are in good flesh alfalfa pasture frequently furnishes them with all the nourishment required.

If it is convenient to cut alfalfa hay finely a good mixture would be for a daily ration for each sow, one quart milo seed, two quarts chopped alfalfa and five quarts of milk. Soak the milo and alfalfa for 12 hours in the milk before feeding. If chopped alfalfa hay is not available feed milo and milk together and keep alfalfa hay where the sows can get at it any time they choose. One quart of milo seed is suggested if the sows are in good or fair flesh. If thin it might be increased by one-half until the sows improve. Beside the above mixture the sows will want water to drink.—L. A.

Callas Not Blooming

My callas do not bloom out full. The bulbs came from a bed which has always given satisfactory bloom. The bloom stalks which come up do not bloom out.—Subscriber, Gridley.

It is almost impossible to recommend treatment in a case like this where particulars are not given. For instance, it is possible that just prior to blooming time the moisture may have been withheld and this prevented the plants giving best results. The calla demands a large amount of moisture. Of course it is barely possible that the roots may be surrounded with exceptionally hard soil. Certainly the shady location is ideal unless the roots of the live oak tree continually sap the ground of moisture and nourishment.

Castor Beans

An inquirer wishes information as to the growing of castor beans in California and the possibilities of profit from their culture. We would not recommend any extensive planting of this crop. We know the effort was made some years ago to establish mills for crushing and extracting castor oil, but the price which the mills were able to pay did not justify the gathering of the seed. The plant at that time grew wild, as it does now, in immense quantities along the Santa Ana river and elsewhere. If there was a market for the beans they would be a very satisfactory crop for the plant grows almost spontaneously in nearly all sections of California and its culture is very simple.

Fertility of Eggs

How many hens should be run with one Plymouth Rock rooster to secure highest fertility?—Subscriber, Gridley.

Eight hens is as many as it is usually considered safe to run with a male of one of the heavy breeds, but one male will sometimes care for 12 or even more. Much depends on the age and physical condition of the birds. Again, the eggs may be fertile and yet not hatch well. I never hatched a larger per cent of chicks than one spring when I ran 12 hens with a yearling cock. This spring, hatching from a pen of seven pullets mated to a young cock I find the fertility good, but the hatchability poor, a condition which I explain by the fact that the hens are too young and have been laying heavily all winter. A male will care for more hens in the spring than in the fall or winter. In the fall four hens is sufficient for best results. Overfat hens rarely lay many fertile eggs, and favoritism plays no small part in securing fertility. The only way to be sure of the fertility and

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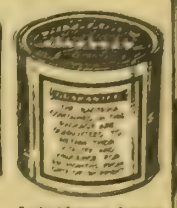

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Guaranteed for Six Months by the Armour Fertilizer Works.

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Pure Culture inoculation is endorsed by the U. S. Dept. of Agriculture and other authorities. Thousands of satisfied California ranchers testify to the wonderful results obtained with "NITRAGIN" — the *Original* Pure Culture.

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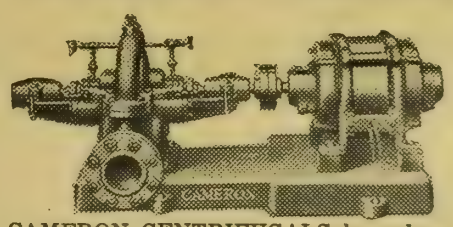
CAMERON IRRIGATION PUMPS



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hatchability of your eggs is to try them and then to remedy whatever conditions seem to be wrong.—J. A. K.

Comment

Mr. G. A. Leach of Pasadena refers to a recommendation made by Dr. Petrie regarding curing of thrush or canker. He thinks a less objectionable and more effective treatment is secured by soaking the horse's feet in hot and cold water. Also, in the treatment of sticktight fleas he would use carbolated vaseline instead of corrosive sublimate, as recommended by Mrs. Koethen.

Unsigned

A subscriber at Morgan Hill sent a communication to the veterinary department which was unsigned. If he will rewrite his request and sign it it will receive as prompt attention as we can give.

Other inquirers as to copyright and other questions should repeat and sign letters.

To Poison Blackbirds

Why not soak some maize in blue vitriol as they used to bluestone wheat in the East? Then let each farmer take his box of poisoned corn to the tules in the river beds. As there are no other birds stay in the tules I don't think any damage would be done?—A. G., Brawley.

In feeding the skim milk, the greatest danger lies in overfeeding the calf. Five or six quarts a day is all that a calf should have until it is three or four weeks old.

CONCRETE FLOORS

Too much care cannot be exercised in preparing the foundation for a concrete floor. This should always be well drained and firmed, to a depth of from six to eight inches below the concrete.

At the Colorado Agricultural College we find that it pays to thoroughly tamp this foundation before putting on the mixture. If the soil contains a great deal of clay, it may be necessary to remove part of it and to fill in with broken stone, gravel, or cinders to within four or six inches of the proposed finished surface, depending on the thickness of the floor. Blind drains of coarse gravel or tile may be laid from the lowest points in the excavation to carry off any water that may accumulate beneath the structure.

For the construction of the ordinary stable or barn floor, which is not to carry any great weight, the following proportion is to be recommended for the concrete base: 1 part cement, 2½ parts clean, sharp sand, and 5 parts of loose gravel or broken stone. This should be finished on the surface with a 1 to 1½ inch layer of a mixture of 1 part cement and 1½ to 2 parts of clean, sharp sand. The total thickness of this floor must be from 5 to 8 inches, depending upon the load it has to carry.

For engine foundations, floors or driveways over which heavy loads pass, the following proportion is to be recommended: One part cement, two parts sand and four parts broken stone or gravel.

For all large floors it is advisable to place the concrete in sections not to exceed six feet square. This may be done by placing a two-inch plank of a width equal to the desired thickness of the floor on edge as a box in which the concrete is tamped until water begins to show on top. Make several of these forms, holding the plank in place by means of stakes driven into the under surface. These stakes should be driven on the outside of the form so they may be easily removed after the concrete has set and the planks have been taken out. Fill alternate forms at first, tamping the concrete thoroughly, especially the edges. On the same day, as soon as the concrete has set, remove the crosswise plank and fill in the forms not filled at first. Mark the side plank to show exactly where the points come.

The finishing coat should be spread on before the concrete has set. To make this of uniform thickness it is best to place either one or one and one-half inch wood strips, as desired, on top of the concrete over which a straight edge may be run. Smooth with a trowel for a smooth surface, or with a wooden float for a rough surface. Groove exactly over the joints of the concrete so as to bevel the edges of the block.

Do not trowel the surface too much until it has begun to stiffen, as it tends to separate the cement from the sand and injures the wearing surface.

The floor should be constructed with slope enough to carry all liquids to certain points from which it may be drained.

Protect the new floor from the direct rays of the sun, currents of air and frost, and keep constantly moistened for several days. Water is very important in the curing of concrete constructions and must be used liberally.

Use nothing but the best cement that can be obtained. The sand should be clean, sharp and not fine; it should be free from loam or clay, as these will tend to destroy the adhesive quality and retard the setting of the cement. Use clean, pure water for mixing. Mix thoroughly. Tamp thoroughly. Water thoroughly. —H. M. Bainer, Professor Farm Mechanics, Colorado Agricultural College, Fort Collins.

Say, what's the use o' bein' a kid,
An' mamma's treasure, an' sich as that,
When all the cookies an' things is hid,
An' her a sayin' they're hid from the cat?

USE CARE IN BUYING SUDAN

Horticultural Commissioner F. W. Waite of Imperial County is issuing to his people warning regarding the purchase of Sudan grass seed. He writes us that his action is because of Sudan and Johnson grass being so closely allied, especially as to the seed, that he fears where it may have been grown near to Johnson grass there is danger of hybridizing and possibly introducing a pest. From his warning we quote:

"The United States department of agriculture says that Sudan grass is a drouth resistant hay plant, that demand for information has come from all sections, but more especially from Southern states where the need of a desirable hay grass has been acute since the advent of the boll weevil forced diversification of crops. I wish to call attention to the fact that Sudan grass resembles Johnson grass in all ways excepting root system, and the fact that they belong to the same family as our milos makes it a question whether its use will be advantageous enough to overcome the risk of Johnson grass being introduced. All the sorghums hybridize very readily, making it very easy to cross Sudan grass with Johnson grass should there be the least mixture of seed used, and the same is allowed to blossom.

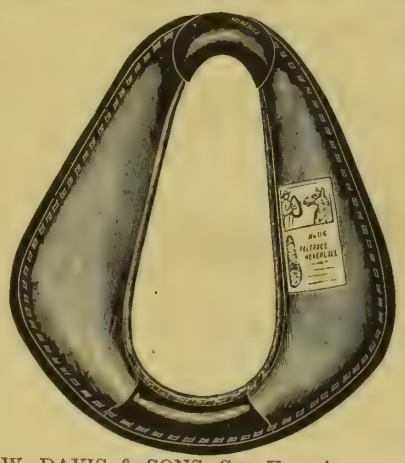
"The seed looks the same and will require expert examination to prove that Sudan grass seed is not Johnson grass seed.

"With all the other sorghums and alfalfa doing so well in the valley and plenty of water it is a question if Sudan is needed."

BAD ODORS DON'T CAUSE DISEASE

"That certain strong smells kill disease is as ridiculous as the belief that certain strong smells produce typhoid or smallpox," says Dr. H. W. Hill of the Minnesota Public Health Association. "Goats are often kept about stables to drive away glanders. The strong smell of the goat, it is believed by some, disgusts the glanders germ! On a par with this absurd superstition is the story, heard from time to time, that onions ward off smallpox. Our forefathers had a profound faith in asafetida, because of its evil smell, and a century ago hardly a prescription was compounded without the addition of this harmless and usually wholly inert gum. We have learned something in the last century or so however, and no longer dread bad odors as causes of disease, nor trust to them as cures. It is a curious fact that many of the most deadly gases have little or no odor, or a far from unpleasant one, while many vile smelling gases are comparatively harmless."

SORE SHOULDER INSURANCE



If you could get insurance against your horses becoming sore-shouldered when most needed, you would take it at any reasonable price.
Why not take it FREE by using
W. DAVIS & SONS'
Horse Collars
"Felt-Face" .....each $5.00
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This "Cushion" Collar is a combination of leather and canvas, guaranteed to cure sore shoulders and "stand the racket."

The "Felt-face" collar is all-leather, first-quality of oak-tannage, hand-thonged throughout. It has a facing of felt under the leather face, producing a soft yet firm surface against which the animal pulls.

It is natural for any manufacturer to say that his collars are "the best," but it is only about "FELT-FACE" collars that letters like this are written:

W. DAVIS & SONS, San Francisco.
Gentlemen:—I sold the Red Bands Orchard Co. two Felt-face collars about a month ago for two sore-neck mules which are all healed up now. They came in today and ordered one dozen. Please send me soon as possible 1½ dozen, from 17 to 22-inch. Very truly,
W. F. INGWERSON,
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A selling agent (dealer) in nearly every town. If none in your town, write us
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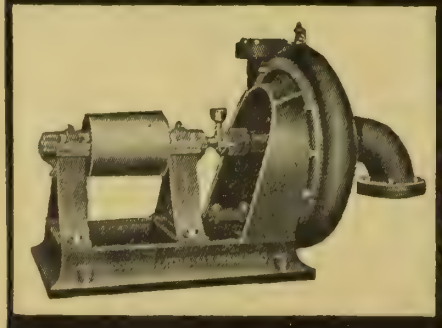

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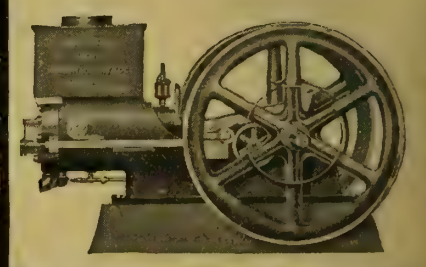

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The Household Department

NOW IS CHRIST RISEN

By Nancy Byrd Turner

Now is Christ risen from the dead!
Now brightening from sea to sea,
The wistful land is garmented
In ancient beauty wondrously.
Here flaunts a vine, here shakes a horn,
Here rings a blossom's fragile bell.
Here buds a rod, 'twixt night and morn,
Like Aaron's miracle.
So deep the heart of earth is stirred,
Far down, its humblest hoarded seed
Thrills to the echo of the word
That Christ is risen indeed.

How should a violet lift its face,
Safe resurrected, perfect, fair,
And He who fashioned all that grace
Lie dust beneath it there?
How should a trembling tendril stir,
A slender sword-thrust cleave the sod,
And He bide in a sepulcher—
Their Lord and God?
Nay, but an age ago unfurled
One dawn, from out a rock strong riven,
In an old garden of the world
The white, white Flower of Heaven!

O ye who mourn, new graves beside,
That same deliverance shall be
For them, our last great Eastertide,
That shook the slope of Calvary.
O ye who doubt nor understand,
Who see the guarded tomb alone,
For but a prayer an angel's hand
Will roll away the stone.
O ye who know, the dark is fled,
The day is on the hills again;
Since Christ has risen from the dead
There is no death! Amen!

THE BELLS OF ST. MARK'S

By Evelyn Snead Barnett

"IT'S a pretty old bell," the senior warden remarked at last.

"It's jes' sixty years old next Sad'dy," promptly responded Uncle Horace.

"You have a good memory," Mr. Atmore said.

The sexton ignored the remark. "Yes," he continued, "sixty years old next Sad'dy. I was thar when they cast her. You were thar, too, Mr. Hunt—yo' pa had you by the hand, and you wa'n't more'n knee-high to a buck. It was at Hurter's foundry—that's gone long ago. We were all notified that they was ready to cast the bell, and we went to see it done. The big kittle was jes' on a level with the flo', and we all crowded roun' it—the furnace, you unnerstan', was down in the cellar. It was gittin' dark and we thought they'd never be ready. Then the foreman he say sump'n to Doctor Hamerton, and the doctor felt in his pockets, and took out a big handful of silver and throwed it into the redhot kettle. Then every last one did jes' the same. And I,—even in those days they was beginnin' to call me miser 'cause I tried to save—as I was a darky, I came last, and they were all a-lookin' at me, and my father was goin' to quit bein' sexton on account of the misery in his legs, so I jes' took every cent I had 'bout my clothes, and in it went. There's nothing wrong with the bell, gentlemen," Then turning to Mr. Atmore, he added, fiercely, "She may not be the latest fashion, but she rings clear, 'cause she's got a heap of silver in her, and she's a sight better than the tinklers they make nowadays."

Then the old fellow strode from the room; and although it was fully quarter of an hour too soon to begin ringing for afternoon service, he pulled the bell so vigorously that little Mr. Griener, in his shop on the other side of the street, ran out to see where the fire was.

But in the very midst of its protesting clamor, the new again triumphed over the old, and the bell was condemned.

On Easter morning the new bells were to be heard for the first time. They had been tested singly and softly, but had never been permitted to show their real merits. A crowd gathered early on the sidewalk and in the church to hear them.

When the hands of a neighboring clock pointed to a quarter of eleven, the crowd ceased talking and gazed upward. Punctually the bells began. They were indescribably sweet, but plaintive—almost sad. In one clear stroke the smallest bell sent a challenge to the middle bell that was returned in notes of mellow harmony, while the big bell purred a low-toned accompaniment.

It was fine, but it was not satisfying. Mrs. Bonner, an invalid, listening only a square away, wondered that she could not hear. Mr. Poak, who was waiting for the bells to summon him to church, continued to read his book until it was too late to go. Mr. Chauncey told his wife that since it was after eleven o'clock, she could take the cotton from her ears and open the windows; if the bells had rung, they must have stopped by that time. "Why didn't the bells ring?" was a question that many persons asked one another.

Inside the church, a decorous murmur went up from the congregation after the first few notes. When the service was over, many of the members expressed dissatisfaction. Horace alone blinked his owl-like eyes and smiled in undisguised pleasure.

"Natur'ly," he said, "ef they put a organ up in the sky they can't expect people down on the earf to hear it."

Hardly had the last member of the congregation left the church before he locked the doors and was off. During the afternoon Mr. Greiner, standing in the doorway of his shop on the other side of the street, saw a heavy wagon with a covered load drive into the alley on the north side of the church.

"There's the boss rigger from Hefty's with two of his men and tools!" he called to his wife in the back room. "Maybe they're trying to find out what's wrong with the bells before evening service."

When night fell, Uncle Horace was nowhere to be found. His nephew, who came to take his place, reported that his uncle had felt badly at not having a bell to ring,—the first Easter for sixty years,—and had gone to visit some relatives in the country.

No crowd gathered as in the morning. A solitary workman in his shirtsleeves stood on the curb, and two boys teased a cat in the alley. The policeman came up, glanced at the church, then went on. Inside the church there were only a few young couples.

The bells began as prettily as before—the sweet silver-throated bell,

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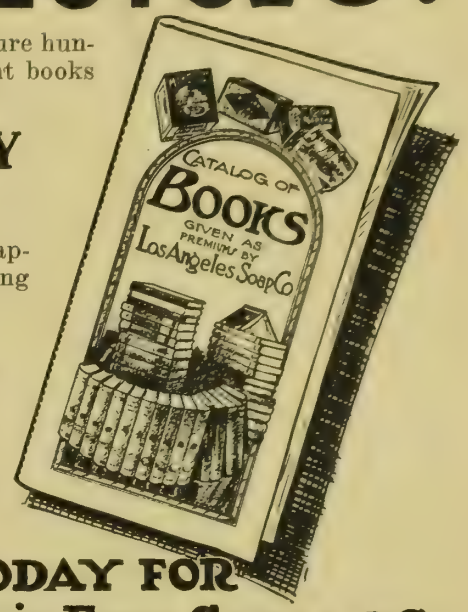

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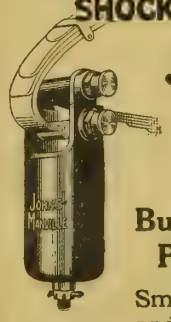

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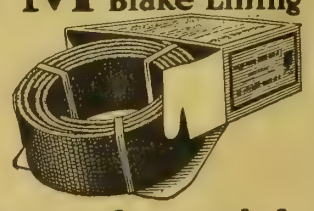

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the tuneful middle bell, and the big bell with its low-toned bass. After a pause they repeated this harmony.

Then something happened!

A smile of recognition lighted Mrs. Bonner's pale face. She raised her head from the pillow and asked for her prayer-book, in order that she might follow the service. Mr. Poak laid down his book, seized his hat, and was off. Old Mr. Chauncey, who had not been to church in six weeks, called to his wife to know why she was keeping him waiting. Mrs. Chauncey, tying on her bonnet as she ran, had hard work to keep up with him.

From all quarters they came. The young minister, who from the door of the vestry-room had gazed with a sinking heart at the sparse congregation, looked at first puzzled, then amazed.

Wonderful to relate, the old bell that had been sold for scrap-metal, and that he thought had long ago been melted up, was ringing!

The new bells were still at work. Again little silver-throat made itself heard; then the tuneful middle and finally the humming bass. But instead of the expected pause, there sounded the loud boom of the old bell. And that sound changed the whole character of the ringing. It made it continuous, it made it cheerful, and by a strange coincidence, the note of the old bell was in perfect harmony with the three new ones.

On the stone flagging the people were swarming; their faces were filled with astonishment and awe. Some showed superstitious terror. The Pied Piper himself could not have been more exigent than the old bell was. The workman in his shirt-sleeves regarded each new arrival with interest, and chuckled quietly.

The minister called for a lantern, and with two of the church wardens, mounted to the tower. The three new bells were there—no more. Since the regular boom now seemed to come from the earth, the men went down into the basement. They found nothing. When they came up and went outdoors, others joined them, and with the rector leading, and the grinning workman bringing up the rear, the crowd started round the building. Down the alley they passed, through the side gates and into a small rectangular piece of ground between the wings of the church and the Sunday-School Chapel. There the mystery was solved.

An Easter moon just one day past the full showed Uncle Horace pulling vigorously at a thick rope. At the end of the rope, suspended from a double trestle about five feet high, was the old bell. Garlands from the morning celebration festooned its brim; streamers of ribbon fluttered from the hanger; some of the banners with faded text were planted at the sides, and along the crosspieces of rough timber a row of candles flickered.

The old man nodded casually to his visitors, and continued to ring as if the action were an every-day occurrence. But his air of unconcern was short-lived; the new bells ceased ringing, and he found himself performing a solo before an unusual audience. It was then that his composure fled. Uncle Horace climbed stiffly from the ladder, approached the still vibrating bell, and laid his old gray head against it. His eyes filled with tears, but he was defiant.

"Gen'l'mun," he said, "it's my bell now—I bought her, and nobody da's-en't take her away from me. And what's mo', when I want to ring her—she'll ring."

Evidently the crowd was in sympathy with him, for there were murmurs of assent. The minister himself showed by his look that at last he realized that a church-bell could be more than a thousand pounds of metal. He walked up to the old sexton and laid a friendly hand upon his shoulder.

"Well, Horace," said he, "it seems you have discovered what ails the new bells—something lacking in the way of balast—eh?"

The old man brushed his sleeve across his eyes. "She ain't in nobody's way, doctor," he said, pleadingly. "You won't make me move her?"

Mr. Swing was not a man to do things by halves. "No," he said, "now that she is here, she can stay; moreover, she must ring. Since you have things so conveniently arranged, I think you will have to divide the service with

Timely Advice to Mothers

For Children's Lunch

All healthy children require something to eat now and then between meals. The careful mother, solicitous for her little one's health, shrinks from giving them too much cake, cookies, and similar dainties which most children appear to like best. The most satisfactory substitute—one that is thoroughly wholesome and nourishing—is good home-made bread thickly spread with Karo Syrup. Nothing can take the place of Karo for this purpose. It is clear and sweet as honey, without the cloying quality which makes honey distasteful to some, and unwholesome if eaten freely. You can give the little tots Karo spread thick on bread without the slightest hesitation. They will not only relish it keenly, but will actually thrive upon it.

You can also use it as an accompaniment for waffles and griddle cakes, as well as in the preparation of puddings and gingerbread, while the candies made from it are pure and delicious.

If you have not yet tried Karo Syrup, order some from your grocer today and make the children happy—just as thousands of other mothers are doing all over the country. Insist, however, upon Karo—it costs no more than ordinary syrups, and is superior in every way.

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the new bells—in fact, you had better do all the work until they are doctored. Do you agree with me, friends?"

The assent was unanimous. Afterward, the crowd pressed round Uncle Horace to congratulate him, and to examine the bell. When at last they had all gone to attend the tardy service, the old man spied the workman in the shirt-sleeves.

"Boss," he said, "I sho'ly is obleeged ter you. You done a good job—her bolts is as tight and she sets as steady as if yo'd had a month's notice for puttin' her up."

The rigger grinned. "I kind of guessed you couldn't bear to give up the bell by the way you kept hanging round the foundry, asking questions. But you've come out better than I thought you would."

"I knowed what I was about," replied the old man, with a twinkle in his eye. "Jes' let me give you a piece of good advice, boss: The best way to break a young colt is to drive him with a old horse."—Youths Companion

EASTER LUNCHEON

Written for California Cultivator
By Isabel Cottle

Color Scheme—Yellow and White

Daffodils or yellow tulips, with ferns may be used for flowers, or even the wild yellow mustard is graceful and sunny. A pretty effect is secured by using yellow crepe paper under lace doilies. Tiny yellow chickens for favors, each holding in its bill an egg-shaped place card painted in yellow and white, are effective.

Menu

Mint Cocktail
Chicken Croquettes with Mushroom Sauce
Bird's-nest Salad Finger Rolls
Angel Parfait in Rolled Vanilla Wafers
White and Sunshine Cake
Candy Eggs
Coffee

Chicken Croquettes

To one and one-half cups thick, white sauce (six tablespoons flour, four tablespoons butter, one and one-half cups liquid), add three cups chopped cold-cooked chicken, three-fourths teaspoon salt, one-half teaspoon celery salt, speck cayenne pepper, two teaspoons lemon juice, and if desired, a few drops onion juice. Mix well, set in the refrigerator until very cold, then mould with the aid of a chicken croquette mould into tiny chickens. Egg and crumb and fry in hot fat. Veal may be used in place of chicken if desired.

Mushroom Sauce

Make two cups medium white sauce (four tablespoons flour, four tablespoons butter, two cups liquid), using part cream and part chicken stock. To this add two cans of the button mushrooms. Season well and just before serving add one tablespoon minced parsley.

Finger Rolls

Mix and sift twice one quart flour, two tablespoons sugar, one teaspoon salt and three tablespoons baking powder. Cut in one-fourth cup shortening, mix to a soft dough, using about one and one-half cups equal parts milk and water. Toss onto a floured board. With the back of the spoon pat it out to about one inch in thickness, taking care that there is no flour on the top of the dough. Soften four tablespoons butter, cut into small pieces, spread on the top and press into the dough. Fold one-half over the other and pat out to about one-half inch in thickness. Cut into strips three inches long and about one-half wide, and bake in a hot oven.

Bird's-Nest Salad

Color Neufchatel or cottage cheese a delicate green with green coloring paste. Mould into the shape of robins' eggs and lay in a nest of shredded lettuce, three to a serving. Sprinkle with coarse black pepper and serve with French dressing.

Angel Parfait

Boil together one cup sugar and one-half cup water until it threads. Beat the whites of three eggs until stiff and dry, adding one-half teaspoon cream of tartar when the eggs are foamy. Pour the syrup slowly onto the whites of the eggs and continue beating until cold. Add one tablespoon vanilla and one pint heavy cream, whipped stiff. Put into moulds and let stand for three hours, packed in equal portions of salt and chopped ice.

For an attractive way of serving the above make vanilla wafers, roll as cornucopias, fill with the parfait and lay on a dessert plate with a daffodil beside it.

Rolled Vanilla Wafers

Cream one-fourth cup butter, add gradually one-half cup powdered sugar and cream in one-fourth cup milk, adding a few drops at a time. The mixture should be smooth and creamy. If it seems to curdle too much milk has been added at a time. By beating well it will become smooth again. Then add seven-eighths cup bread flour and one-half teaspoon vanilla. Spread the mixture very thinly on an inverted buttered dripping pan, smoothing with a broad-bladed knife or spatula. Mark in three-inch squares and bake in a slow oven until delicately browned. When done draw the pan to the front of the oven and with a sharp-pointed knife run along the crease, separating each wafer. With the point of the knife raise the edge of each wafer and roll either in cornucopias or cylinders, cornerwise or straight across. This must be done while the wafers are very hot, otherwise they will be too brittle. If they become brittle while handling put back in the oven and reheat. Have the knife and plate ready to hand so that not a moment will be lost after the process of rolling has begun. It may seem difficult at first to handle the hot wafers but with a little practice it will become easy.

Various Uses for Cornstarch

Interesting Facts Regarding This Delicious Food Product

The average housekeeper would be greatly surprised at the wide range of uses developed for cornstarch in the preparation of various foods and delicacies. In fact, it has become an indispensable adjunct to present day cooking. Every housekeeper, therefore, should become thoroughly familiar with its use.

For instance, in making pastry, cakes, etc., by simply adding cornstarch to her regular bread flour in the proportion of one part cornstarch to three to five parts flour (according to the amount of gluten in the bread flour she is using) the housewife can prepare a pastry flour of the finest quality—one which will insure a soft, fine texture to the pastry, and eliminate the tendency to toughness prevailing where straight wheat flour is used.

Most pleasing results can also be obtained by using cornstarch in the making of custards, shortcakes, waffles, chocolate eclairs, and dozens of other delicacies—but to insure the results desired, it is absolutely essential that the best quality of cornstarch be used. Housekeepers all over the country who obtain the best results with cornstarch recipes always depend upon Kingsford's. This brand is carried by all modern grocers, and costs no more than ordinary kinds. Order a package of Kingsford's today, and ask for their book of recipes.

EASTER EGGS

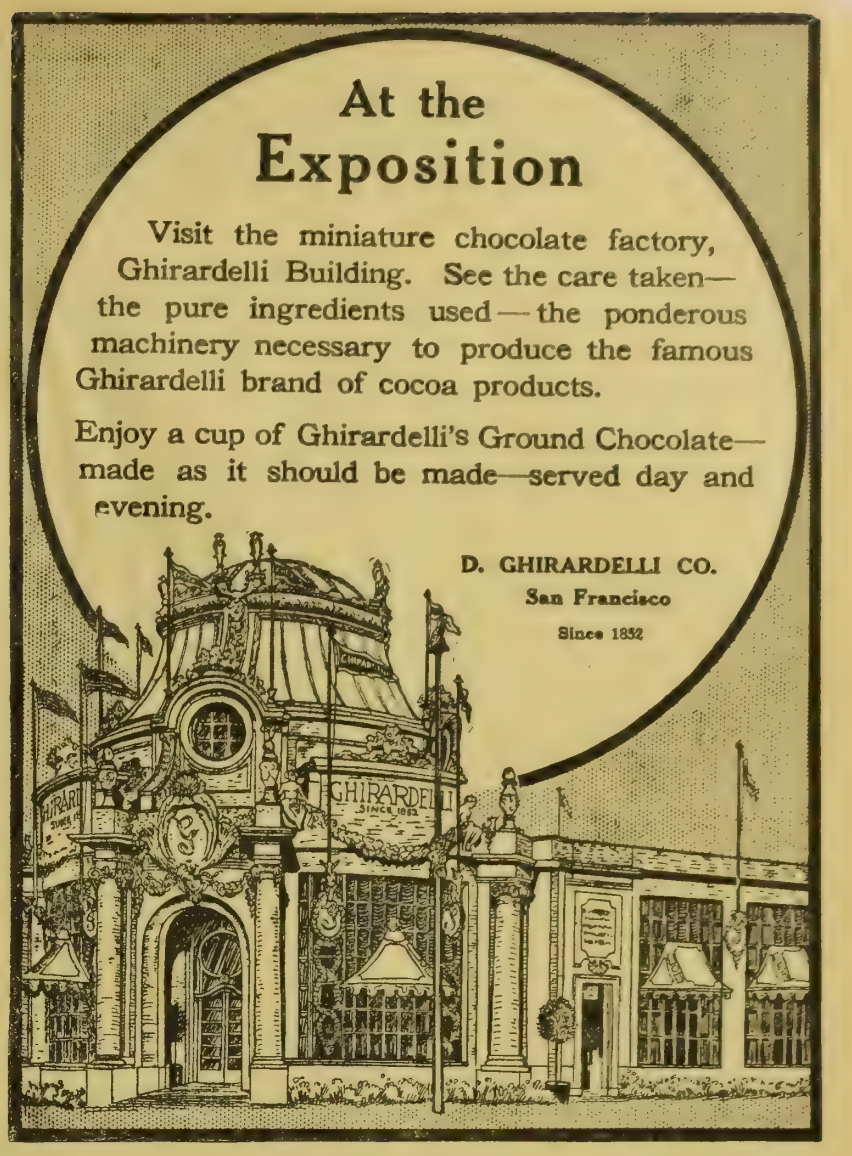
Mothers with little children always have Easter eggs to color. An easy and satisfactory method is to use the aniline dyes that come especially prepared for this purpose. If directions are followed there will be good results. The name and date, which will greatly delight the child, may be written on the egg with a pointed stick dipped in melted lard, before placing in the dyestuff. When removed, all will be colored except the writing.

For young people who enjoy coloring the eggs for the Easter frolic there are many little home ideas to vary their brilliancy. The egg dyes give the rich plain colors, and the fancy papers to wrap around them, which may be purchased at the stores, are the usual mediums, but do not give a very large variety.

Bits of ribbon, silk, calico and flannel, outside skins of the onion, coffee grounds and a bit of bluing will do wonders if rightly handled in coloring eggs.

Take the egg, wrap the onion skins around it with the strip of blue ribbon

(Continued on Page 415)



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of California Cultivator, published weekly at Los Angeles, Cal., for April 24, 1915.

NAME OF—	POSTOFFICE ADDRESS.
Editor, C. B. Messenger	Los Angeles, Cal.
Business Manager, Frank H. Thomas	Los Angeles, Cal.
Publisher, Cultivator Pub. Co.	Los Angeles, Cal.

Owners: (If a corporation, give its name and the names and addresses of stockholders holding 1 per cent or more of total amount of stock. If not a corporation, give names and addresses of individual owners.)
Frank H. Thomas, Los Angeles, Cal.
E. D. Thomas, Los Angeles, Cal.
H. D. Thomas, Los Angeles, Cal.
R. M. Teague, San Dimas, Cal.
M. E. Teague, San Dimas, Cal.

Known bondholders, mortgages and other security holders, holding 1 per cent or more of total amount of bonds, mortgages or other securities:
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(If additional space is needed, a sheet of paper may be attached to this form.)

Average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above. (This information is required from daily newspapers only.)

FRANK H. THOMAS, Manager.

Sworn to and subscribed before me this 22nd day of March, 1915.
(SEAL) H. E. STORRS, Notary.
(My commission expires March 19, 1917.)

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, March 31, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade 4 cents above following quotations:

Creamery Extras 22
Firsts 20
Country 19
Ladle 18

CHEESE

Prices to trade, 1 and 2 cents higher:

California Fresh .... 13@14
Cheddar .... 19@20
Domestic Swiss .... 20@21
Eastern Daisy .... 18½@19
Oregon Triplets .... 17@17½
Longhorn .... 18½@19
Imported Swiss .... 32-@34

EGGS AND POULTRY

Prices to trade, 3 cents higher than following quotations:

Fresh Ranch, case counts 20
Candled 24
Northern, case counts 21
Petaluma-Santa Rosa 22

Prices to producers:

Hens, lb. .... 16@18
Roosters, old 9
Broilers, lb. 28
Fryers 23
Roasters, lb. 20
Turkeys .... 17@20
Ducks 19
Geese 16
Squabs, doz. 3.00

LIVE STOCK

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs., per cwt. 7.75
Prime Steers .... 7¼@7½
Heifers .... 6¼@6½
Calves, lb. .... 8½@9
Sheep—
Ewes, head 4.50
Wethers 5.00
Lambs, head .... 4.50@4.75

POTATOES

Wholesale selling prices:

Idaho Russet .... 1.75@1.85
Idaho Rurals .... 1.35@1.45
White Rose Seed .... 1.50@1.60
Sweets, lug .... 70@80
New Potatoes, lb. .... 8@9
Northern Burbanks, cwt. .... 1.75@1.85
Salinas .... 2.00@2.10
Lompocs .... 2.00@2.10

ONIONS

Wholesale selling price:

Australian Brown, cwt. .... 90@1.10
Oregon Globes .... 1.35@1.50
Yellow Danvers .... 1.00@1.25
Sets—
Yellow 10
White 12
Garlic .... 25@30

VEGETABLES

Wholesale selling price:

Asparagus—
White .... 7@9
Green .... 8@12
Artichokes, Northern, doz. .... 35@75
Brussels Sprouts, lb. .... 12@15
Beets, doz. .... 30@35
Beans, Green, lb. .... 30@35
Cabbage sack .... 65@75
Carrots, doz. .... 30@35
Cauliflower, doz. .... 90@1.00
Celery—
Local .... 3.00@3.25
Northern, crate .... 4.00@4.25
Chicory .... 35@40
Cucumbers, Hothouse .... 75@2.50
Egg Plant, lb. .... 23@25
Escarole, doz. 40
Horseradish, lb. .... 10@12
Leeks, doz. .... 35@40
Lettuce, crate .... 90@1.00
Mint, doz. .... 35@40
Mushrooms, Outdoors, lb. .... 35@50
Onions, Green, doz. bunches .... 15@20
Oyster Plant, doz. .... 35@40
Parsnips, doz. .... 35@40
Peas—
Telephone .... 4½@5
Small .... 3½@4
Peppers—
Bell, lb. .... 25@30
Chili, lb. .... 25@30
Pumpkins, lb. .... 1¼@1½
Rhubarb, Crimson Winter .... 75@85
Spinach, doz. 20
Squash—
Hubbard, lb. .... 2¼@2½
Strawberry .... 1.35@1.85
Tomatoes, Mexican .... 2.75@3.00
Turnips .... 25@30

FRESH FRUIT

Wholesale selling price:

Apples—
Bellflowers .... 60@1.00
Jonathans .... 1.60@1.75
Rome Beauties .... 1.25@1.75
Pearmains .... 1.25@1.65
Spitzenbergs .... 1.50@1.75
Avocados, doz. .... 8.00@12.00
Bananas .... 4@4½
Berries—
Strawberries, basket .... 7@12
Loquats, lb. .... 7@10
Pears, Winter Nelis, lug 1.50
Pineapples, lb. .... 6@7

CITRUS FRUIT

Wholesale selling price:

Lemons .... 1.00@2.00
Grapefruit, Seedless .... 1.75@2.25
Navels .... 1.00@1.75
Tangerines, half box .... 1.25@1.50
Limes, basket 1.00

DRIED FRUITS

Wholesale prices to retailers are:

Evaporated Apples, Fancy, lb. boxes .... 7¾@11½
Apricots .... 9½@11
Nectarines 12½
Peaches .... 5¾@6¾
Pears .... 10@11
Prunes .... 5½@15
Plums 10

HONEY

Wholesale selling price:

Comb, Fancy, Water White 14
White 12
Light Amber 11
Extr. Water White 7
White 6½
Light Amber 5½
Beeswax 32

NUTS

Prices named by California Walnut Growers' Association are:

No. 1 .... 16½
Budded Walnuts 20
Jumbos 19
No. 2 12
Culls 9

Prices fixed by California Almond Growers' Exchange, f. o. b. California.

Almonds—
Nonpareil .... 21@22
I X L .... 20@21
N P U .... 19@20
Drake's Thinshell .... 17@18
Pecans 17
Peanuts—
California, Raw 6
Japan 7½
Eastern 7½
Rice Corn .... 5.00@5.25

RICE

Wholesale selling price:

California .... 4.75@5.00
Broken .... 3.75@4.00

BEANS

Wholesale selling price:

Producer's price not far from one dollar under these quotations:

Limas .... 6.35@6.50
Bayous .... 6.00@7.00
Lady Washington .... 6.00@6.10
Pinks .... 5.10@5.25
Black Eyes .... 6.75@7.00
Lentils .... 10.00@12.00
Small White .... 6.00@6.10
Garbanzos .... 7.25@7.50

HAY

Prices to producer f. o. b. Los Angeles:

Barley Hay .... 9.00@13.00
Wheat Hay .... 8.00@11.00
Tame Oat .... 9.00@14.00
Alfalfa .... 8.00@10.00
Volunteer .... 5.00@7.00
Straw .... 5.00@6.00

GRAIN

Wholesale selling prices f. o. b. Los Angeles:

Corn, Yellow 2.10
Corn, White 2.20
Wheat .... 2.55@2.60
California Red Oats 1.85
Cal. Seed Oats 2.10
Texas Seed Oats 2.50
Oats, White 2.15
Oats, Hulled 2.55
Millet 3.75
Popcorn .... 4.75@5.00
Egyptian Corn 2.10
Barley Seed 1.00
Barley, Hulled 2.05
Milo 1.90
Rye 2.30
Sunflower Seed 7.50

FEED STUFF

Wholesale selling prices f. o. b. Los Angeles:

Bran, Heavy 1.65
Alfalfa Meal 1.20
Alfalfa Molasses, per cwt. 1.25
Beef Scraps 3.00
Beet Pulp 1.25
Cracked Corn, cwt. 2.15
Cracked Wheat, cwt. 2.75
Cotton Seed Meal 1.80
Bloodmeal .... 3.45@3.55
Bone Meal 1.95
Meat Meal 3.00
Bone, Green 1.65
Charcoal 2.00
Oil Cake Meal 2.50
Fish Meal .... 3.15@3.25
Rolled Oats 2.20
Middlings 1.95
Rolled Barley 1.65
Feed Meal 2.20
Scratch Feed .... 2.20@2.40

San Francisco Market

SAN FRANCISCO, March 30, 1915

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade, 4 cents above following quotations:

Extras 23
Prime Firsts 22½
Firsts 21½

CHEESE

Wholesaler to retailer.

Oregon Y. Am. 16
Young America .... 12@12½
California Flats .... 8@11
Cheddar 20
Oregon Twins 14

EGGS AND POULTRY

Prices to trade 3 cents higher than following quotations:

Extras 22
Firsts 18½
Select Pullets 18½

Price to producer:

Hens, lb. .... 18@20
Fryers .... 26@28
Roosters, old .... 10@12
Roosters, Young .... 22@25
Broilers .... 32@36
Squabs .... 2.00@3.00
Ducks .... 15@16
Geese .... 2.50@3.00
Belgian Hares, lb. .... 7@8
Turkeys, live, ... 16@17

LIVE STOCK

San Francisco prices. gross weight:

Steers .... 3¼@7¼
Cows and Heifers .... 3@6½
Calves, lb., live weight .... 6@9½
Hogs .... 5@7¾
Wethers .... 7@7½
Ewes .... 6@6½
Yearling Lambs .... 7½@8
Milk Lambs .... 8@9

POTATOES

Wholesale selling price:

Idaho Rose .... 1.25@1.35
Idaho Russet .... 1.25@1.40
Delta Burbanks .... 1.00@1.60
Salinas Burbanks .... 1.40@1.50
Oregons .... 1.50@1.75
Shimas .... 1.00@1.40
Washington .... 1.30@1.40
Watsonville .... 85@1.00
New Potatoes, lb. 6
Sweets, cwt. .... 2.25@2.50

ONIONS

Wholesale selling price:

Onions, cwt. .... 60@1.00
Garlic, new .... 15@20

VEGETABLES

Wholesale selling price:

Asparagus, box .... 1.00@1.75
Canners' offer .... 85@90
Beans, string .... 10@12½
Brussels Sprouts, lb. .... 3@5
Celery .... 2.00@2.50
Cucumbers, Hothouse, doz. .... 90@1.10
Lettuce—
Southern .... 75@85
Peas, lb. .... 3@6
Peppers—
Bell, lb. .... 2@12½
Chili, Mexican .... 10@12½
Rhubarb—
Southern .... 75@1.00
Alameda .... 75@1.25
Tomatoes Mex. .... 1.50@2.00

FRESH FRUIT

Wholesale selling price:

Apples—
Newton Pippins .... 40@80
Bellflowers .... 25@50
Berries—
Strawberries, Southern, cr. .... 1.50@2.25
Bananas, Hawaiian, bunch .... 75@1.50
Pineapple, doz. .... 1.00@2.25

CITRUS FRUIT

Wholesale selling price:

Grapefruit, Seedless, new crop .... 1.50@3.50
Lemons .... 1.50@2.50
Lemonettes .... 1.00@1.50
Navels .... 1.00@2.10
Tangerines, halves .... 75@1.75

DRIED FRUITS

Wholesale prices are:

PRUNES—1914 crop, bulk basis: 30-40s, 7c; 40-90s, 6½c; 90-100s, 6c. The above are for both Santa Clara prunes and stock from outside sections.

Other Fruits. 50-lb. boxes—	Standard	Choice	Extra Choice	Fncy
Ev'p'd Apples.	7¼c	7½c	8 c	
Peaches	4 c	4¼c	4½c	5¾c
Apricots	9 c	9½c	10 c	11 c
Pears	7 c	8 c	9 c	10 c

RAISINS

RAISINS—The following prices are f. o. b. Fresno, as given out by the Associated Raisin Company, for immediate shipment, and are guaranteed against a decline till April 1st: Fancy seeded, 16-oz., 7½c; 12-oz., 5⅞c; bulks, 6c; choice seeded, 16-oz., 6⅞c; 12-oz., 5⅝c; bulk, 5½c; Thompson seedless, No. 1, 16-oz. pkgs., 7⅝c; 12-oz., 6¼c; 50-lb. cs., 6½c; loose, Muscatels, 1-crown, 5⅛c; 2-crown, 5½c; 3-crown, 5⅞c; 4-crown, 6c; Sultanas, 50-lb. cs., 5¾c; bulk, layers, 50-lb. bxs., $2.75; in 20-lb. bxs., 6-crown, $2.75; 5-crown, $2.25; 4-crown, $160; 3-crown, 5-lb. bxs., $1.50; on all bulk stock, 50c additional. Cartons—Clusters, 20 to cs., No. 1, $1.70; No. 2, $2.10; No. 5, 4 to cs., $2.25. Local representatives of the association are asking about ¼c higher, while several of the largest independent packers are quoting ½c under these figures.

NUTS

ALMONDS — Prices fixed by Almond Growers' Exchange to the trade, f. o. b. California:

Nonpareil 21
I X L 20
Ne Plus Ultra 19
Drakes 16

Wholesale selling price:

Peanuts—
Unpolished .... 5@8
Polished .... 6@6½
Shelled, Jap .... 6¼@6¾
Italian Chestnuts .... 6½@7

BEANS

Wholesale selling price:

Limas .... 5.55@5.65
Pink .... 4.40@4.50
Black Eyes .... 6.00@6.25
Cranberry .... 5.00@5.25
Small White .... 5.40@5.50
Garbanzos .... 6.50@6.75
Large White .... 5.25@5.35
Bayou .... 5.45@5.60
Manchurian Speckled Bayous .... 4.15@4.25
Manchurian Butters .... 4.50@4.75
Red Mexican .... 5.50@5.60
Red Kidney .... 6.00@6.25
Horse Beans .... 3.50@4.00

HONEY

Wholesale selling price:

Comb, Water White .... 14@16
Amber .... 10@12
Dark .... 7@10
Extracted White .... 7@9
Light Amber 5½
Dark .... 4@5½
Beeswax .... 27@32

HOPS
1914

Wholesale selling price:

Sacramento Valley .... 12½@14½
Sonoma-Mendocino .... 12½@15
Oregon Clusters .... 12@15

HAY

Under date of March 27, Scott, Magner & Miller say:

Receipts of hay for the past week were 2166 tons. This is quite a decrease from 2982 tons of the preceding week. Trade throughout the city remains light. Fancy grades of red oat or wheat hay sell without difficulty, but all other grades remain dormant. Alfalfa has been arriving in greater quantities. There is a fair demand for this commodity.

Fancy Wheat Hay (light bales) .... 11.00@12.00
No. 1 Wheat or Wheat and Oat .... 9.00@10.50
No. 2 Wheat or Wheat and Oat .... 6.00@8.50
Choice Tame Oat .... 10.50@11.50
Other Tame Oat .... 6.00@9.00
Barley .... 5.00@8.00
Wild Oat .... 6.00@8.00
Alfalfa .... 6.00@9.00
Stock Hay .... 4.50@5.00
Straw, per bale .... 30@45

GRAIN

Alfalfa Seed 16½
Wheat, Cal. Club .... 2.35@2.37½
Corn, Egyptian White .... 1.85@1.90
Corn, Eastern Yellow .... 1.72½@1.75
Barley, Feed .... 1.27½@1.32½
Oats, Red, Feed .... 1.45@1.55
Oats, White Feed .... 1.80@1.85
Millet .... 2½@3¼
Flaxseed .... 5@5½
Rye .... 2.00@2.25
Sunflower .... 5@5½

FEED STUFF

Wholesale prices.

Alfalfa Meal, car lots .... 14.50@15.50
Bran, ton .... 27.00@28.00
Feed Cornmeal .... 39.50@40.00
Cracked Corn .... 39.50@40.00
Rolled Barley, ton .... 28.00@29.00
Rolled Oats, ton .... 37.00@37.50
Middlings .... 32.00@34.00
Shorts .... 29.00@30.00
Oilcake Meal .... 38.00@39.50
Cocoanut Oilcake Meal .... 24.00@25.00

WEATHER CONDITIONS

March 27, 1915.

Report from the various stations of the United States Weather Bureau, by George H. Wilson, director, San Francisco.

	Rainfall Data			Temperature Data —Past Week—	
	Past Week	Seasonal to Date	Normal to Date	Maximum	Minimum
Eureka	.16	38.23	37.77	70	46
Red Bluff	.94	29.22	20.92	82	50
Sacramento	.42	13.18	16.59	82	48
San Francisco	.69	21.49	19.18	81	50
San Jose	.48	18.02	14.33	84	46
Fresno	T	8.70	8.09	84	50
Independence	....	2.84	7.95	78	....
San Luis Obispo	.04	23.04	17.67	86	46
Los Angeles	T	14.75	13.66	84	54
San Diego	....	12.75	8.68	84	52

T. means trace.

Citrus Fruit Market

LOS ANGELES, March 31, 1915.

The general tone of the orange market is much better. Prices are yet but little advanced, but the fruit is arriving in better condition; there are less discounts and all stock is being cleaned up. Probably at least 15 cents more is being averaged this week than last. Everything is going forward iced now. It is probable that Orange Day and the general advertising campaign in connection with it has been a material factor in the strengthening of the market.

There is little change in the lemon market though, like oranges, the tone is generally stronger.

Shipments

Shipments of oranges from Southern California to date since November 1, 1914, 13,700 cars, lemons 1727, total 15,427. To same date last season, oranges 15,352, lemons 863, total 16,215. From Tulare County to date: oranges 5,162, lemons 179, total 5,341. Last season, oranges 4,618; lemons 30, total 4,648. From Northern California: oranges 627, lemons 1. To same date last season, oranges 398, lemons 5.

NEW YORK, March 29.—Thirty-eight cars navels, one budded, four navels and bloods, three navels and tangerines, two navels, bloods and tangerines, one navels and lemons, and three cars lemons sold. Market strong, little higher on fancy, choice, poor stock unchanged. Lemons firm. Weather fair.

NAVELS—	Avge.
Mahala, L.V.W. Brown	$2.35
Swastika, L.V.W. Brown	2.05
Green Banner, Suth. Ft. Co.	2.20
Green Banner, Suth. Ft. Co.	2.20
Perfection, Highgrove O.K.A.	1.65
Gold Elephant, Eleph. Orchard	2.20
Gray Elephant, Eleph. Orchard	2.00
Golden Scepter, Rialto O. Co.	2.00
Redlands Best, B.M. F.G.A.	2.05
Mercury, Byrne Mawr F.G.A.	1.80
Pansy, Colton O.G.A.	1.70
Silver Foam, Colton O.G.A.	1.35
Camellia Red, M.O.	1.70
Sugarloaf, Sugarloaf O.G.A.	1.75
Industry, Sugarloaf O.G.A.	1.55
LEMONS—	
Silver Foam	$2.15
Mt. Wilson	2.45
Mt. Lowe	2.25
Pet	2.40
Greyhound	2.30
Blue Flag	2.60
Red Flag	2.40

KANSAS CITY, March 29.—Weather cold, cloudy. Two cars sold.

NAVELS—	Avge.
Gabriella	$1.65

BOSTON, March 29.—Twenty-four cars sold. Market is easier.

NAVELS—	Avge.
Orchard, National O. Co.	$2.50
Blue Banner, Suth. Ft. Co.	2.40
Green Banner, Suth. Ft. Co.	2.20
Standard, National O. Co.	2.05
Native, Sutherland Ft. Co.	2.05
Sapho, Amer. Ft. Dis.	2.05
AA, E. High, C.A.	2.05
Perfection, Highgrove O.G.A.	2.00
Sugarloaf, Sugarloaf O.G.A.	1.95
Biplane, Crafton?Mentone O.G.A.	1.95
Beauties, H. J. Coughlin	1.90
Mojave, Pac. F.P. Co.	1.80
Redlands Best, B.M. F.G.A.	1.80
Lighthouse, H. J. Coughlin	1.80
LEMONS—	
Victor, O.K. Ex.	$2.70
Crest	2.50
La Habra, S.T. Ex.	2.60
NAVELS—HALVES—	
Red Globe	$ .95

CINCINNATI, March 29.—Five cars sold. Market is strong.

NAVELS—	Avge.
Albion, Placentia M.O.A.	$1.85
Greyhound, S.A. Ex.	1.60
Homer, Q.C. Ex.	2.35
Camel, Q.C. Ex.	2.30
LEMONS—	
Arab, S.D. Ex.	$2.40
Pup	2.25

PHILADELPHIA, March 29.—Seven cars sold. Market is strong.

NAVELS—	Avge.
Tesoro Blue	$1.80
Tesoro Red	1.80
Red Band	1.60
Green Crown, A.C.G. Ex.	1.95
LEMONS—	
Victor, O.K. Ex.	$2.40
Crest	2.25

PITTSBURGH, March 29.—Market is steady.

NAVELS—	Avge.
Orchard, National O. Co.	$2.30
Standard, National O. Co.	2.05
Chief, Red, Hghts Arch.	1.80
Flyer, O.K. Ex.	2.00
Colombo, S.T. Ex.	1.75
Reliable, S.T. Ex.	1.70
Carmencita, S.T. Ex.	1.70
Colombo, S.T. Ex.	1.75
Las Palmas, S.T. Ex.	1.60
LEMONS—	
Lemonade, Or. Ex.	$2.05

ST. LOUIS, March 29.—Ten cars sold. Market is unchanged.

NAVELS—	Avge.
Chanticleer, E. High, C.A.	$2.00
Native, Suth. Ft. Co.	2.00
Carrier, R.H. Ex.	1.90
Garibaldi, R.H. Ex.	1.65
Red C. Covina Ex.	2.00
Lochinvar, R.H. Ex.	2.05
Belt, R.H. Ex.	1.95
Gavilan, Riv. Ex.	1.90
LEMONS—	
Alamo, F.C. Ex.	$2.25
Quaker Girl, S.T. Ex.	2.55
Greenleaf	2.35
La Puente	2.10

CLEVELAND, March 29.—Ten cars sold. Market is unchanged.

NAVELS—	Avge.
Mars, Amer. Ft. Dis.	$2.10
Vulcan, Amer. Ft. Dis.	1.90
Geranium, Randolph Ft. Co.	1.85
Mutual, M.O. Dis.	1.80
Blossom, Red. M.O. Co.	1.40
Hiddendale, E.C.U.	1.70
Hunter, A.C.G. Ex.	1.75
El Camino, S.A. Ex.	2.20
Real, S.A. Ex.	1.85
El Camino, imp., S. A. Ex.	2.20
Carnival, S.T. Ex.	1.90
Ibex, S.T. Ex.	2.10
Ranchito, S. T. Ex.	1.60
Gold Buckle, R.H. Ex.	2.25
Lochinvar, R.H. Ex.	2.15
Belt, R.H. Ex.	1.85
NAVELENCIAS—	
Belt	1.80
LEMONS—	
On Honor, L.G.	$2.45
As-you-like-it	2.20

CHICAGO, March 29.—Health Department officials have notified dealers that green and moldy strawberries will be condemned, and Florida shippers have been warned to send only ripe berries, honestly packed, hereafter. Chief sales were at 35@40 a quart, a shade higher for fine Niekomers. Oranges, boxes, California navels, 1.90@2.40; Floridas, 2.00; very few on market. Lemons, boxes, Californias, 2.00@2.25. Grapefruit, boxes, 1.75@2.25. Apples, firm, active sales, boxes, western stock, Delicious, 2.25@2.75; barrels, Northern Spys, 3.50@4.50. Kumquats, 15@17 per quart. Pineapples, crates, 2.50@3.00.

ECONOMIC IMPORTANCE OF ROADS

Successful competition of the commercial auto truck with the steam and electric railroads in the hauling of short distance freight and passenger business is given as one reason for extensive road improvement, in the report of the joint congressional committee on federal aid to good roads. Discussing this phase of the subject, Hon. Jonathan Bourne, Jr., chairman of the committee, says:

"A great system of rural transportation would be developed, with rates regulated by actual competition, open to rich and poor alike, as no expensive privately owned terminals, roadbeds, tracks, or equipment would be required. The good wagon roads would be open everywhere to the use of everybody, and the equipment, relatively inexpensive, would be within the means of many.

"This suggestion as to the use of rural roads by commercial auto trucks and buses, is not merely a product of imagination. In several instances gasoline propelled buses are now competing successfully with city or interurban electric lines, and where the haul is but a few miles transportation of freight by auto truck is found cheaper and more satisfactory than transportation by rail.

"In the case of the short haul the saving in handling and in time more than counterbalances the lower rail rate. Instead of loading the commodities on a truck, unloading at the local railroad station, where they must be loaded upon the cars, hauled to the near-by city and then unloaded and again loaded upon a truck and hauled to the consignee, the user of an auto truck who has a hard surface road available loads his products once, hauls to the door of his consignee and unloads, saving not only the handling, but the time, the inconvenience of issuance of way bills and receipts, and avoids damage to goods or deterioration while in transit.

"We believe that permanent highways will result in very considerable adoption of auto truck hauling in preference to rail transportation where the distance is within a half day's run."

ALFALFA SEED

California is getting a reputation for growing good alfalfa seed, and we doubt not in the near future it will become a vastly greater industry than at present. There is one concern, that of the V. A. Peterson Alfalfa Seed Comqany at Arbuckle, which this year has shipped something over 600,000 pounds of clean seed, this principally to farmers here on the Coast. Bear in mind this is only one shipping concern of the Sacramento Valley.

CHEAP OUTFIT FOR TREATING FENCE POSTS

A small but satisfactory tank for the open tank method of treating fence posts can be made from one of the galvanized steel barrels used for shipping oil and gasoline. These barrels are 36 inches high by 32 inches in diameter, and by removing one of the heads with a cold-chisel, or otherwise, a tank 34 inches deep remains.

This tank is heavy enough to serve the purpose of post-treating and may be supported upon two iron cross-bars built into the sides of a brick or stone work fireplace. Such a tank will hold about 10 or 12 posts of ordinary size at one time. One of the best preservatives is coal tar creosote. The posts should be seasoned and the creosote heated to at least the temperature of boiling water with the posts in it. By leaving the posts in the creosote while it cools down a good degree of penetration should be secured with most of the quick-growing soft woods, like cottonwood, poplar, elm, and the split cedar posts found on the market. The temperature of the creosote may be roughly determined by hanging a small tin can of water in the tank, and when the water boils the proper temperature has been reached.

The process of treatment may be hastened by keeping the creosote in the tank hot and removing the posts after an hour's immersion into an open barrel of cold creosote for another hour while a new batch of posts is being heated in the tank.—B. O. L., Colorado Agricultural College, Fort Collins.

EASTER EGGS

(Continued from Page 413)

and sew it up in a thin piece of muslin. Do another with red ribbon and another with green. Throw coffee grounds in the water and boil fifteen minutes. When done wipe with a buttered cloth. Others should be boiled in the bluing water. You will quickly see the combinations made.

Another scheme, if there is much cooking going on for the festival season, is to take a dozen eggs, make a needle hole at either end and blow them. When the shells are all empty they may, with deft fingers, be dressed as brownies, nuns, and almost any character. Their faces should be painted and feet be given them on which to to stand. They can then be used as most attractive dinner cards.

By way of variety paint some of the edges with gold and silver paint, dip others in a solution of gum arabic and then in diamond dust, wrap some in colored calico that is warranted to fade and boil for half an hour.

Baskets may be arranged in nest form by using tissue paper cut in fine strips. All sorts of dainty receptacles may be concocted from boxes, crepe paper and a bottle of paste. Children love these preparations, so let the little ones have a share in planning for this beautiful festival season.

Texas expects to market 5000 carloads of onions this season.

LARGE STOCK of

GASOLINE ENGINES—ALL SIZES,
CENTRIFUGAL AND GEARED PUMPS AND PIPE FITTINGS,
BLACKSMITH'S TOOLS, FORGES, ANVILS, VISES, ETC.

We have made ridiculously low prices on new and second-hand machinery. Write us for quotations and stock list.

WESTERN MACHINERY CO.—4TH AND BRANNAN, SAN FRANCISCO, CAL.

SAN FRANCISCO AND RETURN

$22.50

On sale daily to June 30. Return 90 days from date.

Stopovers allowed

Seven Trains Daily

Choice of Two Routes

Coast Line—Valley Line

THE COASTER
Leave Los Angeles 7:25 a. m.
Arrive San Francisco 10:55 p.m.

SEASHORE EXPRESS
Leave Los Angeles 5:00 p. m.
Arrive San Francisco 10:10 a.m.

THE OWL
Leave Los Angeles 6:30 p.m.
Arrive San Francisco 8:50 a.m.

NO. 49
Leave Los Angeles 7:30 p.m.
Arrive San Francisco 12:50 p.m.

THE LARK
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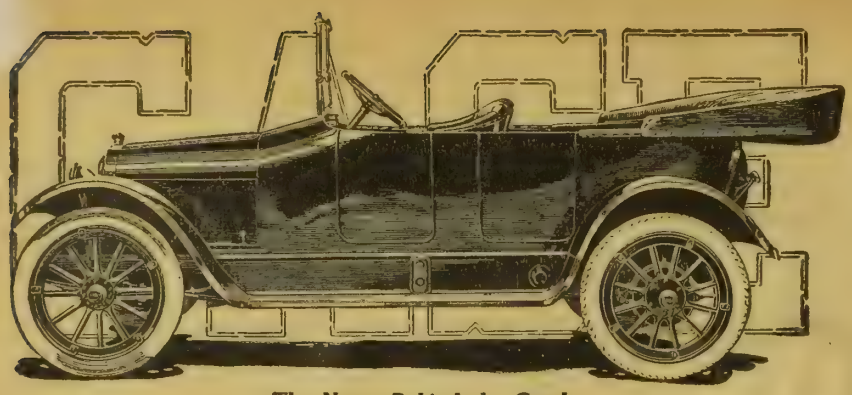

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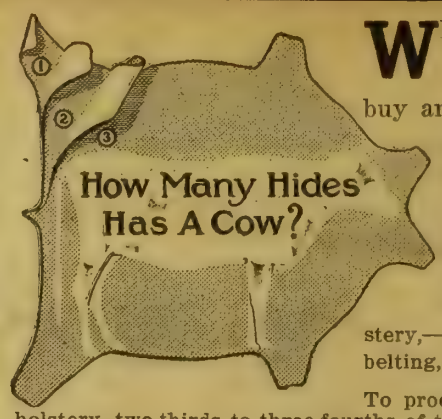

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LOS ANGELES April 8, 1915 SAN FRANCISCO

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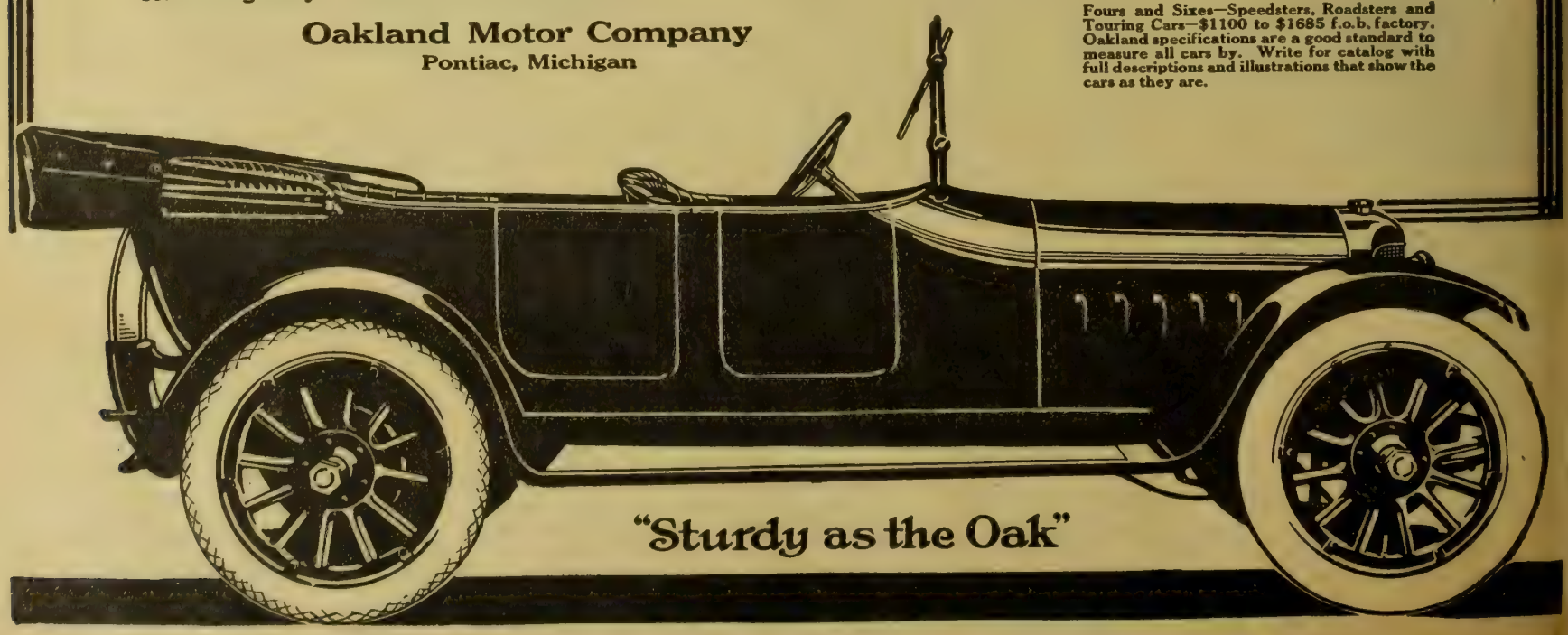


"Sturdy as the Oak"

California Cultivator

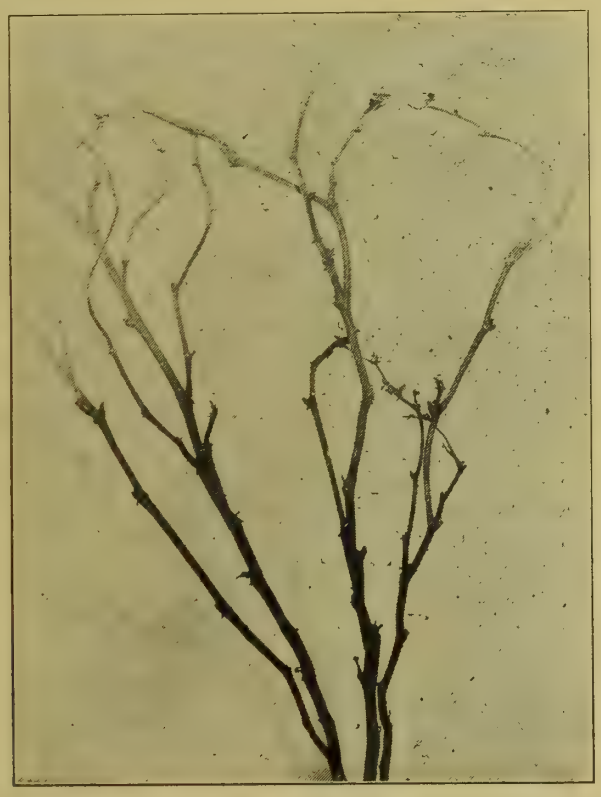
Rural Californian combined with California Cultivator

Vol. XLIV No. 14 LOS ANGELES: THURSDAY, APRIL 8, 1915 One Dollar Yearly

Planting and Growing of Beans

The Production of Beans Has Greatly Increased in This State During the Past Few Years. Southern Coast Counties Produce More Limas Than All the Rest of the Country. Limas are More Than Half of California's Bean Production. Practical Hints on Growing Field and Garden Beans

WITH all of California being the "greatest ever," she often neglects reference to one of her products which is making her famous. This product is the humble Lima bean. No section of the world produces this bean in such quantity and of such quality as does California. In the year 1914 this state produced 1,550,000 sacks of Limas. All the rest of the United States combined does not equal this production and two-thirds of it is by one of California's smaller counties. Ventura's production last year considerably exceeded 1,000,000 sacks. Another one of California's smaller counties, Orange, produced nearly 200,000 sacks. Only three other counties are a factor in Lima production; these are Santa Barbara, Los Angeles and San Diego, each producing in the neighborhood of 75,000 to 80,000 sacks. The island of Madagascar sends to this country a few beans, but the only serious competitor is Manchuria. There have been large importations from Asia and this may in time constitute a "yellow peril." Meantime each year sees our bean acreage increasing.



During Very Hot Weather Common Beans Drop Their Flowers Without Setting Seed.

Other beans which are largely produced in California are, Large Whites, Small Whites, Pinks, Bayous and Black-eyes. The weight of a sack of beans is variable; a sack of Limas is 80 pounds, while the smaller beans may run as high as 92 pounds per sack.

The planting of beans in this state during the coming season will doubtless greatly exceed that of any former season. This paper has never had so many inquiries as to production in different sections as this year. The state has been planting from 140,000 to 150,000 acres each year. To give an idea as to where each variety is produced, in addition to the Limas grown in the southern coast counties: Large Whites are produced in the Sacramento and San Joaquin Valleys, with a very few in the central coast counties; Small Whites almost entirely in the central coast sections, though southern coast counties produce about 11,000 sacks. Pinks are produced in the Sacramento and San Joaquin valleys, close to 200,000 sacks in each section, and central coast sections produce about 38,000 sacks. Bayous are entirely produced in the great central valley. The greatest producer of Black-eyes is the San Joaquin Valley, 80,000 sacks; the Sacramento produces about half as much and the southern coast counties about 50,000 sacks.

A new bean which we believe will yet add to California's fame and wealth has been brought to public notice of the Southwest by the Arizona experiment station. This is a bean which has been grown for centuries by the Indians and one which will stand the hottest of desert conditions. We refer to it as a bean, although we note that Bulletin No. 68 of the University of Arizona college of agriculture experiment station has the title, "Southwestern Beans and Teparies," but Bailey's Cyclopedia puts it in the same class with beans and gives its botanical name as Phaseolus acutifolius.

This bean is hardly as handsome as the Small White, usually termed the Navy. Its color is more likely to be greenish or sometimes a greenish brown, but with the careful breeding and care which will be given to it by experiment stations and others interested in it we believe that as fine an appearing bean will be produced as the Small White. It has a flavor which is very attractive, and while correspondence with many of the larger commercial concerns of the coast develops the fact that it is unknown in the market, we believe a market will be created for it as soon as it is produced in quantity.

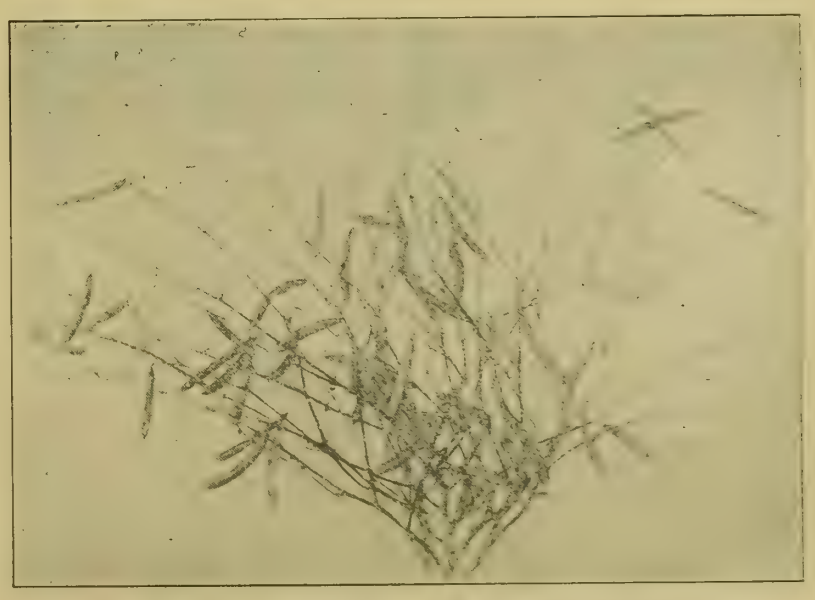
Geo. F. Freeman, in Bailey's Cyclopedia of Horticulture, writes as follows on "Yields and Culture."

Yields and Culture

"The superiority of the Tepary over other beans for planting in the Southwest is exhibited in its greater productivity when grown under similar conditions. This statement is not only true in irrigated sections, but even more marked in regions devoted to dry farming. In nine experiments in Arizona covering almost every condition of soil, culture and water supply, and extending over three years, the average yield of the Teparies has been slightly more than four times the average for varieties of the Kidney bean. These greater yields are due to the ability of the Tepary to germinate quickly in the presence of a low moisture content of the soil, with the resulting better stands on dry lands. The Tepary is also able to withstand protracted seasons of drouth without permanent injury, returning to full vigor immediately when the rains come. Other beans do not possess this ability to a marked degree. The Tepary is also inured to the greatest extremes of summer temperatures and will bloom and set seed any month from May to November. On the other hand, when the blooming period of common beans happens to fall within a season of extreme heat, the buds will for the most part drop without setting pods. For these regions the Tepary is a more sure and dependable crop, often giving fair returns when beans are a total failure. With an ample supply of water, good soil and other conditions favorable, Teparies should yield 700 to 1200 pounds per acre. However, 1500 pounds per acre have been reported from the Colorado Valley near Yuma. Under dry farm conditions, yields of 450 to 700 pounds have been reported. On irrigated lands Teparies may be planted in southern Arizona any time from the early spring when danger of frost is past until August 10. The best crops, however, are secured by early planting, March 20 to April 1, or by midsummer planting, July 12 to 25. In dry farming they are planted any time from the 10th to the 15th or 20th of July."

Regarding bean culture, the soil preferred is a rich sandy loam. We are aware that it has been the custom to refer to extremely poor soils as too poor even to grow white beans, so that the bean has a reputation of standing for poor soil and more or less neglect, but it well repays good care and planting on good soil. As

(Continued on Page 426)



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Citrus and Tropical Fruits

A NEW ORANGE EXTRACTOR

Written for the California Cultivator
By J. Eliot Coit

AT this time of large production and modest prices everyone interested in the citrus industry is thinking of by-products and new ways to conserve the fruit. While the manufacture of unfermented orange juice has been tried and considerable experimenting is still being done, the product is not yet considered entirely satisfactory. Meanwhile it is well to call attention to the fact that oranges, when carefully handled, are much less perishable than grapes or pineapples, the two fruits from which bottled juices are most largely made. Oranges will keep for a month at least, and if properly stored, for four or five months. Freshly extracted juice is far better than any processed or bottled juice.

Lemon juice diluted with water has always been used fresh and has given satisfaction. Why is it then that the use of orange juice as a drink is so rare? One reason may be found in the fact that while every housewife has a wooden lemon squeezer or a glass reamer, these will not work satisfactorily with any but the smallest sizes of oranges. Medium-sized or large oranges have to be squeezed by hand, which is awkward, unsanitary, and "messy" at best. One's appetite is not stimulated by observing the extraction of orange juice by the old method.

Recently, however, a new utensil has appeared in the bazaars and ten-cent stores, which solves the problem and, unless I am mistaken, is destined to play an important part in the increase in consumption of oranges. It is known as the glass orange reamer and is shown in the illustration together with the glass lemon reamer which has been available for several years. With this reamer all the juice may be extracted from a large orange quickly and easily without wetting the hands.

Everyone interested in the citrus industry should secure one of these utensils and acquaint himself with the delights of fresh orange juice. The Fruit Growers' Exchange might include this in their list of premiums to advantage. No matter how thrip-scarred or spotted the oranges may be, the juice is good. Right now when there are so many eastern visitors in Southern California is a good time to do missionary work for the sake of a wider use of fresh orange juice as a healthful and delightful daily drink. Try a glass before breakfast in the morning.

THE NEW LARGE ORANGE REAMER AND THE SMALLER LEMON REAMER

THE GOVERNMENT AND THE ORANGE INDUSTRY

Written for the California Cultivator
By Martha L. Baker

For the past few years those engaged in the orange industry in California have found it anything but a profitable business, but now (thanks to Uncle Sam) the tide seems to have turned, the outlook is hopeful, and it appears that the reputation once borne by California oranges will be fully restored. Even the real estate agents report increased activity in the sale of orange lands and the exchange of groves. And this is how it all came about.

California has three separate and distinct citrus belts, that in the northern part of the state centering around Oroville, that in the southern part of the state with Redlands and Riverside as the principal shipping points, and that in the central part of the state which comprises a large area in eastern Tulare County and which has been extended southward during the last few years into Kern County. It is of the last mentioned belt that I shall speak more directly, as it was here, upon the request of the Citrus Protective Association of Tulare County, that the government was led to take definite action in behalf of the orange growers, which resulted in the establishment of a bureau for investigations and experiments conducted under the department of agriculture.

With a poor crop for the year 1911-12, followed by the freeze of 1912-13, and this in turn followed by a large crop for 1913-14, but bringing prices hardly sufficient to cover the actual cost of production, the growers were in despair. Upon the suggestion of a few, who had long held the idea that the fruit was being shipped too green, (just another case of "the early bird getting the worm," the "worm" in this case being the highest price), investigations were made all along the line. The manager of the California Fruit Exchange was sent on an extended trip of investigation throughout the East during the early part of 1914.

The results of all investigations focused themselves into two words, "immature fruit." For while the first oranges on the market would bring a fancy price, simply because they were the first, the taste did not encourage further orders; and so the sour and immature fruit, although artificially colored by sweating, became a drug on the market and sold only at the lowest figures. But how to ascertain the maturity of the fruit was a question more easily stated than answered, and

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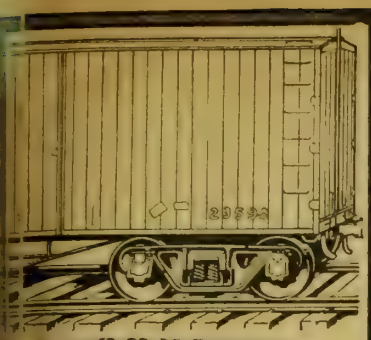
Mendocino County farm bureau is appealing for a farm adviser.



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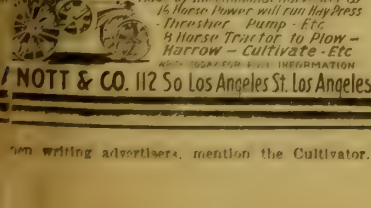

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here is where the United States government stepped in to lend a helping hand.

Having an office already established in Los Angeles for experimental work in citrus by-products, a branch office and laboratory was opened in Porterville, Tulare County, for the purpose of further investigations and tests in an effort to establish some basis or standard whereby to judge the maturity of the fruit. E. M. Chace, a man well informed on all phases of this work, having had a great deal of actual experience both in this country and Sicily, was chosen to head this bureau. With several chemists and helpers to assist him, constant work was done in the Porterville laboratory from early in the fall of 1914 until the end of the season, about February 1. And while as yet the experiments are not considered complete, for according to Mr. Chace it will require at least one more season's work to ascertain a final method for judging the fruit, yet a very great deal has been done to build up and assist the orange industry in the state and in this district particularly.

The "Eight to One Test" (one part acid to eight parts of soluble solids) as a temporary standard whereby to test the fruit, was suggested by the government chemists, and the same was rigorously and conscientiously conducted by the officers of the Citrus Protective Association, assisted by the managers of the various packing houses. Of course there were a few obstreperous growers who at first objected to the government interfering with their business, but who now concede it to be the very best thing that could have happened.

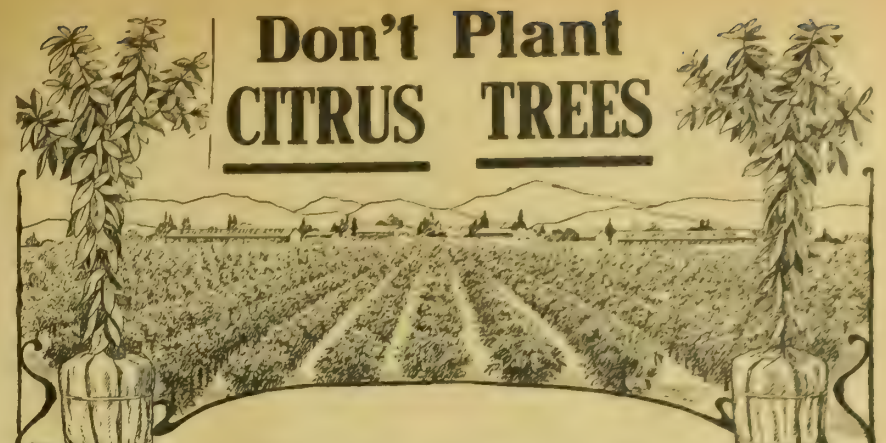
And so every car of fruit that left the local yards has borne a certificate of inspection. And by the way Porterville claims to have shipped the biggest single trainload of oranges sent East this season. This train, consisting of 53 cars, was approximately half a mile long. There were on it 21,200 boxes of golden fruit, valued at $45,000.

The federal aid rendered the orange growers has been of inestimable value and will mark a turning point in their business. Preventing the shipment of immature fruit and sending to the eastern markets the naturally ripened fruit, sweet and luscious, has created a demand for California oranges. The prices have been fairly good considering the stringent financial condition prevalent throughout our country during the past year. In fact had it not been for the good quality of the California fruit the prices undoubtedly would have fallen quite low, as oranges are looked upon as a luxury, not a necessity.

And now that the government has helped to solve the question of mature fruit for the growers, they are hoping for further aid pertaining to the important matter of transportation, whereby the fruit may be sent more directly from producer to consumer.

Further proof of the impetus given the citrus industry in California through the government investigations and experiments is the recent announcement of the organization in Los Angeles of a cooperative company subsidiary to the California Fruit Growers' Exchange, to be known as the Exchange By-Products Company. The object of this company will be to keep off the market the inferior lemons and to use the unmarketable part of the crop by diverting it into by-products such as citrate of lime and oil of lemon. Practically all of these two products are now being imported into our country from Sicily. The development of orange by-products will be undertaken later.

Don't Plant CITRUS TREES



until you can meet the five essential requirements of success. Here they are: **Sufficient Water Supply; Quality Trees; Safe Thermal Conditions; Good Care; Good Soil.**

These five things are fundamental and he who ignores any one of the five invites failure.

Good fruiting trees are good revenue producers, and if you have the requisite water, location and soil—true citrus land—you cannot afford to miss the opportunity to

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Deciduous Fruits

HOW TO FIGHT VINE-HOPPER

NO other insect pest does so much damage to the vineyards of California as the grape-vine-hopper. To aid the vineyardists to fight this tiny pest the University of California has just published a bulletin by H. J. Quayle, associate professor of entomology, of the staff of the citrus experiment station at Riverside, in which he tells how to make and apply a spray, consisting of a pint of 40 per cent black-leaf and a third of a gallon of liquid soap (or else two pounds of hard soap) to 200 gallons of water. This has been found very effective in killing the nymphs or young. Material sufficient to spray one acre of vineyards costs about three dollars.

The first signs of injury from this pest are a mottling of the leaves with gray and green. Then the leaf turns silvery, then yellow and brown, then it drops from the vine. This loss of leaves prevents the grapes from maturing properly and prevents the canes from ripening normally for the next year's wood, which means that the vine may be more or less stunted in growth. It is only when the hoppers grow extremely numerous, however, that enough injury is done to warrant treatment. It is the warmer interior valleys in which the grape-vine-hopper thrives most, and it seldom becomes injurious in the coast valleys nor in Southern California, except in the reclaimed desert region.

It is somewhat helpful to turn sheep into the vineyard in the fall to eat the leaves, thus reducing the number of insects the next year. Early plowing is also of some slight aid if practiced generally in a district.

The adult grape-vine-hoppers are almost impossible to kill by spraying, but the young quickly succumb.

This is Circular No. 126 and can be obtained free by writing to the College of Agriculture at the University, Berkeley.

From this bulletin we quote:

Control of the Overwintering Adults

"Turning sheep into the vineyard in the fall to eat the leaves results in causing the hoppers to go to their winter food plants a little earlier and also deprives them of shelter in the accumulation of leaves in the vineyard. A clean vineyard in the winter season has fewer hoppers than one in which there are more or less green growth and bunches of dry grape leaves.

"Plowing in the early spring and turning under the green growth and dry leaves does not destroy the hoppers, but does drive them to the borders or to neighboring fields. The result then of both sheeping and early plowing is to drive the hoppers elsewhere for food and shelter, but there is no assurance that many of these will not return to the vineyard when the vines come into leaf. A few may be destroyed or starved, and the efficiency of such a practice as plowing and sheeping will depend largely upon how generally it is carried out in a district.

"To kill the overwintering hoppers either during the winter or in the spring when they first come onto the vines, and thus destroy them before they multiply and do damage, would be the best solution of hopper control. Thus far, however, no generally satisfactory method for such control has been found. A three-sided screen box operated to capture the adults on the vines when the shoots are six to ei inches long has been used with succ in many cases, but it is not satisf tory for all styles of vine pruning a involves too much hard labor to s many California vineyardists. Exp ments carried on last spring in spr ing into a canvas canopy attached the spray-rig failed to kill a suffici percentage of the adult hoppers. this apparatus the vine and the wh interior of the canopy was thoroug charged with the spray, but the win hoppers proved to be too resistant any of the materials that could be u with safety to the vine. In view these objections to the control of adult hoppers, spraying for the yo or nymphs was carried on later in season.

Spraying for the Nymphs or Young

"As will be noted above the ad hoppers are almost impossible to with a spray; on the other hand young are very readily killed by proper spray. The chief difficulty i get the spray on the under side of the leaves where the hoppers are, there is the further objection t many of the eggs which are within tissues of the leaf, as well as adults, which are also present, are affected by the spray. In spite these drawbacks, however, spray for the nymphs will pay when the h pers are excessively abundant. destruction of the young greatly duces the number already present well as the succeeding generation.

Materials

"A number of different sprays w tested, but only the one found m satisfactory will be discussed h The spray found most efficient in ing the young, as well as most neu to the grape foliage and berry, blackleaf 40 per cent and soap in following amounts: Blackleaf 40 cent, 1 pint; liquid soap, one-third lon, or hard soap, 2 pounds; water, gallons. If liquid soap can be cured it obviates the necessity of b ing. The hard soap, preferably wi oil, is cut in thin slices and disso in hot water. Where soap is adde the blackleaf the spray carries spreads better, but too much should not be used or a spotting of berries will occur."

TOBACCO SPRAY

Aphis of various kinds seem to showing more persistency than e A few million of them killed off at end of the year means many o millions not destroying our c later. There is probably nothing ter than a good tobacco extract perhaps, more correctly "Black 40." This is a concentrated solu of nicotine sulphate and accompli good work where applied in t We believe it is usually used in proportion of about one part to of water but bear in mind the a are only killed by contact and brood which hatches over night neeed another dose, perhaps not tomorrow but at least by another w If this persistent work is carrie early in the season it will save m work in the future.

The agricultural experiment sta of the University of Illinois has is Bulletin 174, devoted entirely to m aphis. In treating a plot contai one-eleventh of an acre 18 gallon solution were required. This w be practically at the rate of 200 lons per acre.

By the way it is possible that Illinois station will send copies o bulletin to Californians who are terested if they will send postag cover. The station is locate Urbana.

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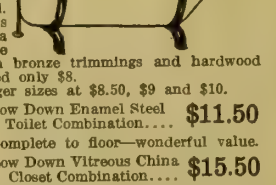

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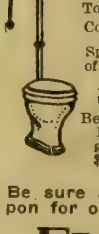

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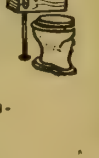

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THE COMING APRICOT CROP

It has been the custom of the Cultivator to secure from all sections of the state so far as possible reports of the year's apricot crop as early in the season as possible. Of course it is too early to form very definite conclusions but we will be glad to hear from every section of the state. Let every subscriber of the Cultivator who raises apricots write us giving an estimate. This will prove of value and aid growers materially in determining prices for crops.

Following his former custom one subscriber has already sent us his estimate for his section. This is from W. G. Marchus, San Pasqual, San Diego County.

We have almost a complete failure in apricots this year, less than we have had for eight years.

Trees blossomed well but nearly all dropped. I hope every apricot section will report through the Cultivator that we may know what the crop outlook is.

CANADA THISTLE ERADICATED

Many farmers in their efforts to kill the noxious Canada thistle abandon their efforts with success in sight and the thistles soon recover, says H. R. Cox in Farmers' Bulletin No. 545 which the department of agriculture has recently sent out.

The man is of far more importance than the method in eradicating this weed, which is a pest from Maine to Kansas and in the Pacific Coast states. While the South is not liable to be affected, there seems to be danger of its spreading into the Rocky Mountain states. So serious and so general have its inroads proved that in 25 states the thistle is proscribed as a noxious weed and the law directs its killing or destruction in such a manner as to prevent the maturing and dissemination of seed.

Canada thistles can be eradicated in a comparatively short time with little or no loss in the use of the land provided the following rules are observed:

Deprive the thistles of their tops continually, thus exhausting the roots. The top of the plant serves much the same purpose as the lungs of an animal, so that if the plant is continually deprived of that it must soon die. There is no one best method of keeping down the tops. Each field must be handled according to circumstances. Usually some form of clean cultivation is the best either with a crop or by bare fallow.

Outline a systematic plan of attack. Keep the plan in mind at all times and follow it faithfully.

Alfalfa, clover, the grasses, millet, sorghum, hemp, buckwheat and small grains are all crops adapted to the purpose of smothering the Canada thistle. They restrict the top growth of the thistles by shading them and also crowd the roots. Alfalfa is probably the best for this purpose. The land should be occupied by such crops at all times so that the thistle may have no chance to recover. This method is of most value in giving the weed a setback which renders easier the work of clean cultivation which should follow.

The method of salting the thistles in pastures is adapted to small patches accessible to live stock, especially sheep. In their efforts to get the salt the stock nibble the thistles and trample them to death. It seems best to let them grow until they start to bloom and then cut off the tops close to the ground and apply a small handful of salt to each shoot that springs up. Permanent eradication of this weed by plant poisons has not proved very practicable.

Thistles that occur on waste lands may be prevented from maturing if their tops are cut off just as the blossoming starts. Two cuttings a year are usually necessary to prevent seeding. Thistles in such locations, however, can be entirely eradicated if the work is thorough. Various types of cultivators equipped with knives or sweeps that are effective in cutting off the tops of Canada thistles are shown in the new bulletin by the department's agriculturist.

ECONOMICAL MACHINERY

Has it impressed itself on your mind as a practical man selling farm crops in the form of milk through the medium of cows' manufacturing apparatus, that possibly some of this animated machinery needs overhauling and closely examining? A new machine, running more economically, may save a manufacturer its cost several times over in a very short while. So if your cows were regarded in this light, some might be found to be very economical producers, and possibly the less said about the capacity of others the better.

Some cow-testing figures given to the dairy division, Ottawa, by dairy farmers prove that some breeds of cows produce milk at a feed cost of $1.45 per 100 pounds, while close by are other herds whose average feed cost of production is only 80 cents per 100 pounds of milk. Again, between two cows in the same herd the cost of feed per pound of butterfat is frequently found to vary as much as from 23 to 49 cents.

What is of importance to the average dairyman is this fact, that cow testing helps to put each cow in the herd on a good paying basis very quickly. A simple plan of weighing and testing each individual cow's milk soon discovers if any unit machines in the milk-making factory are not in good economical running order. Then plans are laid for keeping the type of cow that makes $20 or $30 or more clear profit above the cost of feed. Does each one of your cows do that? It will pay you to find out.—C. F. W., Dommion Department of Agriculture.

LIGHTING APPARATUS

When your electric lamp burns with a red color, and not white, as it did when it was put in, it is played out. A lamp burning thus should be replaced to save money. It is consuming more current than it should for the light it is giving and so is costly.

Unless one of the latest tungsten or tantalum types, no lamp is good for more than about 600 hours on the average. The latest and best will last much longer. It is a peculiar fact, however, that inexperienced people think the electric lamp is like the old kerosene lamp—good for a lifetime, barring accidents. They do not stop to think that with the kerosene lamp the wick finally burned away and had to be replaced. The filament of the electric lamp performs the same function as the wick. Consequently it, too, burns out; but after a much longer use.

Gas Appliances for Home

Many useful gas appliances for the household have come about through competition with electricity. It has long been possible to press a button and turn on and light jets in a chandelier; but now a water heater can be installed which operates when the hot water faucet is turned on and ceases when it is shut off. The flow of hot water is instantaneous.

For the chafing dish or coffee pot an attractive Bunsen burner is attached to tubing which supplies gas from a near-by pipe. Pull sockets, turn on and light a jet just as electricity is turned on. There is also a style of student lamp gas fixture in which the flow of light is regulated by turning the knob in the bottom of the fixture.—Cleveland Plain Dealer.

Last year 48 counties in Kansas did not send a single criminal to the penitentiary, 87 did not send a patient to the insane asylum, 53 were without prisoners in their county jails, in a dozen counties no jury was called to try a criminal case. Kansas has more students in colleges and universities in proportion to population than any other state. Kansas has the lowest death rate in the world and the lowest percentage of illiteracy in the United States.

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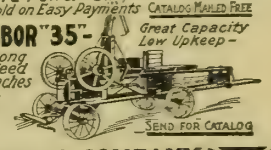

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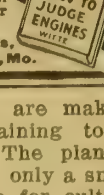

Ed. H. Witte, Witte Engine Works,
3108 Oakland Ave., Kansas City, Mo.

Some tomato growers are making excellent profits by training tomatoes to single stems. The plan is especially desirable when only a small area of land is available for cultivation.

Small Fruits Vegetables

BERRY JUICE "KEEPS"

AMONG other remarkable qualities loganberry juice has the property of retaining its freshness for several weeks without any sterilization whatever, according to recent investigations conducted by Professor C. I. Lewis, horticulturist of the Oregon agricultural college. About the first of July Professor Lewis took considerable quantities of loganberry juice, without heat, sweetened it to taste and poured it into bottles which he set away in the basement rooms of the horticultural building. The bottles were not sealed, nor was the temperature of the room cooled below normal. At the end of six weeks an examination of the juice showed that its appearance was unchanged and that fermentation was just beginning to set in. Upon tasting, the juice was found to be sweet, with no more than just a "sparkling" taste to enrich its flavor. Professor Lewis considers its self-sterilizing power very unusual and destined to make it a popular beverage wherever loganberries are grown.

WINTER RHUBARB

We have always felt that the shipping of winter rhubarb would some time become an important feature of California small farming. It has been tried for many years but for some reason the market has not taken to it as keenly as we would like. At one time there were several hundred acres planted about Pomona and other sections and carload shipments were made. We believe the stock was objected to in part because of its small size. The ordinary Crimson Winter, which is reproduced from seed, has shown too large a proportion of very small stalks. There has been a great deal of effort toward securing a larger stalk of equal quality to the ordinary Crimson Winter, and this has resulted in the Giant Winter Crimson which is being received more satisfactorily. Lee Brothers of Covina are shipping to Eastern cities an attractive "Fancy Quality and Honest Pack" brand. Regarding Lee Brothers' work the Covina Argus remarks:

"Mr. Lee says that he is well satisfied with the results from rhubarb this year and will put in ten acres of the plants for the coming year. He expects to plant out all available space on his Covina ranch. The Arcadia ranch is on Baldwin Avenue, about two miles east of the Monrovia car line.

"For several years Lee Brothers have been working up a trade in a special brand of rhubarb, which is purchased by the hotels in the big cities of the East. The soil of the Covina valley is especially well adapted to the growth of this popular pie-plant. The Lee Brothers say, however, that it took several years to perfect a method of growing and marketing that would bring a profit in the business."

PRODUCTIVE VEGETABLE GROWING

This is the title of a book just off the press by John W. Lloyd, professor of olericulture at the University of Illinois. While it was prepared primarily as a text book for students in schools and colleges, still it is eminently useful and practical for the gardener, whether he be working for home use or on a large scale for commercial purposes. The author has discussed thoroughly the principles underlying the successful practice of gardening in all its phases. His descriptions of methods are so full and so clear that any intelligent person may follow them. At the same time the reader is not burdened in the least with too much detail. Leading chapters are on factors influencing quality; seed, plant food and moisture supply; the use of glass; soil preparation and planting; insect and disease control; the home vegetable garden; harvesting, marketing and storing for winter use.

In the discussion of the various vegetables Professor Lloyd has made an admirable classification which is based on the all important requirement of temperature. His two main groups are cool season crops and warm season crops. Under the former are three subdivisions listing cool season crops that quickly reach maturity, cool season crops that usually are transplanted and cool season crops that will endure summer heat. Under warm season crops are two subdivisions listing those usually not transplanted and those that require transplanting. The need of such a classification for the student who is trying to learn the culture and uses of each garden crop is apparent. But it is equally useful to the farmer who has not given much thought to his vegetable garden, for with a glance at the list he knows what to plant and when, and saves much time and avoids many a failure.

The farmer receives excellent advice in the plan of his garden, which is to give the garden ample space and plant in long rows wide enough apart to cultivate with a horse. The farmer has a maximum of land and a minimum of labor for gardening. Thus he should so lay out his plantings that he can do most of the weeding and cultivating with a horse. The city man is the opposite. He has a minimum of land and a maximum of labor (for exercise and pleasure), thus he must intensify on a small plot.

The author modestly states that the book is written from the viewpoint of the "corn belt" but from my knowledge of the country I do not hesitate to say that it will be found valuable anywhere east of the Rockies. Even as a Californian I have learned much from it in a few hours' reading. Any one interested in gardening on this coast and who has the means will find the volume fully worth a place in his library. The author has had a long experience as a grower, experimenter and a teacher, and what he says about vegetables is interesting reading. The book is well illustrated, 193 illustrations in all, and has an attractive makeup throughout. It is one of a series of farm manuals edited by Dr. Kary C. Davis, and if all the series are as good as Professor Lloyd's they are sure to find a large place in our schools and colleges and in farmers' libraries. The publishers are the J. B. Lippincott Company of Philadelphia, and the price is $1.50.—Leroy Anderson.

"WINTER RHUBARB, CULTURE and MARKETING"

By

Reginald Bland

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Be busy as a bee and see if yo don't get your share of the sweets o life.

THE ORNAMENTAL GARDEN

Written for the California Cultivator
By Ernest Braunton

NOW that the most active garden season is with us some will begin new gardens and others will overhaul and replan the old one. In doing this work do not forget the first and fundamental consideration — to preserve open lawn centers. A front yard cluttered up with trees and shrubs is never attractive. The simpler picture is the stronger one. The lawn should be left as large and as unobstructed as possible. Many planters, having at their disposal but a small front lawn, usually (and unfortunately) bisected by a cement walk to the front door, feel it incumbent upon them to completely fill the two limited areas by planting some large-growing palms, usually two Phoenix Canariensis. Having thus planted it is quite impossible to stand in the center of your landscape and see about you, as you should be able to do, a fine variety of plant life.

Those who have lived in the Mississippi Valley or in states farther East will doubtless recall seeing little openings or natural clearings in the woods, consisting of one or many acres. Though in the midst of the forest, the floor or greensward remains inviolate, not a tree or shrub upon it. Grass and herbaceous flowering plants form the cover or carpet; bushes and larger shrubs edge it about; next small trees; and then the forest giants frame the whole, making a perfect amphitheatre, a miniature landscape, perhaps, yet complete in every detail. Then may the joyous discoverer stand in the center and see all about him the varied wonders of the local native vegetation. Many a time and oft, in boyhood's happy days, has the writer been overjoyed with the finding of such beauty spots and has stood spellbound and awed by the overwhelming beauty of the scene. Would that puny man could build gardens of equal charm!

Allow your lawn centers to remain open and clear that the whole yard may appear as large as possible; generous, yet well and fittingly framed with plants, shrubs, and trees on all sides. If you must have a large, spreading palm on a small lot, place it at the side of the house, well toward the rear, or, better still, in the back yard where it may also serve as a shade tree. Yet even there the same rules properly should obtain that govern the planting in front. Better to use fan palms, if you must have palms, or plant the more beautiful cocos plumosa, of which we have some quite hardy varieties. Avoid, if possible, cutting your front lawn in two equal parts unless a purely formal effect is desired. Rather have the front walk well to one side and thus gain a larger single lawn. This procedure will also allow a graceful, sweeping curve in the approach to the front entrance, a pleasing variation from the usual inartistic straight-from-gate-to-door plan.

Fertilize Roses Now

In nearly 30 years' residence in Southern California I do not recall a year when the month of March produced so few roses as has the one just gone by. Even the few roses that did come were very poor flowers. As the trouble is universal we must ascribe it to climate. But the troublous period is believed to have passed and a good spring rose crop will still be enjoyed. See that your roses are well fed now and no more trouble will be experienced. On the contrary, the outlook is promising, but food is needed. Well-rotted animal manure is as good as anything that could be applied to a rose bed. If thoroughly decomposed, do not be stingy of supply for you can not hurt the roses with an excess. Fresh manure may be used, but keep it away from the stems of plants.

Flowering Acacias

The most glorious blossoming period for acacias is now past and the season's observation but confirms the good opinion I have always held of Acacia dealbata, as either street or garden tree. It is much superior to Acacia Molissima, which generally blooms a week or two later and has globular flowers of a much lighter hue. The tree is also slower of growth than is A. dealbata. Otherwise the trees appear quite similar to anyone but a plant sharp. Plant A. dealbata freely; it is hard to beat for street use, also hard to find this year. It should be heavily pruned each year for the first five years after planting on the street and do not be afraid of too much pruning.

A Shrubby Acacia

While harping on acacias, it may be as well to call attention to the value of a shrubby species, A. cultriformis. This excellent plant is one of the most ornate, whether in flower or out. Its specific name means "knife-leaved," though the designation is decidedly far-fetched. The leaves are triangular and closely resemble a large size of glaziers zinc "points" used to keep panes of glass in place before putty is applied. They are also a zinc-gray. The flowers are as beautiful as those of any acacia, though not so large as those of A. pycnantha, but of the same rich deep golden hue. To make a compact bush the plant should be "headed-in" once each year, as soon as the blossom period is passed, or just at present.

Soap Powder for Scale

Some time since I recommended a washing compound for use as a spray for all scale insects, and now inquiries are arriving wherein the correspondent wishes to know what it is and where it may be procured. As it is the most effective scale wash used in my garden (one pound to five gallons of water, the handlers of the compound should "get busy" and freely advertise the same.

Have a grape arboor at the back door. Make it of rough boards if you choose. Nature will take care of the beautifying. The grapes will more than pay for the cost of the material and the labor, and it will be a thing of beauty and a joy all summer to the hot, tired housemother. She can set up her table and bring her kitchen work out to its grateful coolness, and, with the aid of a portable canning outfit, she can even put up all her fruit and vegetables under its protecting shade.

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An Overproduction of Apples ?

The present demand for apples in the United States, including those used for export, is placed by the Department of Agriculture at 55,000,000 barrels. If that many apples were raised in this country there would be no overproduction. Figures from the Department of Agriculture show there has been an average annual decrease of 25 per cent in the apple production during the last nine years. The serious shortage that exists for apples is attributed largely to the dying out of the old orchards and the insufficient plantings of new ones.

The Yucaipa Valley, eight miles from Redlands, altitude 2400 to 3000 feet, is the place to plant an apple orchard, and this is the time of year to visit Yucaipa and see what you would have if you had planted four years ago. It is not too late to make a start.

Come to Redlands and let us take you to Yucaipa and show you our five, ten and twenty acre tracts at $285 per acre, on very easy terms. One share of stock in a Mutual Water Company with each acre.

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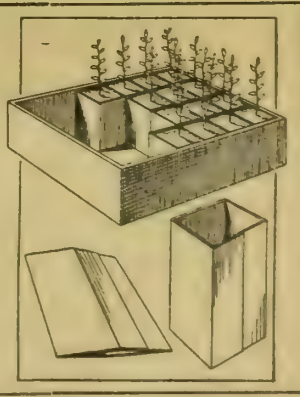

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in the right quantity and at the right time is necessary for proper development of crops. The best method of obtaining these necessities is by using the

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PLANTING AND GROWING BEANS

(Continued from Page 419)

to moisture, it will endure some lack. Many crops are grown in this state without irrigation, and many growers maintain that irrigation does not give sufficient increase to justify the additional cost, but care must be observed to preserve every drop of the natural rainfall. Bean raisers who have had years of experience begin soil preparation with the first fall rains. Deep plowing is given and each rain is followed by a light cultivation. This firms the sub-soil and puts the surface in the best condition for the seed.

The time of planting cannot be given accurately for each section because each section has its own conditions which must be studied. The southern coast counties usually plant Limas during the month of May. The first reuisite is that the soil be thoroughly warm. Some growers prefer the earlier planting, but if an April shower compacts the soil the crust which is formed after the rain prevents the young shoot from coming through and also endangers rotting of the seed. The later planting also enables weed destruction and lessens the amount of hoeing required.

As to planting, there are drills that are adapted to all sizes of seed. The distance apart of the rows is 30 to 40 inches and usually eight or 10 inches in the row, though some Lima bean growers prefer cultivating both ways.

The cultivation is more with the weed cutter type of cultivator than with the chisel tooth. Harvesting is done by the use of a knife or steel blade fastened to the bottom of a sled and run just underneath the surface. After the cutting with this tool, which is usually a home made one, the beans are forked into small piles and allowed to cure until time for threshing. Often the threshing is done with the regular grain thresher, with a portion of the teeth in the cylinder removed, though there are regular bean threshers now being constructed which are superior. Often, however, the beans are tramped out in the good old way on the threshing floor, which is a smooth spot at one side of the field. This is sometimes done with animals only, but usually with some implement similar to the ordinary disk cultivator. One objection to this form of threshing is that if a storm comes up the beans are more liable to be injured than where threshed and sacked direct from the machine.

On cover page is shown the old-time threshing machine method of handling beans.

Mr. H. L. Musser adds a few words as to bean culture.

By H. L. Musser

Southern Salifornia is eminently a bean growing section; the acreage is even on the increase. About 20 years ago Ventura County was the recognized home of the Lima and enjoyed a monopoly of the great industry, but the demand grew beyond the Ventura supply, and the land lying between Los Angeles and the ocean was tried and proved to be suitable for growing Limas. Now some 20,000 acres of land within Los Angeles County is annually planted to the common Lima, and every acre of Limas is grown without irrigation.

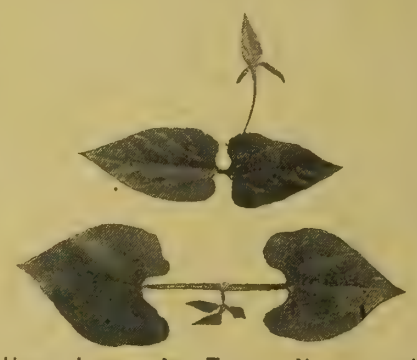
General Culture

The ground is plowed in the fall as soon as the crop has been harvested; then harrowed several times during the winter season, so that the soil will not become baked, crusted, or packed —but like a loose mulch. It thus retains its moisture throughout the summer.

In April or May the beans are planted with a bean planter, two or four rows at a time. This planter is fashioned after the corn planter, with plates made purposely for beans. There is a new planter which does the work correctly and more ecconomically, inasmuch as it drops a certain number of seeds any desired distance apart. The correct distance for Limas is eight inches apart in rows 30 inches apart, dropping 50 to 60 pounds of seed per acre.

Black Eyes, Pinks, and the Small White beans rank next to the Lima in commercial importance. The cultural instructions are about the same as for the Lima, but the beans are smaller and require a less number of pounds to the acre—say 30 pounds of Black Eye's, 40 pounds of Pink's and 30 pounds of the Small White on rich land that can be irrigated; but ten pounds less per acre should be planted where they cannot be irrigated.

If the soil has been irrigated and thoroughly pulverized just prior to planting, only one irrigation is necessary to mature a good crop. This should be done just after the bloom has fallen; then cultivate as soon as the soil will permit.



Upper Leaves Are Tepary, Narrow and Pointed With Short Stems. Below, Ordinary Long Stem Bean.

Sometimes mildew appears on the vines; this should be anticipated. The fields should be watched closely, and at the first evidence of it, the entire field should be sprayed with the best grade of powdered sulphur. This is easily accomplished by driving through the field with a wagon having an alfalfa or barley seed sower attached; with this the sulphur can be sprayed broadcast. This should be done on a calm morning. Sulphur will not cure, but will prevent mildew; therefore, the importance of applying the remedy at the first appearance of the disease. Sulphuring has rarely been necessary with the commercial crops, but it is attended to faithfully by the gardeners who wish to prolong the life of the vines.

The Tepary

A word about the Tepary bean: This is new to the commercial world, but it is of such excellent flavor that there is little doubt but the Tepary will advance in importance to rank with the Lima. It is a native of the desert, will grow on the mesa lands or indeed on any kind of soil without irrigation. If there is sufficient moisture to germinate the seed, this bean will mature a crop within 60 days from time of planting.

For commercial purposes irrigation is detrimental because the beans will then mature irregularly, with the result that you will have fully matured and half matured beans all mixed together, producing a second grade article.

It requires from 10 to 20 pounds of seed to plant an acre. The quantity should be determined by the richnes of your soil; the richer the soil, th more beans may be planted.

We advise planting so that on

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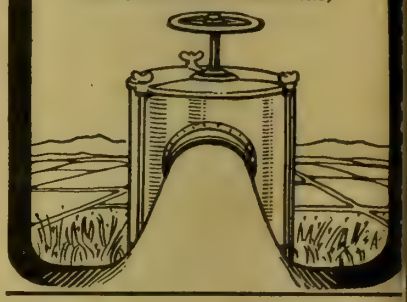


How to Contro Grape Mildew

Finely divided sulphur is known t be effective for grape mildew contr when it can be kept properly sprea over the surface of the foliage an canes. Obviously then the logic treatment is to apply this sulphur a a liquid spray. Another point to b remembered is, that the more finel divided the sulphur the more uniform the covering and the more adhesiv the spray the better will be the r sults obtained. Also a liquid spra may be effectively applied to the u dersides of the leaves and on th canes where it will do the most goo ATOMIC SULPHUR dilutes readily i water, remains in good suspensio spreads well over the surface of fol age and canes, is adhesive and give the right results. The sulphur more finely divided than in any dr forms of sulphur and the greater a hesiveness gives protection over longer period of time; one applicatio being sufficient and doing more goo than two or three dry application Use 12 pounds to 100 gallons of wate and spray the vines soon after growt starts and before blooming. (Atomi sulphur is also best treatment know for mildew on fruit trees and orn mental plants.) Full information gla ly furnished free on application to W. Foster, Entomologist, Gener Chemical Company, 201 Sansom Street, San Francisco, Cal.

ne will grow every six inches in ows two feet apart. When planting is bean on the desert where hot inds are liable to come, set the rows that the winds will sweep them om the end and not at the side of ie row. In this way the end vines ill protect the rows.

The Tepary bean promises to be a reat boon to the homesteader and ie who is pioneering under the des- t act. The homesteader must pro- uce a crop; the Tepary will do it. he pioneer must have an income as on as possible; therefore, without ater for irrigation, the Tepary will ithin three months bring him an in- ome of $30 to $40 per acre, and his nd is at once a valuable asset.

The year of 1915 will prove one of nportance to the now waste lands of ie Southwest. More than 1,000 acres ill be planted to the Tepary; this, ith an average yield of 1,000 pounds er acre, will produce 500 tons, or 5 carloads, at a valuation of three ents per pound, which means $30,000 the growers with an outlay of about ne-sixth—and all possible within a w months' time. Then too, this ean comes on the market ahead of ll others and should the market be are, the price would be higher than ie above estimate.

The Tepary has a record of having ielded 3,000 pounds per acre. It hould be harvested as early after aturing as possible because of the endency of the pods to pop open in ie field thereby losing a large per- entage.

Nitrogen Bacteria

This should be applied in every in- tance where beans are to be planted n soil that has not previously grown crop of beans or some other legume. t is inexpensive and will insure a rop on poor or new lands, where ithout it failure would be certain.

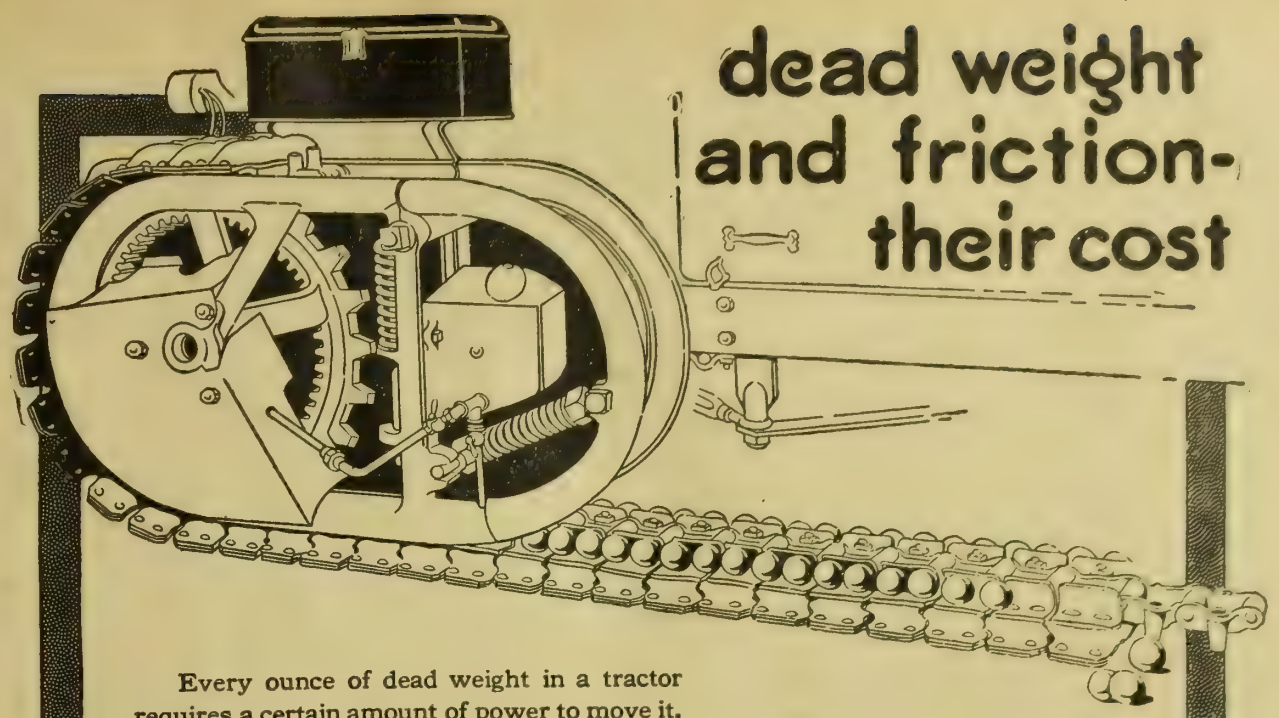
GARDEN BEANS

Written for California Cultivator
By D. F. Reichard

THERE are beans and beans and still more beans of which if you wish to know as to their origins, botanical relations, etc., we refer you to he encyclopedia or Henderson's Handbook on Horticulture or The Vegetable Garden by W. Robinson. Here we are particularly concerned bout the garden or edible podded eans, which include those used in he green condition as snap or string eans, shell beans and garden Limas. Edible pod beans were all origin- lly of a vining habit and natives of warm continent, doubtless South merica. With the development of he dwarf growing varieties which ma- ure in a shorter season, their habitat s being extended until now we have s one of our principal bean growing ections the states of Idaho, Montana nd Michigan.

In California the conditions for bean rowing are as nearly ideal as can e asked for. From the frostless or ermal districts near Los Angeles ome the first beans of the year dur- ng February. These are the product f seed planted during November and ecember previous. The varieties sed are almost without exception the anadian Wonder for green beans and ie Ventura Wonder Wax for the yel- ow or wax pod beans. The area for rowing these winter beans is limit- d, while the market is more limit- d on account of the necessarily high rice of the product. The Canadian Vonders are used for general plant-

(Continued on Page 447)



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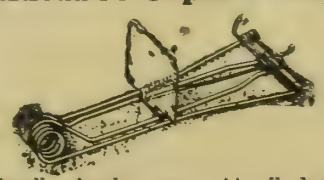

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Irrigation Forestry

GATE STRUCTURES FOR IRRIGATION CANALS

MOST of the gate structures in American irrigation canals a few years ago were of wood, but more recently concrete, both plain and reinforced, has come into common use. Wood has the advantage of cheapness and of easy handling and the disadvantage of rapid depreciation, while concrete which has the advantage of permanence is more costly. The kind of material used, as well as other features of gate structures, varies in different irrigated regions of the West. One section often uses features especially adapted to it of which other sections, that could use them equally well, are ignorant. The United States department of agriculture is endeavoring to bring together such designs for gate structures as are adapted to many localities so that each locality may profit by the practices of others, and has just issued a new bulletin (No. 115) entitled "Gate Structures for Irrigation Canals," intended to be of assistance to engineers and others with technical knowledge of the subject.

The purpose of all the gates considered in the new bulletin is the control of the flow of water in the ditches or canal systems. Headgates and floodgates regulate the water entering the system from the source of supply; check gates regulate the water while within the canal; sand and waste gates control the water which is to be turned out and wasted; and branch canal, lateral and delivery gates regulate the water turned out to branches of the system or to users.

Small and medium-sized structures are for the most part described in the new bulletin, as it is believed that most of the problems confronting the engineer located in isolated regions of the West relate to this class. The bulletin should also be of value to directors of mutual water companies who are themselves irrigators and who are called upon to pass upon questions of construction and maintenance.

Since the bulletin is prepared for engineers and others who are familiar with gates and gate structures, it does not attempt to treat the subject fully, but merely gives examples of structures which serve the purpose for which they are intended better than many others in common use. Local conditions control many features of gate structures, and the descriptions given relate to existing structures in actual use, which it is believed will prove suggestive and can be readily adapted to other conditions by local engineers and ditch owners.

Wood or Concrete?

One of the important questions dealt with is that of the materials to be used for gate structures. Shall they be of wood or concrete? The best practice, according to the department's investigator, seems to make a structure of combined wood and concrete, using concrete for the parts that are inaccessible and not easily replaced, and wood for the accessible parts which can be replaced easily. Local conditions affecting the relative prices of these materials will also help to determine which material should be used.

Because of the high cost of water rights, and the inability of settlers to make the payments required, there is much to be said in favor of the cheaper wooden structures for original construction with a view to their replacement with more permanent structures of concrete, as the wood decays. This will lessen the first cost and will bring the heavier cost after the lands have been put under cultivation. The use of wood has the further advantage that in case of mistakes in either the type of structure or the location it is not so costly. It frequently happens that structures are found to be placed too high or too low, or they are too small and not of the best type. A few year's experience in their operation will demonstrate these facts after which a more permanent structure of wood or concrete may be put in.

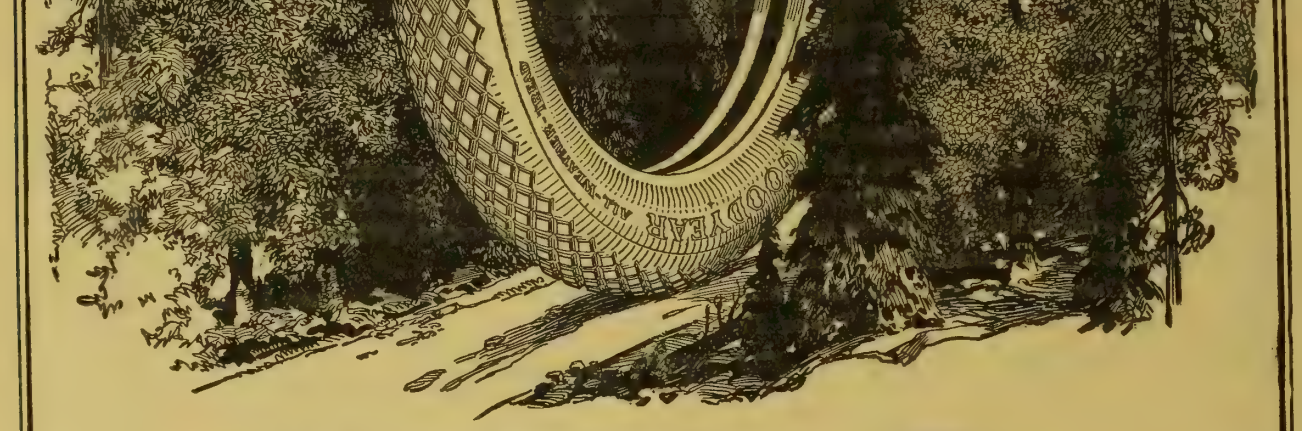
However, if the failure of a structure will result immediately in great damage to the canal system or to crops, only the most nearly permanent construction should be used at first. If the failure merely means the replacement of the structure itself the cheaper construction may profitably be put in first.

The new bulletin contains 61 pages and numerous plates and figures illustrating structures that have already proved practicable. The new bulletin is strictly a professional paper and of little interest to the farmer in general, but the attention of the engineers and directors of farmers' canal companies in the irrigated sections of the West is invited to its contents. The bulletin may be had free as long as the department's supply lasts by those who may find it profitable to use.

ALFALFA IN THE SOUTHWEST

One of the best additions to alfalfa literature is Bulletin No. 73 of the agricultural experiment station of the University of Arizona. It is written by George F. Freeman and very fully touches upon soil conditions required for best results with alfalfa.

"The greatest value of alfalfa lies quite possibly in its contribution to the soil of nitrogen and organic matter which prepares the way for most other crops and which assures us of well-nigh everlasting fertility for our agricultural soils. In this favored region, therefore, the misgivings of agricultural philosophers stand disproved; the defeats of agricultural commerce are forgotten; the costly ingenuities of humankind are discounted; and the quiet agencies of nature, properly understood and utilized, assure us that our days will be long in the land which our patience has reclaimed."



The Maximum Tire

Yet Price Reductions for Two Years Total 45%

Since the beginning there have been two policies on tires. One has been to skimp tires to make the price attractive. The other has been to secure lowest cost per mile.

Goodyear started many years ago to build the best tire possible. We went to extremes. We created a department of experts—costing $100,000 yearly—just to find ways to build tires better.

We created the Fortified Tire.

That means a tire protected against trouble in five exclusive ways.

These features were costly. For a long time, these Fortified Tires cost users one-fifth more than other standard tires.

Jumped to the Top

Yet Goodyear tires, despite the price, became the largest-selling tires in world. They have remained so ever since.

Their success is amazing. Last year we sold about one Goodyear tire for every car in use. Yet we have a hundred rivals.

Then came price reductions.

Multiplied output brought down our cost. Rubber and fabric also came down. Within two years we made price reductions totaling 45 per cent. Our last one was on February 1st.

Tires Never Skimped

Yet never in one item have we skimped these tires. Every year something has been added. And we still are spending $100,000 yearly to find ways to better them.

They still excel in these ways:

In our No-Rim-Cut feature. In our "On-Air" cure, which saves countless blowouts. That alone costs us $1500 daily.

We form in each tire hundreds of large rubber rivets to combat loose treads. In each tire base we vulcanize 126 braided piano wires to make the tires secure.

Our anti-skid tread—the All-Weather—is made double-thick and tough. That combats wear and puncture. The grips are sharp and resistless.

GOODYEAR
AKRON, OHIO

Fortified Tires

Fortified Against
- **Rim-Cuts**—by our No-Rim-Cut feature.
- **Blowouts**—by our "On-Air" cure.
- **Loose Treads**—by many rubber rivets.
- **Insecurity**—by 126 braided piano wires.
- **Punctures and Skidding**—by our double-thick All-Weather tread.

You need these protections, and you ought to get them. They mean less trouble, more mileage, less expense. Men all around you are enjoying these savings. Ask them what they mean.

This quality tire at today's quantity price is the greatest value in Tiredom. Any dealer will supply you.

THE GOODYEAR TIRE & RUBBER COMPANY, AKRON, OHIO

Makers of Goodyear "Tire Saver" Accessories; also Goodyear "Wing" Carriage Tires and Other Types

(2322)

General Agriculture

LIVE WELL!

Written for the California Cultivator
By A. L. Bancroft

DOES it stand in the minds of the farmers, and all who live on acreage in California, that they are entitled to the very best living that the land affords, and that the best in California is the best in the whole world? The city and the town have some attractions in the way of entertainments and social gatherings that the country does not afford, but the farmer's table can average greater attractions than can be had in congested places.

Where man can live pleasantly fruit trees will grow and thrive and the farmer's home orchard should be the best possible in every particular, in variety and quantity, under existing conditions, and his home vegetable garden and flower garden no less so. On his table at every meal during the whole year should be found the best of spoon fruits, by which is meant sliced fresh fruits, and berries in their seasons and the best of cooked, dried, glassed or canned fruits at all other times. Fresh vegetables of one kind or another are also available the whole year. And with an abundance of good fruit and vegetables any one can live well with but very little animal food.

With good preparation of the ground, fertilization from the barnyard, cultivation and irrigation, and with intelligent pruning and care, he can have the very best. Vegetables fresh from the garden are much better than those wilted ones, days old, that have been hauled over the hot dusty roads for many miles.

Small fruits would naturally be much nicer when picked fresh from the home garden than when bought from the wagon of the peddler. Then the flower garden will supply what cannot be had from the vegetable man.

Taken as a whole the product of the home orchard, vegetable garden, small fruit patch and flower garden will cost much less to grow than to buy and be infinitely better and more of them available for family use, and would therefore be used more freely. Even in some exceptional cases, should the cost be more, would the results not be better and worth more? There is a pleasure and satisfaction to be derived from the cultivation of home table and house supplies that will more than compensate for some of the outdoor work by the men, women and children of the family.

Even if the place for your garden is not garden soil, make it so. Not much land is required for a family garden. With stiff adobe, a few loads of alluvium from the banks of the creek, with the scrapings from the barnyard and stable manure spread thickly over the patch, plowed in deep and well disked, will make of it what it should be. One treatment of this kind with top dressings occasionally will last for a long time.

Eggs, poultry, spring lamb, Belgian hare, and good veal should not be overlooked; and even sucking pig on rare occasions is the farmer's due; and what is due to the farmer it is his duty to have and use. The tenant farmers of England, as a rule, live better than the owners of farms do in America.

When the children are of a suitable age some of the home-grown supply business might be turned over to them and the family buy from them, and also let them sell to others. Such a course will add to their business ideas and education and interest in home enterprises to a wonderful degree.

With good roads and a good road car the town and town attractions are not so unattainable as they once were. We are coming into our own in many ways; let us not overlook any of them.

In market terms a "broiler" is a bird weighing from one and a quarter to two pounds when dressed; a "spring chicken" is a young bird weighing between two and three pounds, dressed; a "stewing chicken" weighs three to four pounds, dressed, and a "roaster" weighs four or more pounds, dressed.

Hawley, King & Co.

224-28 S. Los Angeles St.
Los Angeles, Cal.

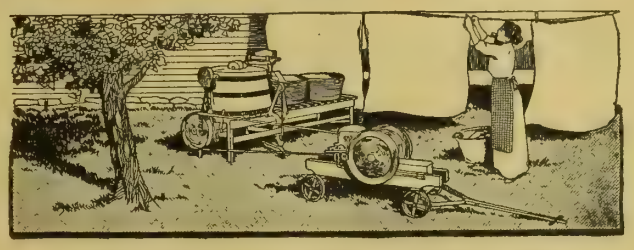
Agents for

Los Angeles County

for

John Deere Farm Implements

John Deere Implements



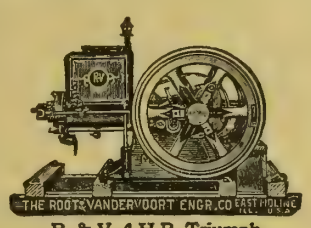
R. & V. Gasolene Engines

New Triumph One Horse Engine. Just the engine for light work about house and barn, such as running washing machine, pumping water and operating other small machines. Saves every member of the family work and worry.

A reliable, efficient, low priced but high grade engine. Easy to start, smooth running, requires no attention when in operation, economical in use of fuel and perfectly safe in and around buildings. All working parts are back of the fly wheel out of the way—a neat outfit in every respect.

R. & V. Triumph Engines for All Farm Machinery

The R. & V. Triumph line of engines is also made in 2, 4, 6, 8, 10, 12 and 16 H.P. sizes, stationary and portable. Every farm can use one or more of these engines to advantage.

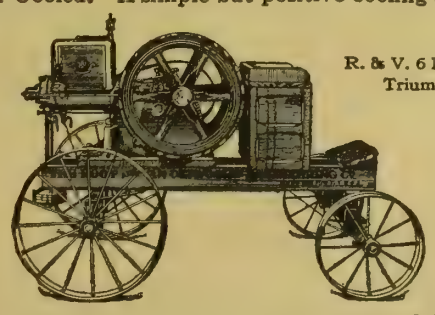


R. & V. 4 H.P. Triumph

They are dependable gasolene engines—always develop rated horse power.

An extra ring over the piston pin prevents scoring and ruining cylinder. This is an unusual precaution for lengthening the life of a gasolene engine. This careful attention to details is followed in constructing every part of the R. & V. Triumph.

Hopper Cooled. A simple but positive cooling system.


R. & V. 6 H. P. Triumph

The gasolene tank for every R. & V. Triumph Engine is most conveniently and safely located—on practically all of the stationary engines it is in the sub-base.

Write for free booklet "Letting Gasolene Do It." This book tells how you can save time every day in the week by using an R. & V. Triumph Engine.

John Deere Wheel Plows

With Quick Detachable Shares

John Deere Wheel Plows, known the country over as "Quality Plows" are now fitted with John Deere Quick Detachable Shares—an exclusive John Deere feature.

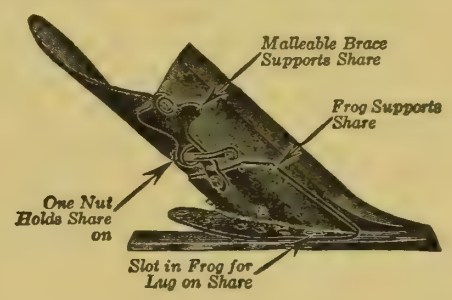
These shares are popular with farmers—they make hard work easy.

Superior Features

Unscrew One Nut—That's All

Unscrew one nut and the share comes off—slip share on, tighten the one nut and you are ready for work.

The share can be removed in thirty seconds and replaced in sixty seconds. Takes from eight minutes to half hour to change old style bolted shares.



Here's what John Deere Quick Detachable Shares mean to you:

1. No trouble to change shares.
2. Eighty per cent of time saved.
3. No danger of damaging share.
4. Share is drawn up closer.
5. Share is stronger—not weakened by bolt holes.
6. Resharpened or sprung shares can be drawn into place—no drift punch necessary.
7. No unequal strain on share.
8. No danger of injury to hands in taking share off.

We have beautifully illustrated booklets on the following plows with John Deere Quick Detachable Shares:

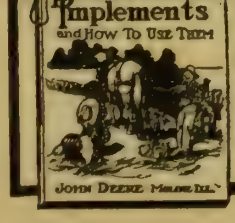
New Deere Sulky and Gang
(High Lift Frame Plows)

John Deere Stag Sulky and Gang
(Low Lift Frameless Plows)

John Deere Two-Way Sulky
(Side Hill or Irrigated Land)

John Deere Engine Gangs
(For Traction Engines)

Write for the booklet above that you want and we will send it to you free.



Better Farm Implements and How to Use Them

FREE BOOK Illustrates and describes the most complete line of farm implements. Tells how to adjust and use farm tools under varying conditions. It is a practical encyclopedia of farm implements worth dollars to you—a 168 page text book.

It tells about John Deere Implements: Steel plows, cultivators and harrows; corn planters, discs harrows and beet tools; farm and mountain wagons; manure spreaders; portable and stationary grain elevators and corn shellers; hay loaders, stackers, sweep rakes, mowers and side-delivery rakes, motor hay presses; grain drills and seeders; full line of chilled plows; grain binders and corn binders; hit-and-miss and volume-governing gasolene engines.

To get this book, free, state what special implements you are interested in and ask for the book as Package No. X-111.

John Deere, Publicity Department, Moline, Illinois

JOHN DEERE MOLINE, ILL.

THE TRADE MARK OF QUALITY MADE FAMOUS BY GOOD IMPLEMENTS

Established 1888. Twenty-seventh Year.

The California Cultivator

Rural California Combined with the California Cultivator

A Journal of Horticulture and Agriculture

By
THE CULTIVATOR PUBLISHING CO., Inc.
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Thursday, April 8, 1915

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

ARIZONA REJOICES

The liberal rains of the past season have visited so much of blessing generally and in particular have so filled to overflowing the Roosevelt reservoir that Arizonans are calling upon the world to come and help in giving thanks and celebrating. April 15 is named as the day. The reservoir is now a lake 28 miles in area, large enough to float the navies of half a dozen nations. Over a million-acre feet of water! Enough to last the Salt River Valley for three years or more. This is the result of the building of the Roosevelt Dam. Stored water is now on hand in sufficient volume to insure crops and prosperity on 200,000 acres for several seasons.

This is the reason for the big celebration which has been planned to take place on April 15 at the Roosevelt dam when it is expected the water will be overflowing the spillways. The vice president of the United States, the Hon. Thomas R. Marshall, will be in Phoenix and will take part in the celebration with many other notables who have been invited to attend. The trip to the dam, 80 miles from Phoenix, will be made by hundreds in cars of every make and description.

POULTRY FEDERATION

Geo. H. Croley of San Francisco is doing some good work for the Federated Poultry Association of California. Poultrymen generally realize that, under present conditions of prices of feeds and prices of products of the poultry ranch, unless poultrymen stand together to secure the greatest good for the industry, many connected with it will go to the wall. One feature for which the federation is now working is an appropriation from the state legislature which may be used to encourage the poultry industry. Mr. Croley writes us that the bill introduced by Mr. Bonde of Sebastopol is in the nature of an emergency measure which will give poultry interests certain support in case the agricultural bill fails to pass. Regarding this bill and this appropriation Mr. Croley writes: "The appropriation is not sufficient to accomplish a great deal, but we must regard it as a nest egg."

Many appropriations have been made to aid agriculture and horticulture, but never anything specifically for the poultrymen, yet even the fruit interests of this state are hardly greater than are those of the poultry industry.

BEANS

Never has this paper received so many requests for information as to culture of beans of different kinds as this year. There is apparently a feeling that the demand for staples will be great, and we doubt not nothing will command better market than will California beans. This state has a record for producing beans of the finest quality, and the famous Boston baked are doubtless famous by the fact that they are usually grown in California. California ships immense quantities of beans to Boston. California beans show lower content of moisture than nearly all Eastern grown beans.

As to market, it is not always the best, but cooperative organizations by disposing of the greater part of the crop are maintaining a fairly stable condition. It appeared a few months ago that the Lima Bean Growers' Association was disintegrating, but we believe that now all differences have been harmonized and the association will be stronger than ever. If the association is strong it assures fair returns to the grower. Growers of other kinds of beans may well follow the example of the Lima people and perfect organizations for the handling of their crops.

A. P. A. IN CALIFORNIA

Chief Lively of the department of live stock of the Panama-Pacific International Exposition is pounding with sledge hammer blows in his effort to secure the next annual of the American Poultry Association for San Francisco sometime during the coming summer or on the dates suggested by Director Lively, November 18 to 28, which is the time of the poultry exhibits at the exposition. This organization has been in existence for 40 years, and not once in that time has it ever held a session on the Pacific coast. So Mr. Lively has adopted the slogan, "Once in 40 Years." It rather appeals to us that if the American Poultry Association desires to be of widest influence that "Once in 40 Years" is hardly often enough to hold this association on the Pacific coast. It seems that the ballot is to be taken early in the present month. Of course it goes without saying that California members will vote in favor of the California meeting, but those who have friends in the East who are members should write and urge that a spirit of fairness be shown toward the Pacific coast in this matter. Mr. Quisenberry, who is director of the Missouri experiment station and also a member of the A. P. A., has been placed in charge of the poultry exhibits at the exposition, and this recognition extended by the management of the exposition should certainly aid in securing a favorable vote from the majority of the members. We are told that Nashville and Atlantic City are both making a great pull to secure the meeting.

CITRUS MARKET

In the discussion of the high cost of living of course it is common to pass the responsibility on to the other fellow. In the matter of marketing citrus fruits the same line of argument is followed. Naturally the retailer claims the jobber has the big end, the jobber passes it back to the railways, the railways to the producer and the producer in turn points to the retailer. It seems to us that the producer has rather the best of the argument when it is shown that the retailer is getting 33 per cent of the consumer's dollar while he himself gets but 26. But here the producer must consider that much of the 33 cents is for service, such as delivery, and is not profit.

For example in buying a dish of prunes on the Southern Pacific diner one pays 25 cents for somewhere in the neighborhood of a dozen prunes. Two cents per prune would look exceptionally good to the producer who is getting not far from two cents per pound, but Southern Pacific cream and sugar and, more than all, service must be paid for, and the service is such that the payment is usually willingly made.

But regarding the high prices in Eastern retail markets. Mr. Young in his article on Page 389 last week referred to oranges in Kansas City retailing at 40 and 50 cents. On this point a bit of investigation has been made, and an average of prices at the best stores in Kansas City—this does not include fruit stands and push carts—was found to be as follows: Oranges, 96's to 126's—these are the grades usually placed in the front windows as especially fine drawing cards and the ones from which we are apt to take our estimates—were selling at 35 cents to as high as 50 cents. 150's—this is the average size—were running 26 cents to 40 cents per dozen; 176's, 20 to 25; 200's, 18 to 22; 216's 15 to 20, and 250's to 288's, 15 cents and under.

In some markets immense quantities of California oranges are selling today at 12 and 15 cents, and consumers in various parts of the East have reported that they never secured such good oranges at such low prices as this year.

Note, as we say above, the grocer displays his finest and largest stock at the front door, while the great bulk of the fruit which goes to the trade is in the back room from which deliveries are made. There is one thing to which the producer must give more attention, and this is the matter of service. If the jobber or the retailer is to be put out of business by the producer delivering direct, then the producer must assume the expense of service such as the high-class retailer gives.

The Cultivator's life depends upon the integrity of the producer's dollar being maintained, and it is vital that the producer should have a reasonable showing when the consumer's dollar is divided up. But it is equally as vital in discussing this question that we lift ourselves away from our orchards and put ourselves in the markets where our fruit comes into competition with fruit from all other sections. We must look at the conditions we have to meet if we proceed with marketing our own fruit.

In the time of business depression when many, we may say all, kinds of business are fighting for existence we producers must move cautiously in any effort to better our condition.

COVERS THE GROUND

I take more pleasure and get more good from the Cultivator than from all others put together. In fact the Cultivator covers the ground so well that I have cut out most of the other papers.—E. K. Grant, Wasco.

Agricultural Notes

Florida Valencias are reported as starting to move to market.

152,903,000 bushels, or 17.2 per cent, of the 1914 crop, against 151,809,000 bushels, or 19.9 per cent, of the 1913 crop on farms March 1, 1914.

Sugar produced in Hawaii during the year ending June 30, 1914, amounted to 612,000 short tons, the largest output ever recorded for that territory.

Now comes Minnesota with a "Potato Week" to be observed April 5 to 10. If recollection serves, New York celebrated the preceding week. Who's next?

Apple exports from both western and eastern ports were 24,000 barrels less than the preceding week, owing to lack of transportation facilities. London received the bulk of these shipments.

The level of prices paid producers of the United States for the principal crops increased about 2.5 per cent during February; in the past seven years the price level has increased during February 1.6 per cent.

The United States department of labor has established a national labor bureau where farmers and farm helpers may register. Application blanks may be secured from the nearest postoffice and forwarded free to Washington if returned to postmaster or rural mail carrier.

Berry boxes need not be marked with net weight of contents. The United States department of agriculture has just anounced suspension of the new container law as applying to berries and small fruits for the coming season, that is, until November 1, 1915. It is the view of the department's solicitor that no marking of quantity of contents is necessary upon the crates or boxes of any berries or small fruits.

The average time of steamships from Pacific coast ports to England is about one-half what it was before the opening of the Panama canal. Grain ships arriving at British ports from San Francisco and Portland since the opening of the canal have averaged 48 days for the voyage. The best record made was 34 days. Last season (1913-1914) most of the grain went by sailing vessels around the Horn. Their voyages averaged 136 days.

The Southern Railway, quoting from the annual report of its agricultural agent for 1914, says that in 12 months the field agents of the company have given advice to about 100,000 farmers. The average yield of cotton per acre on fields cultivated in accordance with their advice was 1,255 pounds of seed cotton, as compared with 513 pounds in other fields: Average yield of corn 40.8 bushels, as compared with 18.4 bushels in fields where their advice was not followed. Even in boll weevil territory many farmers averaged a bale or more of cotton per acre.

There is no immediate demand in Russia for American cotton. Large amounts purchased some time ago have not arrived and purchasers prefer to await their arrival before giving additional orders. The congestion at Archangel and on the Siberian lines is paralyzing private business. One shipment of cotton was removed from Archangel by sledges. The government taxed this cotton 2.50 rubles per pood (3.6 cents per pound), claiming that it was subject to the domestic war tax because not shipped by rail. This incident is retarding imports.

Agricultural News Notes of the Pacific Coast

Northern California

Butte County has planted over 25,000 olive trees during the past season.

Napa County dairymen are considering the advisability of forming a cow testing organization.

The University of California has many requests for qualified managers of large farming properties.

The Agricultural Club of the state farm school visited recently various ranches near the school at Davis.

The Placerville Fruit Growers' Association is building a 40 by 70 packing house which will cost about $1200.

Pear growers along the Sacramento River have been giving thorough sprayings to prevent ravages of thrips.

The Yolo County Swine Raisers' Association is doing some magnificent work in its efforts to wipe out hog cholera.

Horticultural Commissioner Harney of Yuba County is waging a fight on yellow scale of citrus trees near Wheatland.

Manager Tucker of the California Almond Growers' Exchange estimates an exceptionally large tonnage of almonds this year.

Fruit growers of the Sacramento River district are uniting in a campaign of advertising their fruits in Eastern markets.

Berry growers of Olinda, Shasta County, have formed an organization to take charge of marketing the coming season's crop.

State Horticultural Commissioner Cook is inaugurating his campaign of examining all incoming seeds or plants from Eastern states.

Woodland, Yolo County, hopes to be chosen as the location of a great milk cendensary. It will call for the investment of about $25,000.

The irrigating system supplying farmers near Los Molinos, Tehama County, has been improved by dredging and cleaning of ditches.

Swine raisers at Walnut Grove, Sacramento County, are combating an epidemic of hog cholera which has spread to nearly all herds in that section.

A hog breeder at Lodi recently had a number of pure-bred hogs returned to point of shipment in Missouri because of quarantine against foot and mouth disease.

The Ladies' Silk Culture Society of California, which has a plant located at Rutherford, Napa County, has a most attractive exhibit at the Panama-Pacific Exposition.

The state compensation insurance fund wrote during 1914 compensation insurance requiring the payment of $545,161. The operating expense was eight per cent and 15 per cent of the premiums is being returned to policyholders.

An interesting meeting of the Napa County farm bureau was recently held at Napa and report of a committee made that it was not advisable at this time to purchase warehouse for use in marketing products of the members. Another point discussed was the naming of ranches and having signs bearing owner's and ranch names.

Central California

Fresno is raising a $10,000 Raisin Day fund.

Wheatville, Fresno County, will plant 160 acres to rice.

Fresno merchants have distributed over 36,000 Raisin Day stamps. April 30 is the date.

The annual meeting of the Alta Cured Fruit Association was held at Dinuba last Saturday.

The Cooperative Cantaloupe Growers of Turlock have filed articles of incorporation at Modesto.

The light rain which fell early last week in all sections of the valley gave assurance of a big grain crop.

A Holstein breeder at Modesto has just sold a bull to the Carnation Stock Farm in Wisconsin for $1000.

The Tulare County free library is supported by an appropriation of $14,000 and is doing some magnificent work.

The Dinuba grange at a recent meeting began pushing a campaign for securing a farm adviser for that district.

Watsonville is now shipping Pajaro Newtown Pippins to London. The valley has shipped nearly 4000 cars this season.

A cooperative creamery has been organized at Los Banos and a $40,000 plant is contemplated. Nearly 3000 cows are already signed up.

Twenty pure bred Merino rams were last week shipped to the Hawaiian Islands by Charles Kimble, one of the largest ranchers in the San Joaquin Valley.

Raisin growers of Kerman, Fresno County, were addressed by the president of the Associated Raisin Company and its general manager last Saturday.

A raisin meeting was held at Kerman Saturday evening, April 3. President Giffen and Manager Madison of the Associated Raisin Company addressed the growers.

Outside of county nurseries are planning to test the Tulare County ordinance which demands a $5000 bond as guarantee that infected vines will not be shipped into that county.

Kingsburg, Fresno County, is now assured of a cooperative cannery which will be affiliated with the Porterville and other coopeartive canneries in one central buying and selling agency.

The San Joaquin Valley Counties Exposition Association, at its recent annual meeting elected George C. Roeding of Fresno, president; John P. Irish, Stockton, vice-president, and C. H. Edwards of Merced, manager.

A new citrus fruit exchange has been organized in Tulare County. This will increase the cooperating fruit in that county 15 per cent. The new organization will be known as the Lindsay-Merryman Citrus Fruit Exchange.

Professor Stubenrauch of the University of California and C. W. Mann, head of apple inspection of the Pacific Coast of the United States department of agriculture were in Watsonville last week looking over cold storage apples. They talked with growers on causes of brown rot in storage apples.

Southern California

Prices received for Imperial Valley asparagus have been very satisfactory.

Poultrymen of Southern California have organized a cooperative egg marketing concern.

The driving club at Hemet, Riverside County, held its spring matinee Friday, April 2.

As yet the Panama Canal is not proving of as much value to citrus growers as was anticipated.

Poultrymen of Arlington, Riverside County, are generally uniting with the Federated Poultry Association.

Imperial Valley has just shipped 1000 bales of cotton to Japan. This completes a 4000 bale shipment.

People of Imperial County are planting their greatest cantaloupe acreage. It will be not far from 1800 acres.

Contract has been let for the construction of the county highway between Perris and Hemet in Riverside County.

Southern California counties are planning for ornamenting borders of all state highways that have been constructed.

One hundred and sixty acres of land is being cleared at Encinitas, San Diego County. The entire tract will be planted to beans.

Hemet, Riverside County, recently made a shipment of a carload of canned olives. These were practically all from one ranch.

The Riverside Portland Cement Company recently fired a charge of 60 tons of dynamite to break up limestone in the hill near Riverside.

The first shipment of Bermuda onions to reach the Los Angeles market this season were sent in by a Calexico grower. There were 25 crates in the shipment.

The El Monte Walnut Growers' Association is laying plans for the erection of a walnut packing and shipping house in El Monte. This association is a member of the State Growers' Association.

County Horticultural Commissioner Waite of Imperial County is urging all melon growers to distribute ladybirds. He is now distributing over 7,500,000 of the little friends of the melon grower.

Cantaloupe growers of Imperial Valley are entirely at loss as to the attitude of the government in its anti-trust campaign. They fear they will not be allowed to market cooperatively their season's output.

Brawley, Imperial County, will produce over $50,000 worth of green peas this season. The growers are contemplating the formation of a cooperative marketing concern. The sixth full carload was recently forwarded to Chicago.

Manager Powell of the California Fruit Growers' Exchange advises caution in the enacting of laws to regulate shipment of immature or frosted citrus fruit, as he says there can be no wise legislation on citrus standards until the department of agriculture shall have completed experiments now under way.

The Coast

About 1000 acres of cantaloupes are being planted in the Salt River Valley of Arizona.

The agricultural college of New Mexico is giving short courses in home economics.

Texas has been finding difficulty with its early onion crop because of continued cold season.

Fishery grounds off the coast of Oregon are developing great possibilities in halibut supply.

The Oregon State Hop Growers' Association recently organized at Salem has a membership of 600.

The disturbances in Mexico have caused a shortage in stock of sisal fiber used for binder twine.

Walla Walla, Washington, swine raisers are not producing enough stock for their own home use.

A Tucson, Arizona, boys' corn club winner 18 years old, made a showing of $64.90 net profit from one acre of ground.

North Yakima and other points of Washington report a season much later than last year in nearly all fruit districts.

Cattlemen of Greenlee County, Arizona, have formed an association. A. H. Slaughter is president and Wade Hampton, secretary.

Dairy cattle of the agricultural college of New Mexico are being rigidly tested and several have been admitted to advanced registry.

Apple growers of the Hood River district are contemplating receding from the North Pacific Cooperative Marketers' Association.

The Aravaipa Cattle Growers' Association, Arizona, has voted to join both the State and American National Live Stock Associations.

Utah County in the state of Utah is planning a big campaign against potato and grain diseases under direction of County Agriculturist A. B. Ballantyne.

May 5 has been fixed as the date for dedication of the Dalles Canal, Columbia River, Oregon. It will give free waterway from the Pacific Ocean 479 miles to Lewiston, Idaho.

The Southern Arizona fair held recently at Phoenix called out a great exhibit of productions of the southern part of the state and an exceptionally strong exhibit along educational lines.

Stockmen of Mora, San Miguel and Guadaloupe Counties of New Mexico have organized an association to protect its members against cattle rustlers who have been very active the last few months.

Growers of the Wenatchee Valley of Washington are cooperating to secure a loan from Seattle banks to move the 1915 fruit crop. A $500,000 loan is asked for, the maximum amount to each grower to be 30 cents a box.

A conference of state veterinarians of Arizona, New Mexico, Texas, California and the Northwestern states was held March 23 at San Francisco to discuss uniform quarantine regulations on live stock shipped from the foot and mouth infected states of the East.

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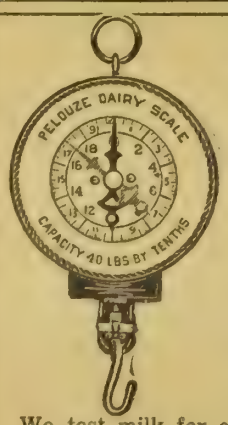

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Live Stock and Dairy

FEED THE PIGS

As soon as we see a bunch of hogs, old and young, shifting for themselves, as they do on many farms, or at best getting only a taste of corn to help them keep up the struggle until the corn crop is made, we think of Maud Muller sighing over what might have been.

Those shoats might have been farther on the road to market and worth so much more if they had been given a chance to convert each day a few more pounds of corn or mill feed into growth. They would most willingly have returned double, and possibly triple, value for the few pounds extra of feed. It takes very little more above the food of support to make market growth, and in that little more is where we get profit in growing shoats. The profit is not in the food of support, as we may find by feeding a pig as long as we like just enough to keep it holding its own. At the end of the period the pig is no heavier than when we began this unprofitable test, and possibly its growtb is so checked that we will have expended more time and feed for the future gains than those gains could have been made for before this long suspense of growth.

It takes a lot of good feed to fill out the lines of a shoat that has long been on such short feed and get him back to the form of thrift that he showed when he left his mother to shift for himself. No man ever saw a pig making profitable growth or doing a fraction of what he is capable when his hair is dry and standing every way, his belly girth double that of heart or flank, as many a shoat shows today, and all because of lack of a little more feed.

Because corn is high and mill feed very high is no adequate reason for withholding the little of it to keep the pigs thrifty. It is the thrifty pig that pays. The thrifty pig is getting enough to satisfy his appetite at least, once a day, with the chance to add to it from the range allowed him.

We hear a great deal about testing cows by weighing the milk of each day by day to find the ones that pay and the ones that do not. If the slack feeder of shoats, or believer in self-shifter, would weigh such pigs once a week or month, and the feed given them, he might learn something to pay him well for his trouble. There is just as much need to check up pork makers as to check up dairy cattle to find unprofitable management. Professor Haecker said somewhere there is more need of checking up owners of dairies than the cows. The same may be said of owners of hogs. Too many act on the theory that the least care and feed is better than the best care and generous feed.—P. C. Holme in American Swineherd.

Austria has decreed that every acre must be utilized for production. Wasting land is the worst form of extravagance.

Live stock is the foundation of permanently successful farming today, as it has always been.

The farmer who conserves his best stock for breeding will profit greatly in the future.

FOUNDATION STONES FOR SUCCESS IN AGRICULTURE

VETERINARY SCIENCE

By Clarence M. Haring, Professor of Veterinary Science

Men and animals are subject to the same physiological and hygienic laws.

A proper balance of work and food maintains animal health.

Sanitation is essential to the prevention of disease.

All infectious diseases are due to living organisms.

Contagious diseases may be prevented by destroying or preventing the dissemination of the specific organism.

Immunization is desirable when other means of prevention are impracticable.

Prevention always pays; curative treatment may pay.

It is more economical to prevent disease than to cure it.

Wherever animals are gathered in large numbers extra precautions must be taken to prevent disease.

Most germs are harmless, many bacteria are helpful.

Living bacteria, or germs, are present nearly everywhere, one exception being the tissues of healthy animals and plants.

Working young horses before their bones are matured is a frequent cause of later unsoundness.

Constant vigilance is necessary to keep a herd of dairy cows free from tuberculosis.

Health in man often depends on health in beast.

Infants may contract tuberculosis from the milk of diseased cows.

The responsibility of the owner of diseased stock does not end at the border of the ranch.

The consumer who buys milk on the basis of cheapness may expect to get a dirty product.

Demand clean milk from healthy cows.

THE PIG CREEP

Mr. E. K. Grant of Wasco writes: "The article in your live stock department of March 18 describing pig creep is certainly a good one. I have several panels 16 feet long made of 5—1x4 strips, the bottom cracks are only about 3 inches and the top one 8 inches. In making a pig creep I use three of these panels, fastened to the fence with baling wire, forming a square. By turning one of these panels upside down the wide crack will allow the small pigs to get in and keep out the older ones. This leaves a 1x4 strip along the ground which keeps old hogs from rooting under and also keeps the pigs from pushing their feed under the panel where the older ones can get it. Any time it is necessary to catch the pigs call them into the creep with some feed and turn the panel right side up, and you have the pigs without fuss or trouble. These panels are so handy in so many ways that a hog raiser can't afford to be without them."

HOW MANY SHEEP PER ACRE?

Regarding the acreage of alfalfa required to feed a band of sheep, it would seem that seven lambs could be fed five months on each acre. The basis for this estimate is secured from the amount of hay required for feeding sheep and an estimated yield of about five tons of alfalfa hay per acre. It is possible that you have a heavier crop of alfalfa and that you could carry more animals, but I would place 14 as a maximum from May 1 to October 1.—R. H. Williams of Arizona Experiment Station.

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Keep your horses at work so they can earn their feed and make you a profit.

TAPATCO pads are porous. They permit ample ventilation and absorb all sweat. Filled with special Composite Stuffing. Light, soft, springy, absorbent. No dirt; no trash; no short, cheap, limy hair with hide attached to attract rats and mice. Order a TAPATCO Pad today.

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RECORDING COW QUALITY

In many dairy sections in Canada it is quite possible, judging from official figures, to find a herd of cows producing milk at a feed cost of only 62 cents or less per hundred pounds, while on a farm two miles away milk costs perhaps 90 or more per hundred for feed. And on that farm where milk costs more may often be found some dairy requisites, such as a pure bred dairy sire, good ensilage, etc. Other requisites may be lacking, well rounded dairy judgment, cow quality.

Solid and lasting success is attained more easily and more quickly by the intelligent use of dairy records. This is just common sense selection of paying cows instead of the indiscriminate boarding of "just cows." The individual cow of good promise is quickly and unerringly spotted by the use of simple dairy records and fed for better production at less cost, while the antique souvenir, useless as a profit-maker, is beefed because she lacks ability to prooduce milk at a reasonable cost for feed.

The man who raises his own calves can take quick strides in building up a good herd, for he keeps only his best cows and knows just what he has. The man who sells, often sells his best cows for a song (this is the plain history of some world-champion cows) just because he does not know what good cow quality he has; dairy records would have informed him.

A matter of ten minutes per cow per month spent in recording will put surprising, most illuminating results before any herd owner, indicative of great possibilities at present dormant in his dairy cows.—C. F. W., Dominion Department of Agriculture.

CALIFORNIA SWINE BREEDERS

The annual meeting of the California Swine Breeders' Association will be held in the Hall of Congresses, at the Panama-Pacific Exposition grounds, on April 23, 1915, at 9:00 a. m.

Mr. H. L. Thatcher will speak on "Auction Sales and the Hog Business," and Dr. Bert J. Cady, of the United States department of agriculture, on "Hog Cholera and Its Control."

The rest of the program is not as yet complete, but will include one, and perhaps two, instructive talks by well-known speakers.—J. O. Thompson, Secretary.

LUNGWORMS IN HOGS

Lungworms are one of the most common parasites of swine. They are thread-like in appearance, brownish-white in color, and vary in length from three-fourths to one and one-half inches. They are found in the finer divisions of the bronchial tubes, mixed with mucus which is secreted in abundance as a result of their presence.

When in small numbers they cause but slight damage and are most often overlooked. Young hogs often become badly infested and death frequently results in pigs poorly cared for. In slight cases coughing is most pronounced. In those badly infested, coughing, diarrhoea, weakness, and lack of thrift, (symptoms sometimes mistaken for cholera) are most pronounced.

Treatment as a rule is worthless on account of the inaccessibility of the parasite and the difficult method of application.

Prevention is the only ground on which we can expect to control this trouble. As moist yards afford a good place for the development of the eggs, the yards should be located on

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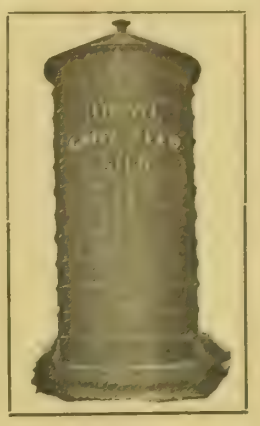
Is not merely a tank or a barnyard building, but is a THOROUGHLY PRACTICAL PIECE OF DAIRY EQUIPMENT.



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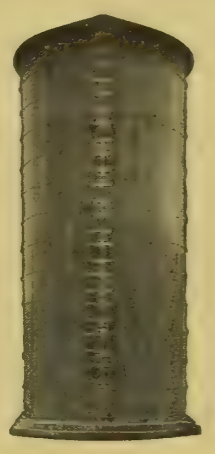

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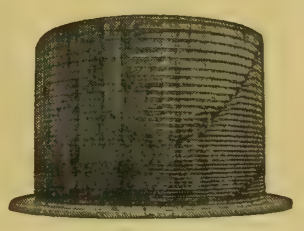

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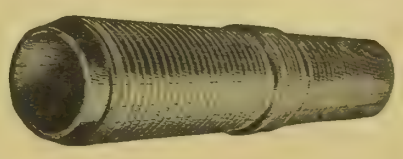

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For the Human Body —It is penetrating, soothing and healing, and for all Old Sores, Bruises, or Wounds, Felons, Exterior Cancers, Boils, Corns and Bunions CAUSTIC BALSAM has no equal as a Liniment.

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We would say to all who buy it that it does not contain a particle of poisonous substance and therefore no harm can result from its external use. Persistent, thorough use will cure many old or chronic ailments and it can be used on any case that requires an outward application with perfect safety.

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high ground and well drained. Keep all manure heaps and straw stacks out of the hog lots for the same reasons. If possible change the pasturage frequently. Occasionally disinfect the sleeping quarters with a three per cent solution of some coal tar dip.—A. R. Hahner, Veterinarian, Idaho Agricultural College.

FAT AND LEAN

In the busy world of dairying even a few meager calculations show great differences, whether in cows, their owners, the land, the bank deposits or the test of fat, etc.; fat and lean are mixed, good results and poor, even on adjoining farms, even in two stalls in the one stable. One owner gets perhaps 200 pounds of milk from each lean, hungry acre; a neighbor with better methods produces the fat total of 1700 pounds of milk per acre, keeping 16 good cows on a well tilled 80-acre farm. One milk producer, with poor grade cows never tested, possibly never well fed, gets the lean average of less than 3000 pounds of milk per cow; another producer, who is a real dairyman, revels in the knowledge of each of his 16 cows giving over 8000 pounds of milk that will test fairly rich in fat.

Then when it comes to feeding for profit, not simply for existence, we find one man with 100 pounds of milk costing him only 59 cents for feed, but a neighbor has to admit the impeachment of milk costing him per hundred at least 90 cents, perhaps over a dollar. So one will make the fat profit above feed of over $30 per cow, while his neighbor is down to the lean margin of only $3.00. Why do such amazing differences occur? Primarily because dairymen have not studied each cow individually. Dairy records alone can shed light on these problems.—C. F. W.

THE BROOD SOW

Pork producers are in a liquidating humor and are ready to respond to advances in price. The hog market still continues at a low ebb and the situation is aggravated by the top-heavy grain market. Professor William Hislop, animal husbandman of the Washington state experiment station, states that there is no need to be panicky and to sell when the market is in a semi-demoralized condition. To the world cataclysm now occurring in Europe may be attributed the sharp decline in hog stocks since October, 1914. Feast always follows famine, so it behooves those forward-looking hog growers, who have retained their breeding stock, to give them the best possible care in order that future production may not be so restricted as it would seem at this time.

The essentials of brood sow management may be briefly summarized:

Provide suitable food, but do not over-feed.

Emphasize the protein and ash constituents of the ration.

Keep the sow growing thriftily, but do not fatten.

Devise schemes to induce exercise.

Provide warm, dry, well bedded, well ventilated and sun-lit quarters.

Avoid constipation by natural feeding methods, but resort to emergency remedies if necessary.

Kill off lice with crude oil, and drive out worms with santonin and calomel.

Practice gentleness at all times.

Hog men can not afford to neglect any of these cardinal points when the cost of production is so high.

Within the next seven to nine weeks most of the brood sows and gilts will farrow. Our investigations tell us that 90 per cent of the dry matter in the unborn young of the sow and gilt is deposited in utero during the last sixty days of pregnancy. This being so it is wise to provide for the needs of the gilts and sows within this time by increasing their daily wintering rations from 50 to 75 per cent.

Rations Before Farrowing

Barley meal, 75 lbs.; chopped alfalfa hay, 15 lbs.; tankage, 10 lbs.; rutabagas or carrots.

Ground oats, 45 lbs.; barley meal, 45 lbs.; tankage, 10 lbs.; alfalfa hay in racks; rutabagas or carrots.

Ground oats, 50 lbs.; middlings, 50 lbs.; alfalfa hay or clover hay.

In the farrowing pen there should be a rail set eight inches from the floor and six inches to eight inches from the wall, to prevent the sow from crushing her pigs. Provide just a small amount of bedding for the sow to make her nest.

For a few hours after farrowing the sow needs no feed other than water which has been sufficiently warmed to remove the chill. After 18 to 24 hours she should have a warm feed of this shorts slop. After that time the feed should be gradually increased until she is receiving all she requires, but no more. Insist upon exercise.

Rations for Sows With Sucking Pigs

Barley, 30 lbs.; oats, 30 lbs.; middlings, 20 lbs.; bran, 12 lbs.; tankage, 8 lbs.

Barley, 50 lbs.; shorts, 20 lbs.; bran, 15 lbs.; oil meal, 10 lbs.; tankage, 5 lbs.

Ground oats, 50 lbs.; middlings, 50 lbs.; skim milk.

Provide early pasture for the sows and their young. Winter rye and rape are as good as alfalfa, and are ready when most required.

DAIRYING AND THE SOIL

The greatest advantage in dairy farming is its relation to the fertility of the soil. No other system of farming excels it in this respect, and but few equal it. A farm used for dairy purposes does not lose in fertility, but gains, and may be used for this purpose almost indefinitely.

When animals or milk products are sold off the farm, only a small portion of the fertility of the entire crop is sold, while the greater part of the fertilizing elements are returned to the soil in the form of barnyard manure. The fertilizing value of common grains as compared with the fertilizing value of the products of the dairy farm, figured at prices of commercial fertilizer, shows less decrease in fertility by dairy farming.

One ton of butter contains 50 cents worth of fertilizer constituents.

One ton of milk contains $2.09 worth of fertilizer constituents.

One ton of wheat contains $7.75 worth of fertilizer constituents.

One ton of oats contains $7.26 worth of fertilizer constituents.

One ton of corn contains $6.75 worth of fertilizer constituents.

One ton of clover hay contains $9.07 worth of fertilizer constituents.

One ton of alfalfa contains $9.50 worth of fertilizer constituents.

BUTTER SCORE ERROR

We regret very much an error which occurred in this department of the Cultivator of March 25th, on page 368. We gave the score secured by W. J. Grinsell of the Libby, McNeill and Libby Creamery at Loleta as 91. It should have been 93½. Mr. Grinsell writes:

"As your paper is no doubt read by thousands of interested dairymen we want them to know that butter made in Humboldt scores up with any other part of California."

We appreciate the correction sent by Mr. Grinsell and we sure wish to give good old Humboldt due credit for making first grade butter.

Nice Bossy--Father Says You're Giving an Awful Lot of Milk Now!

It is a common thing to hear cow owners express their enthusiasm for *Kow-Kure* after using it on sickly or "backward" cows; and no wonder. *Kow-Kure* has such a wonderful effect on the genital and digestive organs that many cow ailments commonly regarded as very serious can be prevented or promptly relieved by following the simple directions. If you have never used *Kow-Kure*, we want to send you our useful free treatise on cow diseases, "The Cow Doctor."

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Write for New Data See actual figures showing you how to increase your calf profits.

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The Jersey

comes into maturity early, is long-lived and is often found making records even to advanced age. She stands above all other breeds for *economic production*. Shall we mail you free a good book on the Jersey?

THE AMERICAN JERSEY CATTLE CLUB,
324 W. 23d St., New York City.

California Breeders 2nd Annual Consignment Sale

Will be held at

MODESTO, on May 4, 1914

These are not culls, but a magnificent selection of registered Jersey Cattle from some of the best blood in the State, many PRIZE WINNERS—and Exceptional PRODUCERS, and excellent offering of young stock.

ALL ANIMALS FULLY GUARANTEED.

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Bees and Their Care

EASY TO HANDLE BEES WHEN YOU KNOW HOW

THE extension of bee culture as a means of adding to the income has been rapidly going on since it was demonstrated that bees could be managed without discomfort to the operator and that a profit of 50 per cent and even more was easily procurable.

Bee culture requires no outlay for land upon which to raise crops, for as yet there has been no plant discovered that pays to plant for honey alone.

The honey bee is a benefactor to our race, roaming the fields at will, gathering honey and pollen, which she pays for in the fertilization of the flowers.

She takes nothing from the fertility of the soil, but gives to it one of the greatest fertilizers known, the clover, which would become extinct if it were not for her agency in fertilizing the bloom. No land is required except a spot on which to place the hives.

It is easy to handle bees when you know how. Undoubtedly a beekeeper often gets stung; it would be useless to deny it, and it is scarcely consoling to a novice to tell him he will get used to being stung; but after a time a beekeeper really does become inoculated, after which, although the momentary pain may be sharp, there are no disagreeable after effects, such as swelling, etc.

The fear of stings, I think, prevents many from liking the work; and yet when properly protected with a bee-veil, and working only in the warm part of the day, and never when cloudy, rainy or cold, and with the use of a good smoker, one need rarely be stung.

In many cases the sting of a bee is attended with much pain and swelling, while in others there are no ill effects produced whatever, and there is no doubt but that the system may become inured to the poison so that no bad effects are produced.

The writer recollects the time when a bee sting was very painful to him and was always attended with suffering and swelling. I know there is a certain current impression to the effect that bees will sting some people more than others.

While this is true, it is not because they are able to recognize any peculiar physical condition or difference, nor is it because one person smells to the bees different from another. It is because they notice a difference in the behavior of different persons.

Avoid quick motions, do not breathe upon them and if there are other bees flying about in search of plunder do not leave the hive open too long.

In case of accident the smoker should be used freely, and it ought to be at hand for any manipulation in the apiary. It is much easier to prevent the anger of bees than to stop it after it has begun. If you mismanage a colony of bees and arouse their anger, it is quite likely that this disposition will remain with them for a few days.

A bee away from home or laden with honey never volunteers an attack. This is so well known and so established by apiarists that if I were not writing mainly for beginners I would not think of mentioning it.

Thus in order to render bees harmless it is only necessary to cause them to fill themselves with honey, and this is done by frightening them with smoke. When smoke is driven into a hive through the entrance, the bees at once begin filling themselves with honey.

But with them, as with human beings, it is the most experienced which are slowest to take fright, so when the old bees are all at home it is more difficult and takes more time to compel them all to fill themselves.

For this reason it is much safer to handle bees during the warmest part of the day, or at a time when the greater part of the old bees are in the field.

The bees which compose a swarm are usually filled with honey for the journey which they expect to take, and they are harmless unless crushed or very much irritated by the anger of others, and the smell of the poison.

It is not absolutely necessary to smoke the colony of bees until all the bees fill themselves with honey in order to handle them safely, but it is certainly the safest method.

An expert may open a hive without smoke and without danger and may handle the combs and return them to the hive without getting a single sting by being quiet, steady and fearless.

It is a fact that the fearless apiarist may often be entirely unharmed, while others a rod away may be stung by the very bees which his manipulations anger.

His quiet, determined demeanor is his safeguard, while the uninitiated strike at the angry bees until they are stung.

When you wish to open a hive of bees, if you wish to be perfectly safe, arm yourself with a smoker, cover your head with a veil, and step boldly to the front of the hive; send the smoke through the opening for half a minute, then stop and repeat the operation after another half minute, or until they make a steady hum, which will show that they have given up the desire to fight.

Then open the hive, smoke gently and you may lift the combs one after another.

Many people have kept bees but did not succeed on account of the wormmoth, but worms very rarely, if ever destroy a colony of bees in normal condition.—F. G. Herman in Gleanings.

HONEY GRADING

Rules adopted by the National Beekeepers' Association at Cincinnati February 13, 1915: Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case to be so nearly alike in these respects that any section shall be representative of the contents of the case.

Finish

Extra Fancy—Sections to be evenly filled, comb firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side.

Fancy—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white and not more than six unsealed cells on either side exclusive of the outside row.

No. 1—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells exclusive of the outside row.

No. 2—Comb not projecting beyond the box, attached to the sides not less than two-thirds of the way around and not more than 60 unsealed cells exclusive of the row adjacent to the box.

Color

On the basis of the honey, comb honey is to be classified as: First, white; second, light amber; third, amber; and fourth, dark.

Weight

Heavy—No section designated as heavy to weigh less than 14 ounces.

Medium—No section designated as medium to weigh less than 12 ounces.

Light—No section designated as light to weigh less than 10 ounces.

In describing honey, three words or symbols are to be used, the first being descriptive of the finish, the second of color and the third of weight. As for example; Fancy, white, heavy (F-W-H); No. 1, amber, medium (1-A-M), etc. In this way any of the possible combinations of finish, color and weight can be briefly described.

Cull Honey

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripended, sour, or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box, leaking, injured, or patched up sections; sections weighing less than ten ounces.

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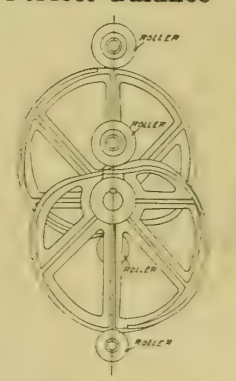

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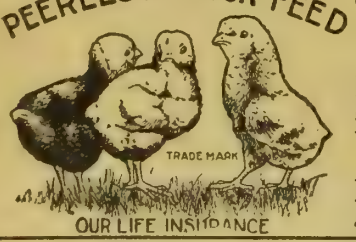

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Poultry for Profit

SOME FACTS ABOUT BLACKHEAD

Written for the California Cultivator
By Jean A. Koethen

TURKEYS ought to be more profitable in California than chickens or ducks. With our thousands of acres of dry hillside and our drier climate we have exactly the environment suited to turkeys, and there seems to be nothing lacking but the turkeys. Not that the turkeys are really lacking, either, for many thousands are raised and marketed at a profit every year, but every year thousands of little poults slip away from the hands that would most gladly feed them, and every year the wail goes up, as I heard it again and again from my neighbors last summer, "You can't raise turkeys." Well, I did raise nine out of eighteen hatched. Not a very good showing, but better than most folks do, and I am going to beat that this year.

Last year I stumbled, quite by accident, on one of the most important secrets of poult raising, and raised eiight out of ten of my second brood. Now I have been studying up the recent bulletins of the Rhode Island station, and they have not only confirmed me in my theory as to the secret of raising poults, but have given me a good deal of new light.

The Rhode Island station has done far more than any other experiment station in the investigation of blackhead. In fact it is as far as I know the only one that has given very much attention to this disease. It is commonly said, you know, that blackhead has killed off most of the turkeys of New England, so that the industry which was pointed to with pride a few years ago is no more. I had supposed till I read these bulletins that we had little, if any, blackhead on this coast, and that the disease that takes our young turkeys was a mysterious sort of "liver trouble." Since reading these I see no reason to doubt that the disease which has carried off my poults and those of my neighbors is the same disease which has decimated the flocks of the Atlantic coast. The name blackhead, which by the way is a misnomer for the heads of affected birds rarely turn black, has long been synonymous with "liver trouble," and the symptoms described in Bulletin 141 are precisely those of the disease which carried off my poults last year. "Blackhead," the bulletin says, "presents three symptoms which are invariable: first, diarrhoea at some stage of the disease; second a condition of increasing languor or stupor, together with isolation from companions in the flock; third loss of appetite and more or less prolonged emaciation."

Naturally the disease is most quickly fatal when it attacks very young birds. In these cases it appears within a few days after hatching as "white diarrhoea," and the poult dies after two or three days of stupor. So many more poults die at this age than later that it is often said that poults a month old are as good as raised. This is not true however for birds that are carelessly fed often develop the disease at two months or older. Between two and three months when they are feathering is rather a critical time in the life of poults. I lost two at this age last year with the same symptoms, a thin, yellowish diarrhoea, loss of appetite, with increasing stupor and emaciation. These birds lived a week or more, one of them I remember being almost a skeleton when it died.

According to Bulletin 141 the disease has also a chronic form which sometimes lasts for a year or more. Birds with this form of the disease often succumb when they are being fattened for market or when conditions are otherwise unfavorable. Besides the birds which are actually ill it sometimes happens that birds (they are more often chickens than turkeys) harbor the parasite which causes the disease, and without any sign of illness themselves scatter infection through their droppings. This is one of the most trying things about blackhead. You never know from what direction infection is coming.

But what is blackhead and why is it so particularly difficult to guard against? Here is the crux of the whole matter. It used to be supposed that the parasite which caused the disease was an amoeba, one of the lowest forms of animal life. Investigations at the Rhode Island station have proved that the parasite is not an amoeba, but a coccidium, and a coccidium, as is well known, is the same protozoan organism that causes a certain form of white diarrhoea in chicks, a disease called coccidiosis in goslings, and a similar disease which affects pigeons. In other words, instead of a special parasite which may be hunted down and destroyed by drugs or disinfectants, we have a parasite so generally distributed that detection is absolutely impossible. It may be harbored in the intestines of hens which are apparently perfectly healthy or scattered by pigeons, mice or even quail. In fact there is no knowing whether or not your premises are infected with these coccidia or any way of preventing infection for a moment, and these parasites while often harmless to fowls are death to turkeys.

Tells why chicks die
E. J. Reefer, the poultry expert of 905 Main St., Kansas City, Mo., is giving away free a valuable book entitled "White Diarrhoea and How to Cure It." This book contains scientific facts on white diarrhoea and tells how to prepare a simple home solution that cures this terrible disease over night and actually raises 98 per cent of every hatch. All poultry raisers should certainly write Mr. Reefer for one of these valuable FREE books.

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There you are! War with aeroplanes and biplanes is nothing compared to this coccidial infection.

But the Rhode Island station does not leave us here. After pointing out the utter impossibility of avoiding infection it gives one gleam of hope. These coccidia it seems may be taken into the intestines of the poult and still not be fatal if the bird is properly fed. In the words of Extension Bulletin No. 12, "The Feeding of Turkeys with special reference to Blackhead Disease," "One of the most important of the causes that predispose to blackhead is the clogging up of the alimentary tract, especially the ceca, with large amounts of hearty food materials. Such a condition, usually accompanied by malfermentations, lowers the resistance of the tissues and favors the development of the blackhead parasites which are always ready and waiting to begin their attack upon the inner walls of the intestines and ceca."

A PRACTICAL POULTRY BOOK

"Poultry for Profit" is a practical manual for the beginner, the farmer and the side-line poultryman, by Jean A. Koethen, published by the Cultivator Publishing Company, Los Angeles, at $1. Mrs. Koethen says in the opening sentences of the book: "This book is designed as a simple outline of the principles of poultry culture and a resume of the most up-to-date methods in use among practical poultrymen. There is no best method for any part of poultry work, but there are a few broad principles underlying all, which must be grasped by the learner who is seeking for best results."

During the past several months The Weekly Oregonian has printed many articles by Mrs. Koethen, all practical and of value. They have related her experiences and told of her experiments with fowls, and her advice to the men and women raising poultry on the farm has been of value to beginner and old hand. To be sure, her work has been in California, but a chicken is a chicken the world over, and her nature knows no boundary lines. The Weekly Oregonian takes pleasure in recommending this book to its readers, for it is "the right stuff," told in the right way by the right woman.—Portland Oregonian, of March 4, 1915.

Proper feeding according to this bulletin consists in feeding the proper amount of food and in feeding the right thing. This coincides absolutely with my experience last spring and is the "secret" I referred to. My first brood last spring was fed on the traditional hard-boiled egg and bread crumbs. It was placed before them, always with chopped green and grit mixed in, in a small dish, and they helped themselves ad libitum. In two weeks only two poults survived. The second brood was given five times a day a single teaspoon of the following mixture: I chopped together equal parts of young onion tops or lettuce and stale (very stale) cracked wheat bread, mixed one part of this with one part cottage cheese and added a pinch of grit, and after the first day a little sprinkling of steel-cut oats This made cottage cheese one-half and green stuff one-fourth of each meal. Listen to what Bulletin 12 has to say as to the amount fed to poults: "The advice has commonly been to give the young poults just as much as they

(Continued on Page 439)

to make the

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a
Profitable Business

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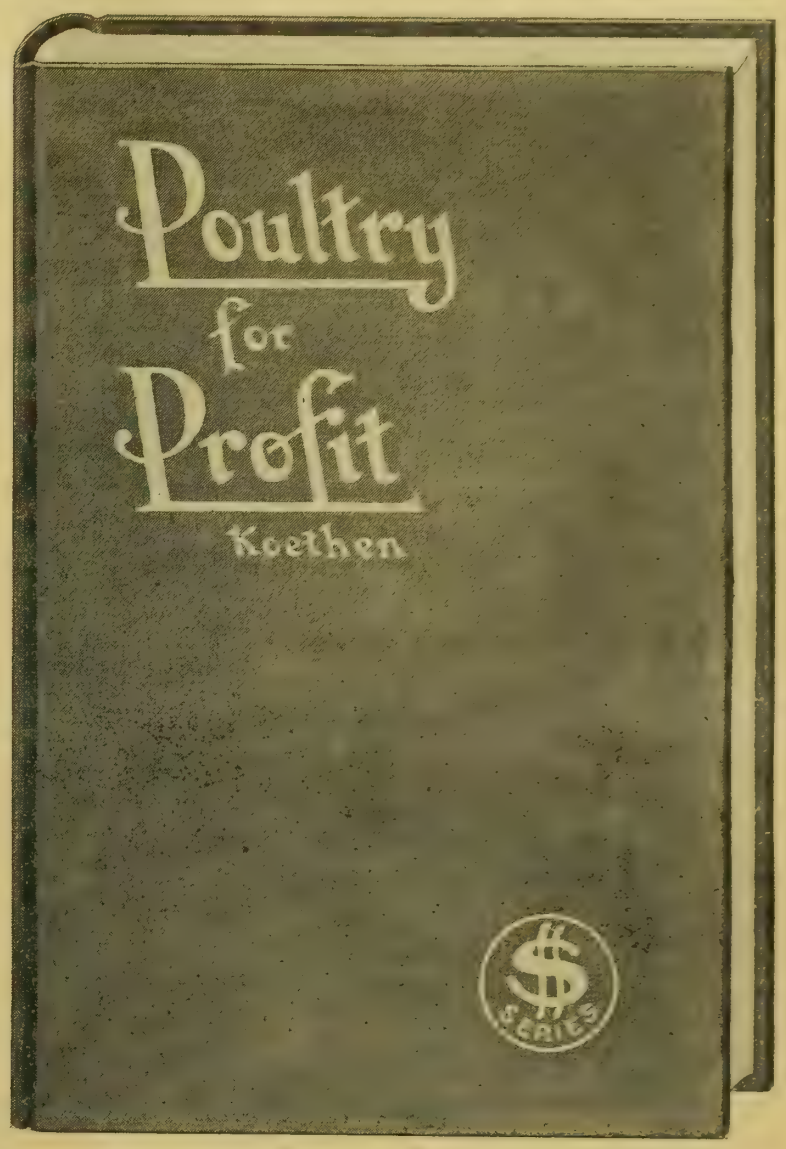

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The Walnut Nursery still has a few Eureka, Chase and Mayette grafts. Order quick. W. A. Litten, Prop., R. F. D. No. 2, Whittier, Cal. Home phone 7863.

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For Acacias, Avocados, Budded Loquats, Citrus trees, Evergreens, Feijoas, Palms, Roses and all kinds of trees, shrubs, vines, etc. Write for our new catalogue. Robertson Nurseries, Fullerton, Cal.

For Sale—Navel, Valencia and lemon trees, three-quarters inch and up, 20c loose root, 25c balled. Budded Avocados, 4 to 7 feet high. Address Box 54, Glendora, Cal.

Cactus and Trees—Cash Nurseries, Sebastopol, Cal.

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USED TANKS, PUMPS, ENGINES, WINDMILLS,
RANCH MACHINERY
SPECIAL PRICES ON
HAY MACHINERY THIS WEEK
Six mowers, 5 and 6 ft., $28 to $35, gears, bearings nearly new.
Champion Binder, $75; Header, $95; 3-Gang Disc, 15-in. Mouldboard Riding, 6-Gang Tractor Disc, Holt 60-h. p. Tractor, cost $4000, $750; Southwick Power Baler; Whitman Empress Baler; Mounted Hand Sprayer, tank and pump, $12; harrows, potato and beet machinery. Fan Mill, Corn Sheller, Power Ensilage Chopper; small ranch tools.
ENGINES, PUMPS, BOILERS
Eighty H. Boiler, Smith Valle steam engine 14x18 and Compressor 12x18, used less than one year. Pumps 300 inches, price $1000, cost $6000. Fine for mine, sawmill, pumping plant, nearly new. Sold account closing estate. Absolutely cheapest serviceable material can be produced for. Pioneers in our line. DEMMITT CO., UPSTAIRS, 120 N. Main, Los Angeles.

Gas Engines, centrifugal and deep well pumps, motors, and everything pertaining to irrigation, for sale and exchange. If you want a complete plant or any part write us; we are experts in irrigation; advice and estimates cheerfully given. Will buy, sell or exchange. Reliable and responsible, everything guaranteed as represented. Machinery & Motor Exchange, Inc., 733-735 San Fernando St., Los Angeles. Main 6382, F-3433.

We Carry—A complete line of irrigation machinery; consisting of engines, motors, pumps, clutch pullies, belting, well casing, etc. These goods are first class and guaranteed to be satisfactory. Our prices will interest you. Let us know your requirements. New or second-hand plants furnished. Commercial Iron Works, 497 Fifth street, San Francisco.

For Sale—Used and new gas engines, 2 H.P. up, rebuilt and fitted with modern equipment. 22 years' experience enables us to repair and rebuild gas engines correctly. Get our prices. Lloyd, 806 N. Main, Los Angeles.

6x6 Belt Driven, Double Acting Air Compressor—$65. Triplex boiler feed pump 3x6 belt driven, $75. Ballou's Nursery, Pasadena, Cal.

For Sale—Foos Distillate Engine, nearly new. Near Pasadena. Address Box 144, Altadena, Cal.

MISCELLANEOUS

Free for Six Months—My special offer to introduce my magazine "INVESTING FOR PROFIT." It is worth $10 a copy to anyone who has been getting poorer while the rich, richer. It demonstrates the REAL earning power of money, and shows how anyone, no matter how poor, CAN acquire riches. INVESTING FOR PROFIT is the only progressive financial journal published. It shows how $100 grows to $2200. Write NOW and I'll send it six months free. H. L. Barber, 430, 28 W. Jackson Blvd., Chicago.

Free Illustrated Book tells of about 300,000 protected positions in U. S. service. Thousands of vacancies every year. There is a big chance here for you, sure and generous pay, lifetime employment. Just ask for booklet S-85. No obligation. Earl Hopkins, Washington, D. C.

For Rent—In San Joaquin County, 25 acres, 10 in alfalfa with pumping plant. No buildings. To a reliable man I will give this rent free for work in his spare time. Must have his own team with implements, etc. Box 142, Oakland, Cal.

"Smith's Pay the Freight"—To reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St., San Francisco.

HORTICULTURAL PRINTING

Catalogues for the seed and nursery trade. The live stock and poultry industries are a specialty with us. Two thousand illustrations to select from. Write for prices and samples. The Kruckeberg Press, 237 Franklin St., Los Angeles.

SCHOOLS AND COLLEGES

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POULTRY

Baby Chicks—As good as the best regardless of price, for April, May, June. White Leghorn, $8.00 per 100; $76 per 1000. Brown Leghorn, $10.00 per 100; $95 per 1000. Leghorn chicks shipped each week. Book to order. R. I. Red, Barred Rocks, Buff and White Orpingtons, Black Minorcas, White Wyandottes; 50% deposit, balance C. O. D., and chicks must be first class or we will refund deposit on return of chicks. Hawkeye Hatchery, Turlock, Cal.

At Five California Shows I won 112 firsts, 55 seconds, four times best bird in show and many specials. Utility and show stock. Eggs and chicks of Black, Buff and White Orpingtons, Rose and S. C. Reds, White and Blue Leghorns, Silver Campines, Anconas, Salmon Faverolles, Polish and Cornish Games. Free mating list. Holman Poultry Farm, Stockton, Cal.

White Plymouth Rock Incubator Chicks—Also White, Brown and Buff Leghorn and Black Minorca, all from Standard bred Exhibition Stock, and Hoganized. Place your orders now for April delivery. Send for Booklet of prices. Mahajo Farm, P. O. Box 597, Sacramento, Cal. Hatchings from mature stock only—22,000 Incubator capacity.

Administrator's Auction Sale—At Pasadena, corner Grand avenue and Columbia street, Saturday, April 10th, 10 a. m. A large variety of farm implements, chicken houses, incubators, brooders, bone mills, fencing, lumber, etc. For list of property, call or write A. Phillips, administrator, 472 P. E. Bldg., Los Angeles, Cal.

COSACO FUMIGATING NEST EGGS
Guaranteed to exterminate all lice, etc., in the nest, and on the hen. Will retain strength for months. Less trouble than Liquids or Powders. 10c each, $1.00 per dozen postpaid. Don't send stamps. I. H. Caister, 1309 Dewey Ave., Los Angeles.

Poultry Wanted — We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. National Poultry Co., successors to Allaway & Layton Co., 607 E. Third St., Los Angeles, Cal.

Baby Chicks—Rhode Island Reds and White Leghorns. My guarantee safe arrival, full count, strong, vigorous; fine bred chicks, Leghorns, $9.00 per 100. Will lay in five months. Reds, $11.00 per 100. Will lay in six months. J. W. Lyon, Gardena, Cal.

Chicks! Chicks! Chicks!—No money down, terms C. O. D. Select Leghorns $8; Minorcas $12; R. I. Reds $12; Barred Rocks $12.50; Buff Leghorns $12. No less than 100 shipped. Can ship large numbers. Write C. A. Darwin, 709 S. Main, Los Angeles, Cal.

Barred Plymouth Rocks—Winners at New York and California's leading shows. Laying strain unequalled. Eggs for hatching from seventeen Champion matings. Eighteen years breeding Barred Rocks exclusively. Write for catalogue. C. H. Vodden, Los Gatos, Cal.

MacFarland Strain White Leghorn eggs, $1.50 per 15, $5.00 per 100; chicks, $10.00 per 100 from our thousands of heavy layers. Order now, any quantity. Big plant, lowest prices, best stock. Newton Poultry Farm, Dept. 3, Los Gatos, Cal.

Eggs—Ancona, R. I. Reds, Black Minorca, $1.50 per 15. Mammoth Bronze Turkey eggs, 20c. Chicks, 15c. White Rock Rooster, $3.00. Partridge Rock, $3.00. Pullets, $1.50. Mrs. W. L. Duvall, Franklin Ave., Pomona, Cal.

Eggs and Chicks from prize winning birds, Golden Buff Orpington and Barred Plymouth Rocks. Excellent winter layers at reduced prices. K. L. Kirby, Oakdale Poultry Farm, R. D. No. 2, Watsonville, Cal.

S. C. White Leghorn Baby Chicks and Hatching Eggs that are Top Notch. Write for particulars. Prices reasonable. Ten years in business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

Selected Setting Eggs from excellent strains of ducks, hens, and turkeys. Leading breeds. Some of our ducks lay twice daily. Write now for special prices. Black Bros., 455 Lucas, Los Angeles.

Petaluma Hatchery—The one that's different. We challenge the hen, or anybody else. Don't compare prices, compare quality. Circular free. L. W. Clark, Petaluma, Cal.

Revanew Strain—White Wyandotte eggs, $3.00 for 15, from prize winning stock; 221 pen average, chicks, 25c. Mrs. W. L. Duvall, Franklin Ave., Pomona, Cal.

Rhode Island Reds—Great laying strain, baby chicks; reduced prices for rest of season. Rainescourt Poultry Ranch, Zelzah, Cal.

Baby Chicks—If looking for the best—get Golden Buff Leghorns or White Minorcas. Sandridge Hatchery, Kerman, Cal.

Barred Rocks—Only eggs for hatching, $5.00 per 100; chicks, $12.00 per 100 in April. Send for circular. G. L. Hawley, Madera, Cal.

Goodacre Blue Ribbon Strain of heavy layers. Send for 1915 catalogue. Twelve First prizes at Los Angeles show, Jan., 1915. Goodacre Bros., Compton, Cal.

For Sale—Cornish Indian Game eggs from a few choice birds, $1.00 per setting. C. G. Wright, Kerman, Cal.

Pit Games—A few choice specimens for sale. Write for prices. Delivered your station. O. L. Crane, R. D. 3, Santa Rosa, Cal.

White Wyandottes—White Rocks, cockerels, $2.50; eggs, $2-15; $7-100. Ramona Farm, Box 1361, R. D., Sacramento, Cal.

For Sale—Barred Rock Cockerels, also Barred Rock, R. I. Red, Anconas, Buff and White Orpington chix. Enoch Crews, Santa Cruz, Cal.

POULTRY

Just Out—The Cultivator Poultry Book, "Poultry for Profit," by Jean A. Koethen. Published by the Cultivator Publishing Co. Highly endorsed by experts. Over 200 pages, 50 illustrations. Contains simple methods of avoiding and overcoming difficulties. A guide to poultry success under Western conditions—it tells what to do, why to do it, and how to do it. Nicely bound in cloth. Price $1.00 postpaid, or with Cultivator one year, $1.75. Send orders to Cultivator Publishing Co., 115-117 North Broadway, Los Angeles, Cal.

Ancona Eggs—Select stock, $1.50 per 15, $6 per 100. Baby chicks 15c each. Mammoth Pekin Duck Eggs, $1 per 12, $6 per 100. Baby ducks 20c each, $17.50 per 100. J. P. Clough, 3980 Peralta Ave., Fruitvale, Cal.

Day-Old Chicks—From healthy, vigorous, heavy-laying, free range stock of S. C. White Leghorns. Price $7.00 per hundred. H. P. Hansen, R. 4, Box 177, Petaluma, Cal.

Selected Single Comb White Leghorn eggs for hatching that will improve your flock. All hens 220-egg type. $1.50 per fifteen eggs; $8.00 per 100. Jay Maxwell, Madera, Cal.

Barred Rock Eggs from Wagner strain; first-prize winners $1.00 per 15; cockerel mated pen $2.50. Roselle Jelly Plant seeds 10c per package. Mrs. C. A. Richey, R. 8, Box 557, Los Angeles.

Safety First — Feed your baby chicks Croley's Dry Mixed Chick Feeds manufactured by Geo. H. Croley Co. Inc., 631-637 Brannan St., San Francisco, Cal.

Baby Chicks (White Leghorns)—Shipped on approval. Examine at your home before remitting. No weak ones charged for. Schellville Hatchery, Sonoma, Cal.

Hatching Eggs—Hoganized S. C. White Leghorns four dollars hundred, thirty-five thousand. Chicks $9 per 100. D. Clayton, R. 2, Modesto, Cal.

Pheasants—Ringneck and Golden. Eggs for hatching. T. D. Morris, Agua Caliente, Cal.

TURKEYS

Bourbon Red, White Holland, Mammoth Black and the new Blue (Slate). In separate wire-covered yards. Range alternately. Eggs 40c each; 4.00 per dozen. Won 1st old males in all 4 varieties at Los Angeles show, 1915; also 1st hens in Hollands and Blacks, 2nd Bourbons and Blues. Mrs. B. Hocking, Guasti, Cal. 1st prize-winner past 5 years.

Buff Orpingtons, Bourbon Red Turkeys, Buff Orpington Ducks. Blue ribbon winners in all varieties. Breeding males; eggs; baby stock from mature, hen-brooded, range raised birds. Baby ducks at any time. Baby turkeys on order in May and June. Mating list. Ferris Poultry Ranch, S. Reservoir St., Pomona, Cal.

Stearns' Turkeys—Won 19 first prizes at Los Angeles in January—more than all other turkey entries put together. Bronze, Black and White Holland eggs, $3 to $5 a dozen; Buff and Narragansett, $4; Blue and Bourbon Red, $5. M. M. Stearns, Claremont, Cal.

Mammoth White Holland Turkeys—A few fine toms for sale. Also eggs in season from two very select pens. Orders given prompt attention. Prices on application. Address H. McKusick, Box 733, Calexico, Imperial County, Cal.

Turkey Eggs—From the largest and best flock of MAMMOTH BRONZE TURKEYS in the world. Can fill orders from ten to one thousand eggs. Write for special prices. Geo. A. Smith, Corcoran, Cal.

For Sale—Bourbon Red turkeys and eggs for hatching. My birds won all the honors in the Alameda County Poultry Exhibition in Oakland, 1914. A. E. Balmer, Alhambra Valley, Martinez, Cal.

Giant Bronze Turkey Eggs—For hatching from extra choice prize winning stock. Mrs. Nellie Hart, Holtville, Cal.

SEEDS AND PLANTS

SUDAN GRASS SEED
recleaned, inspected by Superintendent State Experimental Farm. FREE FROM JOHNSON GRASS, 25c per pound, in any quantity, f.o.b. Lubbock, Texas. Full instructions when and how to plant, cultivate and harvest, sent free with each order. Standard Sudan Seed Co., Lubbock, Texas.

For Sale — Non-irrigated, San Fernando Valley Grown Seeds. Black Seeded Chilean and Angeleno Melon, 80c per lb.; Improved Hybrid, Golden Beauty and Pineapple Casaba, $1.50 per lb. First class seeds direct from the grower. M. C. Sutton, Van Nuys, Cal.

$udan Grass $eed—Write for 15-day special on this wonderful forage. Seeds and plants, all kinds. Special prices, apple and pear trees. Giant Winter Rhubarb and Spineless Cactus. Black Bros.' Nursery, 455 Lucas, Los Angeles.

Spineless Cactus—Strictly first class. Very reasonable prices. The real thing—not slabs with the spines brushed off. You can save money by writing to me. Nick Kass, Lincoln, Cal.

Sweet Potato Plants—Three best varieties, Early Red, Yellow Jerseys, Texas Pumpkin Yams. 25c the hundred F. O. B. Express at Hemet, Cal. D. L. Threewit, Hemet, Cal.

Berry Plants, Rhubarb, Cacti—It will be worth your while to send me a postal right now if you are interested. Louis F. Scribner, P. 2, Pasadena, Cal.

For Sale—Genuine Luther Burbank Spineless cactus, per thousand, $150.00. Orders received now. Oscar Maurer, Del Mar, San Diego County, Cal.

Feterita Corn Seed—The corn that puts the Du in Duroc, the Po in Poland, the Ber in Berkshire Hogs. For sale by John P. Daggs, Modesto, Cal.

Spineless Cactus—10c. Be sure and investigate this fast growing strain before buying. Slabs now ready for planting. Karl S. Bailey, Taft, Cal.

Burbank Spineless Cactus—All the best varieties for forage and fruit. Guaranteed. Send for catalog and price list. G. D. Cummings, Los Altos, Cal.

Attention Dairymen—Plant Sorghum for green feed or ensilage. Seed for sale in lots to suit. A. L. Sayre, Madera, Cal.

Pure Sudan Seed—Any quantity, 20 cents per pound. Money to accompany orders. F. M. Grundy, Lubbock, Texas.

LIVE STOCK

Ohio Improved Chester White (O. I. C.)—Entire herd immunized against hog cholera. Nothing but immunized stock sent out. Extra fine lot of fall pigs, both sexes, ready for shipment during February and March. Three herd boars used. All stock crated and registered. Make reservations now. C. B. Cunningham, Mills, Sacramento Co., Cal.

Pure Bred Duroc Jersey Boars—Raised by Peters and Lamson of Imperial Valley are offered for sale by B. D. Forbes and can be seen at the V. D. Reductions Companies ranch, Durbin station near Covina, or enquire at the office of the company, 722 San Fernando Bldg., Los Angeles. Cholera Immune.

Hogs—Forty head of BIG TYPE POLAND CHINA boars of any age. Sired by IOWA WONDER, who is a son of A WONDER, the greatest hog living or dead. No females to sell at present. On account of large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

For Sale—Registered Duroc boars and sows. Boars ready for service. Pigs, 2 litters of 15. Strong ones. The breeding is back of this lot, so send for prices. Also pure blood Rose Comb Golden Partridge Wyandotte eggs, $3.00—15. No prettier or better bird to be found. Ohio stock. C. H. Shively, Chino, Cal.

For Sale—Registered Tamworth swine—boars, sows and gilts of this famous bacon hog. This breed commands a premium on the market. Our original sows from the University Farm at Davis. Sweetwater Fruit Company, Bonita, San Diego County, Cal.

Blue Ribbon Herd Duroc-Jersey Hogs—Bred Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 firsts, 13 seconds, 6 thirds, 7 fourths, 1 fifth. Will show 1915. For prices, write Jno. P. Daggs, Modesto, Cal.

Grape Wild Farm Thoroughbreds—Guernsey Bulls of A. R. Breeding. BERKSHIRE HOGS. Finest herd in the state. All ages for sale. A. B. Humphrey, proprietor. Mayhews, Sacramento Co., California.

For Sale—One pure bred Guernsey bull. He is of the Langwater family. Four years old. For further information, inquire of Dr. D. J. Turner, of Gridley, Cal.

For Sale—Registered. Berkshires:. 25 choice pigs of best breeding from the best strains in America. For prices and description address H. L. Murphy, Perkins, Sacramento Co., Cal.

Blatchford's Pig Meal weans pigs easily and safely; no trouble; no milk. Write for free folder, "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

For Sale—At all times, Jacks and Stallions, driving and saddle horses. Price and stock guaranteed. Phillips and Kingsbury, 1112 T Street, Sacramento.

Red Rock Ranch, Glen Ellen, Cal.—High-class Duroc Jersey hogs. Specialty registered pigs at weaning time. If interested write.

Berkshires—Pedigreed Boars ready for service. Bred sows, weanling pigs, both grade and thoroughbred, finest stock. C. H. Thompson, Novato, Cal.

Registered Berkshire Boars—Of all ages—one farrowed December 1, 1914—$15.00. Riccomi Bros., Mountain View, Cal.

Saanen Grade Swiss Goats—About 80 high grade to select from. Henry Siemer, 1213 W. 5th street, Los Angeles.

Berkshires Registered—Young stock for sale at $10 each from fine blood. G. A. Casey, Box 7, King Road, San Jose.

Poland Chinas—Young stock; either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

Glenview Poland China—Stock for sale. Chas R. Hanna, R. F. D. No. 3, Riverside, Cal.

N. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale.

MOTORCYCLES

Order Your Motorcycle accessories and motorcycle parts direct by parcel post and save money, as we carry a complete stock, spring tandems, tires of all makes, lamps in all sizes, horns, and everything pertaining to motorcycle accessories, we have it. Also a fine selection of used motorcycles, consisting of the following makes: Excelsior, Indian, Thor, Harley and many other makes. We pay the freight on any motorcycle you buy from us. Write for a price list. Fred H. Bente, mgr. Excelsior Agency, 1550 Market St., San Francisco, Cal.

WANTED

Wanted—Responsible representative in each county. New Combination, 12 tools in 1. Sells at sight to farmers, teamsters, contractors, etc. Weight 24 pounds. Lifts 3 tons, hoists, stretches wire, pulls posts. Many other uses. Free sample to active agents. Easy work. Big profits. One agent's profit $45.50 in one day. Another $1000 in Dec., 1914. We start you. Write today for Big Color Plate. Quick action secures exclusive sale. Harrah Mfg. Co., Box M, Bloomfield, Ind.

We have parties that want farms and ranches improved and unimproved. If you want to sell or exchange your place list your property with us at once for quick results. Write for listing blank and other information. John E. Drendel Company, Inc., 212 Hearst Bldg., San Francisco.

Wanted—To hear from owner of good farm or unimproved land for sale. H. L. Downing, 105 Palace Bldg., Minneapolis, Minn.

Wanted—To hear from owner of good farm or acreage for sale or exchange. C. C. Buckingham, Houston, Tex.

Wanted—To hear from owner of farm or fruit ranch for sale. O. O. Mattson, Minneapolis, Minn.

RABBITS

Leading Rabbitry in America—Flemish Giants a specialty. Prize winning and heavy weight stock. Scored and sold on their merits. Inquiry and inspection solicited. Catalogue on request. Empire Rabbitry, Empire, Cal.

Richey Reds are beauties; won 19 ribbons in one year. Fine bucks for sale and young stock reasonable. Mrs. C. A. Richey, R. 8, Box 557, Los Angeles.

FARM LANDS FOR SALE

For Sale—By owner, 40 acres heavy loam now in alfalfa, also suitable for any kind of fruit, 1½ miles from town of 1000 population, three depots within three miles. Pumping plant on this place which develops 65 inches of water. Can be irrigated from canal. Ground all level. Small house and barn. Plenty of shade trees. Price, $7,000, $4,000 down, balance five years' time. Will sell East 20 or West 20. Melvin T. Crew, R. F. D. No. 2, Box 85, Orosi, Tulare County, Cal.

VICTORIA, AUSTRALIA, WANTS SETTLERS

Special inducements; government land, railways, free schools; cheap irrigation; 31 years to pay for farms adapted to alfalfa, corn, grains, fruit, etc.; climate like California; ample markets; reduced passages; special excursion being arranged. Free particulars from F. T. A. Fricke, Government Representative from Victoria, 687 Market St., San Francisco, Cal., Box X.

For Sale—16-acre apricot orchard, trees mostly two years old. Soil a fertile, sandy loam, not steep, no frosts or winds; small house; good spring. Situated one and one-half miles from town on County road. Price $3500.00. Terms $1500.00 cash, balance long time and easy payments. No exchange. Direct communications to J. J. B., Rural Route No. 2, Watsonville, Cal.

For Sale—20 acres, Yolo County. Near State Farm at Davis. I will furnish alfalfa, beans and corn seed, also necessary farm implements. Plant now for the season's crop. See alfalfa and berries growing on the land. Dudley Moulton, 12th Floor First Nat'l Bank Bldg., San Francisco, Cal.

250 Acres Near Sonoma City, large portion level (now in crop), balance rolling, fine pasture, some wood, well, never failing spring, etc. This is a particularly good location (42 miles from S. F.) for a whole milk dairy. Price, $13,500. Terms, $1,500 cash, balance in six years. R. C. Waller, 625 Market St., San Francisco.

California Land—Money making little farms, high class, low priced properties in all counties; first mortgage loan on farms bearing 7 to 9 per cent. Call or write the oldest land office in California. C. M. Wooster Co., 303 Phelan Bldg., San Francisco.

County Sectional Maps—Showing vacant government land, $2.50 any county. VERY PLAIN. Easy to see and select your choice. Booklet and circulars FREE. Write Joseph Clark, Searcher of State and U. S. Records, Sacramento.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

For Sale—Orange, olive, peach and rice land. Close in, on good terms. Fred Hart, Exeter.

Free—Brand new list of Santa Cruz Ranch Bargains. Wilson Bros., Santa Cruz, Cal.

BEES AND HONEY

Beekeeping—Instruction book free—explains honey productions, profits, prices, supplies, bees and management without stings. Spencer Apiaries, Iris Avenue, Nordoff, Cal.

BLACKHEAD

(Continued from Page 437)

will clean up at one time. As a matter of fact this is entirely too much. It is very much better to find out how much the birds clean up and then plan to give them half this amount or even less. It can no longer be doubted that in blackhead of turkeys the causes which predispose to the disease are from one point of view more important than the actual existing causes in the form of the parasites themselves."

I have never succeeded in raising poults without cottage cheese, and here again I am supported by the bulletin which says:

"In the second place, without introducing all the evidence upon which the conclusion rests, it may be said that the presence of certain acids has been found to inhibit the development of the blackhead parasites. To make use of this point is to feed the young birds liberally with some acid-containing food such as sour milk containing a maximum amount of lactic acid. Aside from the mere acid properties it also seems probable that the bacteria of the sour milk exert some prophylactic action in the intestinal tract. This procedure has been employed to such an extent in the experimental work of the station and with such favorable results that we feel no hesitancy in recommending the feeding of large amounts of sour milk to all young poults."

In several experiments poults were fed for weeks at a time on nothing but soured milk and green stuff, about equal parts by weight, and they developed normally in size and weight, from which the experts at the station conclude that these two articles are the only things of which poults may be permitted to eat their fill.

The milk used at the Rhode Island station is not secured in the usual way, but there is added to the sweet milk a foreign bacterium which was isolated by Metchnikoff from the sour milk drinks of the Bulgarian peasants. This bacterium bulgaricum produces in the milk a much higher degree of acidity than is found in milk soured in the ordinary way and is said to have particularly good results when used for poults. It is prepared in tablet form and although rather expensive would probably be worth while where turkeys are raised on a large scale.

The Rhode Island turkey feeding schedule is as follows: No food is given for 48 hours. At the beginning of the third day chopped eggs (including shell) are given at a rate of four grams per bird per day. This amount is gradually increased to the end of the first week, then decreased to the end of the second week, when egg feeding is discontinued. Other feeds are added gradually. For instance, on the fourth day green food is given and continued in ever increasing amounts. On the fifth day rolled oats are added, to be discontinued at the end of the third week. Beginning on the ninth day is given a mash consisting of six parts corn meal, four parts wheat bran, two parts middlings, two parts granulated milk, one part linseed meal. Sour milk feeding begins by the first of the third week, preferably earlier. The mixed grain ration also begins with the third week and continues till the seventeenth week.

The only drug which these bulletins recommend is formidine, which is used in the mash at the rate of from one to two grains per bird per day from the fourth week to the thirteenth. This is an intestinal antiseptic, and to quote the rather careful words of Bulletin 12 "has given some indications of producing good results."

Of course it must always be remembered in planning to raise turkeys that the coccidia which are the exciting cause of blackhead are likely to be found among the droppings in any barn-yard or wherever chickens run. They may it is true be carried by other birds and animals, but they are almost certain to be where hens have been, hence the extreme importance of keeping turkeys away from chickens. The ground on which turkeys are kept should be as fresh as possible and should be changed every year or two unless the range is very large. When we consider how universal is the custom of allowing turkeys and chickens to run together it is easy to see how blackhead has destroyed the turkey industry in the older parts of the country and how it will destroy it here unless turkeys are kept by themselves.

DUCK OF A ROOSTER

Mrs. G. A. Webb of Escondido writes regarding an episode which shows the advantage of perseverance and grit. During the winter floods a big Rhode Island Red rooster nine months old swam the swollen Santa Maria creek twice at a time when it was more than 100 feet wide. As he was carried far down the stream in his trip he probably covered a distance of more than 200 feet going and coming. He nearly made the opposite shore, landing on a partially submerged barb wire fence. It seemed to look too discouraging to continue the trip so he returned to the home side, a total swim of some 300 or 400 feet. He was rather exhausted but a bit of stimulant soon retored him to normal crowing condition. The question is, "Was he a duck or a goose of a rooster?"

SPECIAL PEN SHOW

The Poultry Breeders Association of Southern California is mailing its announcement and official premium list of a Special Pen Show to be held at 409 So. Hill Street, Los Angeles, April 15-17. The association offers a first, second and third ribbon on pens of each and every breed and variety of fowls exhibited.

Classes are provided for every breed and every variety of that breed named in the American Standard of Perfection for Poultry, latest edition published by the American Poultry Association, of which national organization this association is a member. The secretary is Walter M. Ross, 224 West Colorado Street, Glendale.

Save Your Chicks From Lice

Called "Instant" because it kills instantly.

Chicks can't get the right start in life if they are pestered with lice. These parasites inflict constant torment on chicks, keeping their vitality in a low state.

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destroys lice on poultry. Use it liberally on lousy hogs—it will rid them of lice quickly. It is equally good for horses, cows and other farm stock. Sold in sifting-top cans. Guaranteed. West of Rockies: 1 lb. 25c; 3 lbs. 60c. If not at your dealer's, write us.

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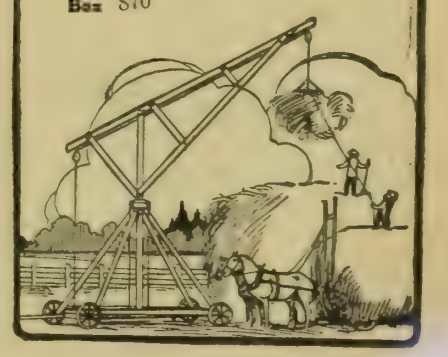
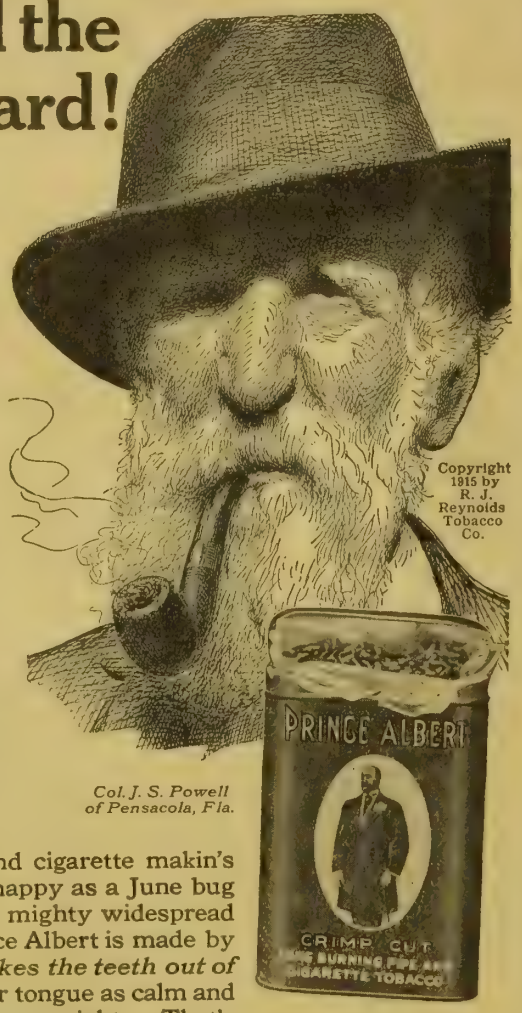
Davis, California

Box 870



Old-time jimmy-pipers rally round the P.A. standard!

Col. J. S. Powell of Pensacola, Fla., 95 years old, and nephew of William Henry Harrison, the ninth President of the United States, has just been elected to the "old-time jimmy-pipers" club. Col. Powell has smoked for 85 years, breaking into harness as a ten-year-old. We will be glad to receive pictures of old-time smokers.



Col. J. S. Powell of Pensacola, Fla.

Now, everybody sit around close:

Any farmer along the friendly road will tell you never to judge the depth of a well from the length of its pump-handle. Just like it's back-shuffling cards to choose your tobacco from *the looks of the package!*

Pick P. A. for pipe joy and cigarette makin's joy, and you'll be just as happy as a June bug in an apple tree. For it's mighty widespread news nowadays that Prince Albert is made by a patented process that *takes the teeth out of the smoke* and leaves your tongue as calm and peaceful as a harvest-moon night. That's *jimmy-pipe joy* that comes via

PRINCE ALBERT

the national joy smoke

While the spring's young, tune up that old jimmy-pipe and bud-out into a real and true pipe smoker. Sure enough, you'll be in full bloom before the day is done, if you'll smoke P. A. For there's no more teeth in it than in a mocking bird's tune box. *And let that drift into your system!*

Buy P. A. in toppy red bags, 5c; tidy red tins, 10c; pound and half-pound tin humidors—and that classy crystal-glass pound humidor with the sponge in the top that keeps P. A. so good.

R. J. REYNOLDS TOBACCO COMPANY, Winston-Salem, N. C.

INSURE YOUR SEED

Get a "catch", a good stand, and a big yield of **ALFALFA, BEANS, Peas, Vetch, and *all other Legumes*** — inoculate with

The Improved German Soil Inoculator, Nobbe-Hiltner Process

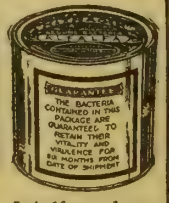
NITRAGIN

TRADE MARK REG'D DEC. 5, 1905 NO. 32202

PURE CULTURE

Gold Medal St. Louis 1904

THE SIMPLEST SAFEST AND SUREST SYSTEM OF SOIL INOCULATION FOR ALL LEGUMES



In half-acre, 1-acre and 5-acre cans

"NITRAGIN" is the ***original*** Pure Culture—***a granular*** medium (***not*** a jelly)—nothing to break or spill—packed in a ventilated can, containing millions of surfaces, supporting billions of nitrogen-gathering germs, their health, strength and virility

Guaranteed for Six Months by the Armour Fertilizer Works.

Absolutely harmless. Easy to use. An investment—not an expense. Remember—legumes not inoculated take ***no*** nitrogen from the air. Inoculated legumes mean bigger yields, richer feeding value, better soil. Pure Culture inoculation is endorsed by the U. S. Dept. of Agriculture and other authorities. Thousands of satisfied California ranchers testify to the wonderful results obtained with "NITRAGIN" — the *Original* Pure Culture.

Avoid Imitations. LOOK FOR THE ARMOUR OVAL LABEL.

Make your crop sure. Inoculate with "NITRAGIN". It can be obtained for ***any*** legume.

See your seed dealer or write for *free booklet.*

ARMOUR FERTILIZER WORKS, Dept. 13 Los Angeles, Calif.

THE LARGEST RETURNS FOR YOUR MONEY

proved by actual experience, are produced by NITRATE OF SODA; because Nitrate is always needed in our soils.

Send five cents for postage on free books, and state what crops you are growing.

NITRATE AGENCIES COMPANY

W. S. SPEAR, Agent 321 Stimson Bldg., Los Angeles, Cal.

Farm Bureaus

Madera County, Thos. C. Mayhew, Adviser, Madera

Fairmead, April 9.
Eastin, April 14.
Raymond, April 19.
Nipinnawassee, April 21.
Oakhurst, April 23.
Coarse Gold, April 26.
North Fork, April 28.

Cochise and Santa Cruz Counties, Arizona, A. L. Paschall, Adviser, San Simon

St. David, April 8.
Benson, April 9.
San Simon, April 10-13.
Bowie, April 14-15.
Willcox—Mt. View, April 16.
Cochise, Auril 17.
Meeting of farmers at Double-Adobe school house, between Douglas and McNeal, April 18.
In same locality, April 19.
McNeal region, April 20.
"Texas Day" at McNeal, April 21.
Whitewater, April 22.
Light, April 23.
Kansas school locality, April 24.
Willcox and McAllister localities, April 25-27.
Bowie, April 28-29.
San Simon, April 30.

Maricopa County, Arizona, J. A. Armstrong, Adviser, Phoenix

Mr. Armstrong is just taking up his farm adviser work in Maricopa County. He writes: "April 15-24 Prof. G. W. Barnes, live stock specialist, and myself will try to form Cow Testing Association."

He is advising farmers that now is the time to poison ants.

"This is the best time of the whole year to poison harvester ants. The large, red harvester ants of this vicinity, especially, and the smaller black harvester ants to a lesser degree are accredited with $50,000 annual damage to the crop, according to estimates prepared by State Entomologist A. W. Morrill.

"These ants may best be destroyed by the use of London purple at this time of the year before the colonies have had time to multiply since coming out of their winter quarters.

"The poison is applied by making a small ring around each ant hole so that the worker ants must cross it and track it into their underground burrows, thus poisoning their food supplies stored there. It will be necessary to repeat this treatment from three to five times before they will be completely exterminated. This is true because certain influences such as irrigation water, winds, animals, etc., may scatter the poison in such a way that the ants will not come in contact with it. The younger generations replace the older ones and extend their underground galleries in such a way that they are not affected by the poison in the old ones. Ants also have been known to avoid the poisoned food and even in one case to carry a part of it out. For these reasons success will only follow careful and persistent work."

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.
Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Power Line

An electric company put poles across land in the absence of and without permission of owner. Line was installed in May, 1913. Would like to know how soon action must be taken against the company and if the owner can compel it to remove certain poles and collect damages for the remaining ones?—Subscriber, Suisun.

The statute of limitations covering easements upon real property provides that an action may be brought thereon at any time within five years. An action however to collect damages would probably suffer from delay.

Commission on Sale

A leases land from B. The lease runs three years. B agrees that A can have the privilege of buying the land (for an agreed sum), before the end of the three years. The real estate agent that brought the renter receives each month from owner five per cent of the rent. Can the agent also claim a commission on the sale of the land, providing A concludes to buy it?—Subscriber, Escondido.

To entitle a real estate agent to collect a commission for the sale of land his authority therefor must be in writing signed by the party whom he seeks to charge or the duly authorized agent of such party. If the agent has only such authority as empowered him to rent the property he could not collect for the sale.

JOE, THE BOOK FARMER

"Joe, The Book Farmer, Making Good on the Land," by Garrard Harris, Harper Brothers, New York, $1.00 net.

"Aw, 'tain't no use, a poor man ain't got no chance in this danged country. If I had enough money to move on I'd go to Oklahomy."

The above is the opening remark of a shiftless, no 'count Southern cotton raiser in "Joe, the Book Farmer." Each year found him still in debt to the storekeeper after his year's crop was harvested. The storekeeper endeavored to get him to diversify and put more modern methods into his farming. Referring to the soil in that particular section the shrewd merchant remarks: "You're dead wrong there, Tom. There's more in the man than there is in the land. The trouble is with you, Tom, not the country or the land. You are just too lazy to learn improved methods—and you are no different in that respect from thousands of other farmers in this country. You won't learn anything." Finally he arranges with the farmer to turn over four acres to his son, a youngster in his teens. At the same time the storekeeper buys the freedom of the minor for one year for $100 and turns him loose on the four acres. He buys for the boy a book touching upon the elements of agriculture and encourages him in taking up a course of study.

The author then proceeds to give details of the boy's work for the year. Of course it goes without saying that he makes a success of his four acres. In state contests of boys' clubs he wins much in prizes and scholarships and possibly succeeds beyond what the average boy would have done, but the tone of the book is right, it is good reading for the boys of the farm and shows how difficulties may be overcome. While it applies to but few sections in California so far as its immediate cultural references are concerned, yet it is well worth putting in the hands of every boy farmer. The book contains 29 chapters with several illustrations.

Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Fly Repellent

Please give formula for making fly oil or fluid with which cows are sprayed to repel flies.—Subscriber, Rio Bravo.

There are many such repellents sold ready to apply. We believe all are good. Where one wishes to make his own the following formula has been recommended: Resin, one and a half pounds; common soap, two cakes; fish oil, one-half pint, and water, three gallons. Dissolve the resin in one gallon of water, and soap cut fine. When dissolved add the fish oil and the remainder of the water. Stir thoroughly before using. Apply with syringe or brush. This is an excellent fly repellent, cheap and effective.

Another, recommended by C. C. Lipp, Veterinary Division, Minnesota Agricultural College, is: Coal tar dip, any kind, one pint; one-quarter bar ordinary laundry soap; one pint oil—fish, linseed or kerosene; 15 pints hot water. This should be mixed thoroughly to form an emulsion, and should be applied as a thin coat by a brush or spray.

We quote recommendations of the United States department of agriculture as follows:

In general, the conclusions are that many of the substances, such as pyrethrum powder, camphor, citronella, and sassafras, while temporary repellents, lose their effectiveness very shortly. Ten per cent solutions of the liquids in cottonseed oil, therefore, commonly have to be applied daily.

Various oils, emulsions of oils, and mixtures of oils are used in repelling flies. Crude petroleum, cottonseed oil, fish or train oil, and light coal-tar oil may be used pure.

Jensen (1909) recommends the following formula, which is said to protect cows for a week:

Common laundry soap, 1 pound; water, 4 gallons; crude petroleum, 1 gallon; powdered naphthalin, 4 ounces.

Cut the soap into thin shavings and dissolve in water by the aid of heat; dissolve the naphthalin in the crude oil, mix the two solutions, put them into an old dasher churn, and mix thoroughly for 15 minutes. The mixture should be applied once or twice a week with a brush. It must be stirred well before being used.

Fish oil is rated as one of the best repellents and has been used alone and in combination with various other substances. Other substances that have repellent qualities and that have been used in various mixtures are pine tar, oil of tar, crude carbolic acid, oil of pennyroyal, and kerosene. The protective action of fish oil is stated to range from less than two days (Parrott, 1900) to six days. Moore's formula is said to protect for two days. This mixture is safe when applied lightly with a brush, but not when applied liberally with a pail spray pump. The formula is as follows:

Fish oil, 100 parts; oil of tar, 50 parts; crude carbolic acid, 1 part.

Laurel oil is a very effective repellent. Mayer (1911) found that the protection lasted from 2 to 12 days. The oil when used pure has an irritating effect unless it is applied lightly. According to Mayer the irritating effect may be overcome by combining it with linseed oil in the proportion of 1 to 10. In the experiments of the department of agriculture, it was found that 10 per cent of laurel oil in cottonseed oil was active for less than a day.

Ticks

If J. W. D. of Modesto will send his name we will be glad to forward paper giving information.

Twin Calves

I have a fine Jersey which has given birth to twin calves, one male, the other female. My neighbors say the female will not breed. Is this true?—Subscriber, Newbury Park.

Prof. Gordon H. True of the state college of agriculture answers: "There seems to be no way of foretelling whether or not the female of a pair of twins will be a breeder. Evidence seems to indicate that in about an even number of cases such females are fertile. There is no way, so far as I know, of determining whether or not this is the case until the animal is matured and bred. I should not sacrifice an otherwise valuable female because she was a twin."

Liver Trouble of Rabbits

Replying to queries as to cause of liver trouble in rabbits, Mr. R. V. Moore says:

"The causes of white spots and tube like growths in the liver and intestines is due to methods of giving green foods. Rabbits in confinement should never be fed cabbage, green alfalfa or grass, for it is almost sure to cause disease and death, especially if the animals are fed heavily on these rations and have not been accustomed to it. As to sugar beets for a diet, we have not had experience, but do not believe it would be a proper feed except given sparingly. Dry alfalfa hay, crushed barley, carrots and bran we find from experience are the best rabbit food. Stale bread is also excellent, but a liberal supply of wheat bran we find is best for a doe just kindled. A lump of rock salt wired to the side of the hutch is necessary, as rabbits, like other animals, relish this. Would advise those whose rabbits have liver trouble or where the organs are discolored, enlarged, full of foul gases, liquids, growths, etc., to quit at once feeding green foods, such as fresh weeds, alfalfa, cabbage and the like."

Wanted, Chicken Ticks

We have request for a few good live samples of chicken ticks. Have any of the subscribers' poultry houses infected with these pests? Dr. Leroy Anderson is anxious to secure such samples.

Rats

We are greatly troubled with rats between the walls of our house. We have tried poison and rat virus without success. How about ferrets? Where may they be had and what is the proper way to handle them?—Subscriber, Carpinteria.

We believe ferrets are not used in this state to any extent. To supply a large Eastern demand a great trade has sprung up in the breeding of these

Cut Rate Seed House

Our Seeds are the VERY BEST, but we are not in the SEED COMBINE. We pay as much for ours as they do for theirs, which the invoices will prove. But their profits are too large. Our slogan: SEEDS at LOW PRICE and NO PRICE can buy better. Send for our Price List.

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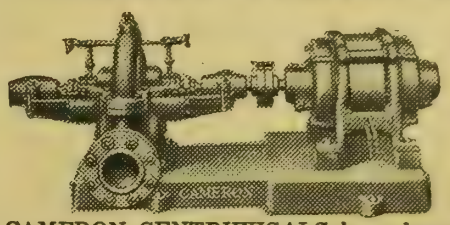
Seed House
116-118 E. 7th St., Los Angeles

CAMERON IRRIGATION PUMPS



For the continuous and exacting work in irrigation pumping, you want pumps that are simple and dependable with the least attention.

CAMERON CENTRIFUGALS have been designed and built with the special aim of producing a combination of high working value and low operating cost. Simple and strong all through. Finest material and workmanship. Highest efficiency. Backed by an experience of over fifty years. Can be operated by motor, gas engine or belt.
Put your pumping problem up to us. No obligation.

Write for Free Bulletin 15-LC

A. S. Cameron Steam Pump Works

11 Broadway, New York — 1036 Union Oil Bldg., Los Angeles, Cal.

I Want to Show You This 40 ACRE EQUIPPED FARM

LAND: Level, clean, strong; no brush or stumps; ready for plowing; between two railroads and within 1½ miles of stations on Southern Pacific and Western Pacific. In the Upper Sacramento Valley.
SOIL: Deep San Joaquin loam.
WATER: Unlimited water at 20 to 25 feet.
EQUIPPED: with a plow, a harrow and a cultivator, a pumping plant complete, trees and seed.
SPECIAL: This land is absolutely above all flood from rivers; the titles are clear and guaranteed; there is no bonded indebtedness; there are no reclamation or irrigation assessments. This is clean, strong land without incumbrance of any kind.

DUDLEY MOULTON
Expert of Agricultural Lands
Twelfth Floor First National Bank Building, San Francisco

No Matter What Crop You Grow
YOUR SOIL MUST BE RIGHT ALWAYS
California's great soil need is Phosphorus. The most economical and logical source of Phosphorus is
Finely Ground — High Grade — Shield Brand
Phosphate Rock
The Phosphate of Lime
Efficiency and Economy are Inseparable Everywhere.
United States Phosphate Co., 405 Marsh-Strong Bldg. Los Angeles, Cal.

PIPE
For Every Purpose — NEW Threads and Couplings — Hot Asphaltum Dipped
2nd Hand and NEW
Screw Casing — Fittings and Valves — Guaranteed for Pressure
Pacific Pipe Co.
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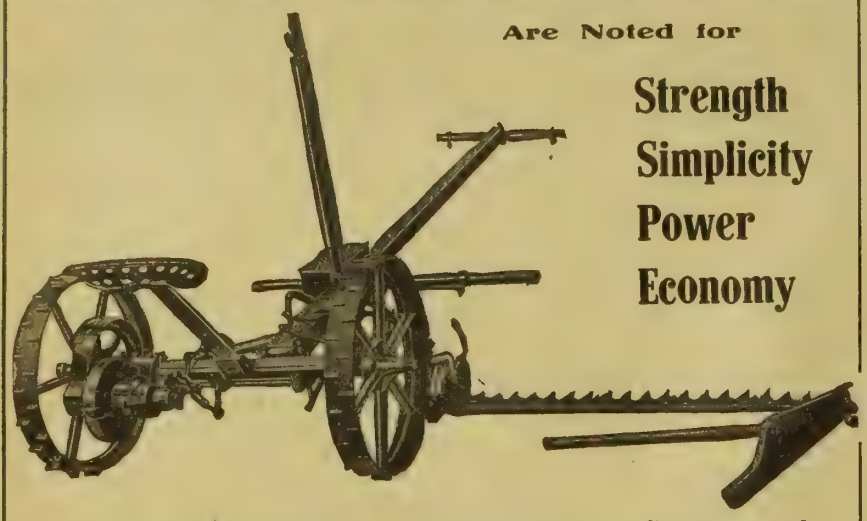
JOHNSTON MOWERS

Are Noted for

Strength
Simplicity
Power
Economy



Flexible bar adapts itself to up or down slopes. Save money by buying and using a Johnston. Learn more about this wonderful machine and its record for five years in California. Write us today.

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ESTABLISHED 1886

AGRICULTURAL IMPLEMENTS, DAIRY SUPPLIES, ROAD AND GRADING MACHINERY, GAS ENGINES, DOMESTIC WATER SYSTEMS, WAGONS AND BUGGIES

Los Angeles and Market Sts. **LOS ANGELES, CAL.**

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DEEP WELL PUMPS

For deep lifts, as well as shallow lifts, combined with high heads above surface and through long pipe lines. No auxiliary pump needed for forcing water above the surface.

Built and sold in California over 12 years. Hundreds of buyers will tell you they are always reliable and economical.

No pit required. Does not get oil into the water. Consumes less power per unit volume of water pumped.

Write for Catalogue 103 with valuable information on irrigation.

Pomona Mfg. Co., Pomona, Cal.

Our "made right" irrigation valves are good, and not costly

Plant "Pure Bred"

Acclimated California Grown

White Corn

This seed is originally from pedigreed Nebraska Corn and has had 10 years of careful selection on our own ranch. Now we raise 60 to 70 bushels per acre. You can do the same with our seed.

Select on ear, 4c per pound.
Select shelled, 4c per pound.
Any quantity F.O.B. Riverside.

Rough's Greenfields, Arlington, Riverside Co., Cal.

BURBANK CACTUS

On Easy Payments and at Prices You've Waited For

Spineless Cactus has come to stay. In ten years no dairyman or feeder will dream of doing without it. It no longer needs demonstration. Its value is known. I sell you the latest and best varieties.

GUARANTEE GROWTH or GIVE MONEY BACK

I own large nurseries all over California, producing the finest cactus, suitable for all soils and localities. For that reason I can take all risk of bad results. There are none when proper varieties are selected from stock acclimated to your climatic and soil conditions.

With each order, which is shipped in a special "Vernon" packing box, I send FREE, FRUITING CACTUS for your garden and for table use, equal to 5 per cent of order.

Through large production, I can give lowest prices, one-fourth of last year's best price, and have an easy payment plan that will please you.

ARTHUR VERNON, Specialist and Grower **Hearst Examiner Bldg., San Francisco**

Advertisements in California Cultivator are Guaranteed
See Announcement at Head of Editorial Page

little animals in New London, Ohio. There are many breeders there who will sell them either singly or in pairs We doubt not this animal would very quickly rid any building of rats. Trapping has proved successful, especially with the old time barrel trap with tilting top, the top being almost evenly balanced and hung on a swivel at either side so that when the weight of the rat comes on the cover it instantly drops him into the barrel, swinging back into place ready for the next one. When a building is once rid of rats it is well to close in by use of cement if possible so as to prevent rats getting access to hidden parts.

Peafowls Wanted

We have again received request for information as to where peafowls may be secured. Anyone breeding these beautiful birds should find increased market by advertising in the Cultivator.

Silage for Hogs

Is silage of value as a part of the ration for growing and fattening hogs? —Subscriber, Los Angeles.

We do not know of silage ever being provided as a part of the ration of hogs on an exclusive hog farm. On dairy farms where silage is fed to cows a small allowance is frequently given to brood sows when they are sufficiently fat, and the object is to furnish roughage and succulence that will carry them along until near farrowing time. A hog is so constituted that when fed for the greatest growth and gains a large part of the ration must consist of concentrates, and profitable hog making demands that animals be finished and marketed as rapidly as possible rather than simply be grown and carried along to be finished later. The roughage and succulence, therefore, should be rather the smaller part of the feed to be supplied the greater part of any herd of hogs. This can best be supplied with alfalfa pasture in this state. The only way we can seee that a silo could come into play with the best results would be in a location where alfalfa could not be grown, and where a very large number, at least a hundred, of breeding animals were kept, but it is hard to imagine a big hog plant without alfalfa. Rape for pasture, supplemented with barley, corn or other grain, and the other crops mentioned to be "hogged down" when mature, are all satisfactory hog feeds. Any of the leguminous plants such as alfalfa, the clovers, soy beans, etc., provide the protein to balance the carbohydrates in corn, barley and other grains satisfactorily. Indian corn makes the best silage, although alfalfa, milo, Egyptian corn and other crops are used.

Marketing Belgian Hares

A Red Bluff subscriber asks how to dress Belgian hares, how to pack for shipping, also whether best results are secured by shipping dressed or alive. A San Francisco poultry purchasing concern prefers receiving them alive in coops. However, we would like to hear from Belgian hare breeders as to their experience in this matter.

Cover Crop

Is barley of any value as a cover crop and at what stage of growth should it be plowed under? Is burr clover as good as vetch for cover crops and when should they be plowed under? We have been told the growth should begin to harden before plowing under and would like information on this point.—Subscriber, Anaheim.

Barley is an excellent crop to supply humus. Some prefer it even to rye, which is one of the rankest growers. Burr clover is excellent, in some sections giving far better results than vetch, but most orchardists prefer the vetch. Either of these, however, are nitrogen gatherers while barley or rye are not but we think as a rule the tendency today is to produce bulk which will supply humus which gives opportunity to secure more nitrogen, therefore our first consideration in the matter of cover crops would be, "Which crop does best in the section where the orchard is located?" As to plowing under, this is a matter for the soil to determine, at least in part. There is, however, diversity of opinion as to ripened cover crops, also cover crops put under when they are lush and green. Many think that humus is secured more rapidly by allowing the ripening and the formation of cellulose in the texture of the plant. The greater number of orchardists plow under early to prevent loss of moisture because of ripening and also to secure more quickly the benefit of the decaying young growth.

Curl Leaf

I send leaves from peach trees. Practically all the leaves on the tree are curled the same as these. The tree looks healthy and has some fruit.—Subscriber, Hollywood.

This is an extremely severe case of curl leaf for which there is no remedy at this period of the year. The tree should have been sprayed with Bordeaux mixture or with lime sulphur solution just prior to blossoming time. This would have killed the spores and the leaves would not have been affected, or at least not so seriously as are these.

When Should Sunflower Seed Be Planted?

Sunflower seed may be planted as soon as the ground is thoroughly warm. The best instruction is perhaps to plant just the same as common Indian corn, planting in the neighborhood of ten pounds of seed per acre. Drills are usually used, being set for rows to be three to three and one-half feet apart. It requires ten pounds of seed per acre.

SPIDERS

With but few exceptions the spiders are all carnivorous, eating large numbers of insects. These are captured in either of two ways. The spiders may attack them boldly, biting them and at the same time injecting a small amount of poison into the wound. This soon paralyzes them. Or it may spin a web and wait for an insect to become entangled in its meshes, when it will rush from its hiding place and throw fresh bands of the sticky web about the insect till it is hopelessly entangled.

Besides using its web to aid in capturing its food the spider uses it in making a home and also for forming a case in which eggs are kept until they are hatched.

Spiders are best known and dreaded as animals that bite. If left alone no spider will bite anything except insects useful for food; but when attacked and cornered all species open their jaws and bite if they can, their ability to do so depending on their size and the strength of their jaws. On the ends of the fingers the skin is too thick for them to penetrate it but between the fingers it may easily be pricked. The bite may swell and smart for maybe a quarter of an hour and then itch for some time, closely resembling a mosquito bite. And it is no more harmful than the bite of this insect.

They are not dangerous animals and should not be killed on all occasions, because of the large number of insects which they destroy.—Charles S. Mead, Colorado Agricultural College.

The Household Department

THE BLOSSOM

Only a little shriveled seed—
It might be a flower or grass or weed;
Only a box of earth on the edge
Of a narrow dusty window ledge;
Only a few scant Summer showers,
Only a few clear, shining hours—
That was all. Yet God could make
Out of these, for a sick child's sake,
A blossom wonder as fair and sweet
As ever broke at an angel's feet.

Only a life of barren pain,
Wet with sorrowful tears of rain;
Warmed sometimes by a wandering gleam
Of joy that seemed but a happy dream;
A life as common and brown and bare
As the box of earth in the window there.
Yet it bore at last the precious bloom
Of a perfect soul in a narrow room—
Pure as the snowy leaves that fold
Over the flowers heart of gold.

—Henry Van Dyke.

HOW SEEDS TRAVEL

SOME seeds make journeys with wings, and others travel from place to place by attaching themselves to the clothes of men or the hair of animals; still others make their journey in the stomachs of birds.

The seeds of the maple trees are particularly interesting. They are provided with wings, and when they become detached from the parent tree a gentle breeze will carry them a considerable distance from the branch to which they were attached. There are many forms and modifications of the winged seed, as the linden, the elm, and the pine.

Some seeds are also provided with parachutes or umbrellas, not for protection from rain and storm, but for purposes of locomotion. The seeds of the thistle, the milkweed, and the dandelion—in fact, the seeds of all plants which have a cottony growth—are provided for these aerial journeys.

Besides these, some seeds are provided with hooked appendages by which they can attach themselves to the clothing of men or to the hair of animals, so that they are transported from place to place. Other seeds have hard seed coats, or shells, which are covered in many cases by edible fruit. The fruits are eaten by birds, but the seeds are not digested, and in this way become distributed from place to place. The groves of cedars which are characteristic of the landscape in many sections of the country, it will be noted are chiefly placed along the lines of fences or fence rows. The fruit of the cedar is an edible one, but the seed is not digestible, and in this way the existence of these hedge rows of cedars is explained. Cherries, grapes, and other fruits are to a considerable extent disseminated in like manner.

The hard nuts of our nut-bearing trees are not used as food by birds or large animals, but are usually sought by squirrels and small rodents, which are in the habit of gathering and burying them in various places or storing them in large quantities for winter use. The result is that a considerable percentage of those which are buried in this manner are never rediscovered by those hiding them, and in time nature causes the hard shell to crack open, and the warmth and moisture of the soil brings the germ contained in the kernel into life and a tree springs into existence. It will be noted that the nuts which were buried by the squirrels did not germinate immediately after being buried, but waited until the warm weather of the spring came before they put forth their tender shoots. This is not because they willed it, but because the hard outer walls of the shell would not admit the air and water to the germ, so as to stimulate its growth.

It was necessary that the shell be frozen and broken by the action of the frosts and the weather before moisture could gain an entrance to cause the swelling of the germ. This peculiarity, when taken advantage of commercially, is called stratification. Seeds with hard shells, such as cherries, peaches, plums, and the like, have to be stratified—that is, they must be planted in the fall where the plants are to grow or they must be packed away in boxes of sand in a position where they will freeze and remain frozen during the winter, in order that they may germinate the following spring. Seeds with thin seed coats, however, like peas, beans, etc., if treated in like manner, will be destroyed by the action of the cold, and no plants will result from planting them in the autumn. Such seeds must, from the nature of the case, be retained in a dry and comparatively warm place during the winter season, in order that their vitality may not be destroyed.

How to Get Rid of Ants

Information of Great Value To Every Housekeeper

Even though you are not troubled with ants just at present, you are almost certain to be in the future—for these pests have a way of getting into every house at some time or other.

Everyone will be interested in knowing, therefore, that a sure exterminator of these annoying insects is now available. It remained for a baker and candy-maker, whose shop was overrun with ants, to devise a means of effectually ridding himself of this nuisance.

So successful did his remedy prove, that it was decided to place it upon the market for general use—with results exceeding the most sanguine expectations. It is for sale at all druggists under the name of Kellogg's Ant Paste—and thousands of houses all over the country have been completely rid of ants by its use.

Try a package today, and if you follow directions closely your ant troubles will be solved forever.

BEAN SOUP, BEAN SALAD,—AND BEANS

The Cultivator household department is constantly in receipt of requests for recipes for meat substitutes. This week we are glad to offer a fine lot of old and new ways of serving beans.

Black Bean Soup

One pint black beans, two quarts cold water, one small onion, two stalks celery (or one-fourth teaspoon celery salt), one-half tablespoon salt, one-eighth teaspoon pepper, one-fourth teaspoon mustard, few grains cayenne, three tablespoons butter, one

On the Zone

In the great Exposition now displaying the wonders of the world, is a model factory showing the complete process used in the making of

Ghirardelli's Chocolate

This factory is open to the public without charge and a cordial invitation is extended to our visiting friends to see this exhibit wherein a pleasant hour can be profitably spent.

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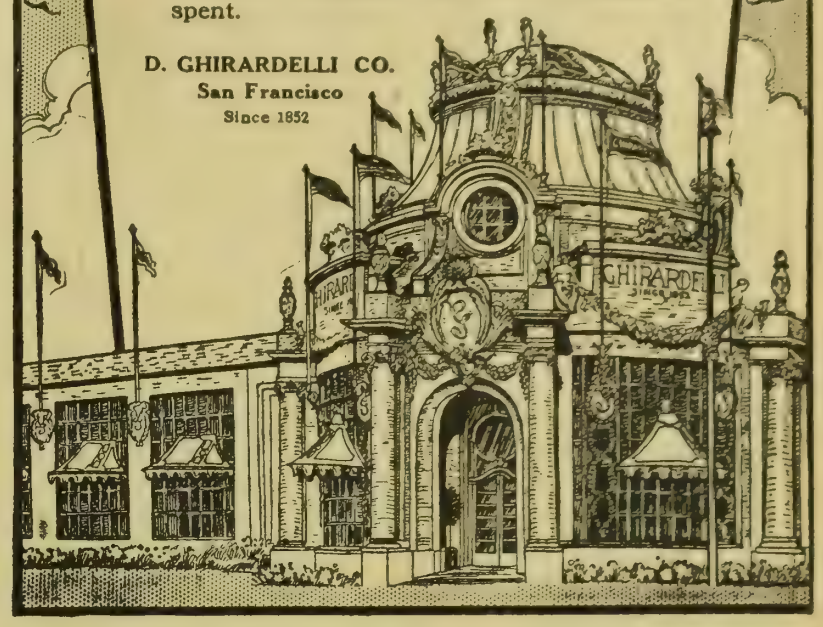

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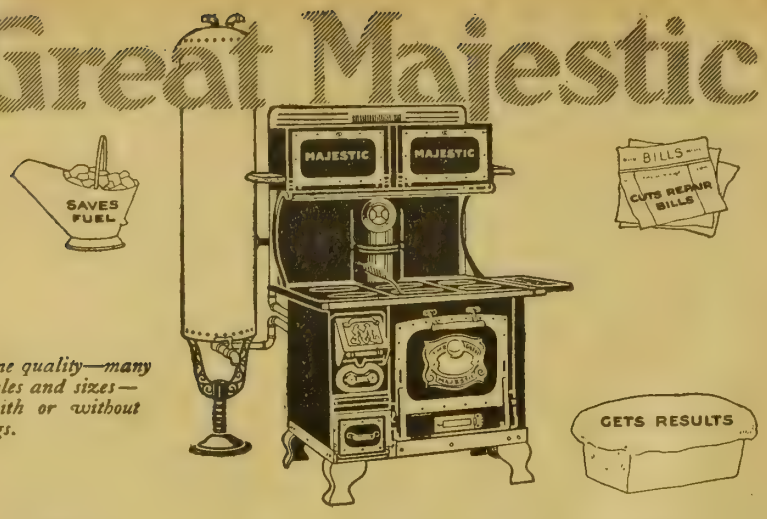
In All the Counties

By ALL the counties I mean ALL THE fifty-eight counties of the State. This includes San Francisco and all other Bay Counties and all the rest of the counties. This land has been OVERLOOKED. It was taken years ago when it was not as valuable as it is now and was allowed to go to the State. I help you buy direct from officials. A $5 check brings, by registered mail, three separate large lists of land in ANY THREE COUNTIES of California and particulars as to how to see and buy from a fraction of an acre, not far from the center of any good town, to more than a section of valuable land further out. Write the CALIFORNIA STATE LAND INFORMATION BUREAU, Joseph Clark, Manager, 1511 K street, Sacramento, California.

When writing advertisers, mention the Cultivator.

Great Majestic



One quality—many styles and sizes—with or without legs.

The economy of the best range

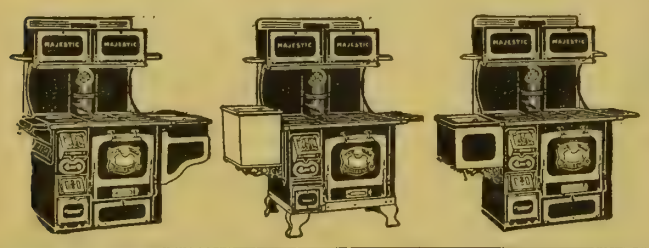
Every bread-baking that fails; every cake that falls, adds to the excessive cost of a cheap range. The range that will produce the best results is the most economical.

The Majestic gets sure baking results because the heating is distributed evenly over all parts of the oven, and is reflected onto the baking by the asbestos lining, thus baking evenly, without turning. Sure baking means economy of both food and fuel.

The heat cannot escape because the oven is hammer riveted and requires no putty. Heat being retained, less fuel is needed to maintain even baking temperature. Better baking with less fuel, is double economy.

The Majestic is made of malleable iron for strength and charcoal iron for rust-resisting—a combination that cuts repair bills and substitutes long service. Preparing better food, with less waste, and less fuel and fewer repairs, over a long period of years, is triple economy, that makes the little extra you pay for Majestic quality and service return big dividends.

The Majestic has many improvements that lighten the labor of cooking and add to its certainties. These are illustrated in "Range Comparison", a little book that will post you fully about ranges. Send for free copy today.



There is a Majestic dealer in every County in forty-two States. If you don't know him, write us for his name.

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Dept. 203
St. Louis, Mo.

Buy Telephones for Telephone Service

THERE is as much difference in telephones as in automobiles, and they should be bought as carefully. You want to use a phone giving reliable service. Cheaply made phones sometimes give good service for a week or a month; then trouble begins. Repair bills make cheap phones costly. Voices come over the wire faintly. Many sounds do not get over at all.

With a Kellogg Telephone repair bills amount to nothing. After years of use you can hear a watch many miles away tick loudly and clearly. They are so strongly and simply made that everywhere among users of telephones the name Kellogg has come to stand for ideal telephone service.

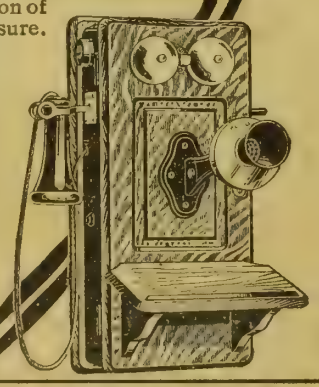
Kellogg Telephones Stand for Service

They are made in the largest independent telephone factory in the world. Every instrument passes 37 rigid tests before it is shipped. You have day by day the satisfaction of using a phone that makes telephoning a pleasure.

We have an expert department costing us $100,000 a year that is maintained for telephone users and those who are starting new lines. Why not put your problems before these experts? The service costs you nothing. You cannot fail to get information that will save you time, money and trouble.

Get your name on our books to receive valuable bulletins and other telephone literature that we send free.

Write for Bulletin 24.



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Body made from single sheet of Galvanized Open Hearth Steel 10 feet long, with extra heavy taper collar on one end and band of heavy steel on the other—making each section 10½ feet. Made with lock seam (four thicknesses of steel), which gives unusual strength and durability, besides—ABSOLUTE PROOF AGAINST LEAKAGE.
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tablespoon flour, two hard-boiled eggs, one lemon.

Soak beans over night; in the morning drain and add cold water. Slice onion, and cook five minutes with half the butter, adding to the beans with celery stalks broken in pieces. Simmer three or four hours, or until beans are soft; add more water as water boils away. Rub through a seive, reheat to the boiling point and add salt, pepper, mustard and cayenne well mixed. Bind with remaining butter and flour cooked together. Cut eggs in thin slices and lemon in thin slices, removing seeds. Put in tureen and strain the soup over them.

Cream of Lima Bean Soup

One cup dried lima beans, three pints cold water, two slices onion, four slices carrot, one cup cream or milk, four tablespoons butter, two tablespoons flour, one teaspoon salt, one-half teaspoon pepper.

Soak beans over night; in the morning drain and add cold water; cook until soft and rub through a sieve. Cut vegetables in small cubes and cook five minutes in half the butter; remove vegetables, add flour, salt, and pepper, and stir into boiling soup. Add cream, reheat, and add remaining butter in small pieces.

Boston Baked Beans

Pick over one quart beans, cover with cold water and soak over night. In the morning drain, cover with fresh water, heat slowly (keeping water below boiling point), and cook until skins will burst. Drain beans, scald rind of three-fourths pound fat salt pork, scrape, remove one-fourth inch slice and put in bottom of bean pot. Cut through rind of remaining pork every one-half inch, making cuts one inch deep. Put beans in pot and bury pork in beans, leaving rind exposed. Mix one tablespoon salt, one tablespoon molasses, and three tablespoons sugar; add one cup boiling water and pour over beans; then add enough more boiling water to cover beans. Cover bean-pot, put in oven and bake slowly six or eight hours, uncovering the last hour of cooking that rind may become brown and crisp. Add water as needed.

Many prefer to use fresh pork with baked beans, an especially good combination resulting where spare ribs are substituted for the fat salt pork.

Creamed Lima Beans

Shell young green lima beans, wash and add boiling salted water. Slice in one large or two small tomatoes and cook together until the beans are tender. Do not put too much water on the beans to start, adding more as necessary. Let them boil almost dry before seasoning. Sprinkle over them a little flour and season with butter and pepper. Shake well and add enough cream or rich milk to cover. Boil up once and serve.

String Beans

String and remove ends from beans and break in one-inch pieces. Wash, cover with cold water and bring quickly to the boiling point. Drain, cover with hot water, adding one teaspoon salt for each quart of water, boil gently until tender (forty to sixty minutes). Use just enough water to keep from burning. Drain, add two tablespoons butter for one quart of beans, dash of pepper, shake well in the pan and serve at once.

Mashed Dried Lima Beans

Soak dried lima beans over night in cold water. Next morning drain thoroughly and place in a kettle with sufficient cold water to cover; add a teaspoonful of baking soda and when the water boils drain again; then once more cover with cold water, add a teaspoonful of salt and let simmer rapidly until the beans are tender. Drain the water into a dish to use for a soup foundation and press the beans through a coarse sieve. Whip with a fork after adding a little cream, butter and pepper. Heap into a hot dish.

Souffle of Yellow-Eyed Beans

Yellow-eyed beans may be used either plain, stewed or baked, or combined with corn into succotash. For the souffle use one pint of the bean pulp. Add to this the yolks of four eggs, well beaten, and season with a few drops of lemon juice, a quarter of a teaspoonful of celery salt and a dash of pepper. Beat the whites of the eggs stiff; fold them into the other mixture and pile lightly into buttered ramekins; place in a pan filled with hot water and bake in a moderate oven until puffy and brown—about

Culinary Hints

From a Book of Recipes Prepared by Famous Woman Editor

In a book of recipes prepared by Emma Churchman Hewitt, for many years associate editor of the Ladies' Home Journal and other leading magazines, many valuable suggestions are given regarding the use of cornstarch. In the hands of the experienced housewife, cornstarch is often used a dozen times a day. It gives the rich, creamy consistency so much desired in gravies and sauces; the fine texture to bread, biscuits, cakes and cookies, and makes pie crust flaky and perfect. It is also indispensable in making custards, chocolate eclairs, sherbets, ice cream and many other delicacies.

Mrs. Hewitt goes on to explain, however, that there is a great difference in cornstarch, and that good results cannot be obtained with inferior brands. She says that the experience of up-to-date housekeepers everywhere was the same as her own—that those who had the greatest success with cornstarch recipes always depended upon Kingsford's brand.

Kingsford's can be obtained of all good grocers everywhere. It costs no more than inferior brands. Try Kingsford's cornstarch once and you will use it always.

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If so, we can put the great conveniences of electric light and household appliances within your reach, and you can have GENUINE EDISON Electric Light and Power—exactly the same as in the largest cities—and just as if you were living on a power circuit. A wonderful Edison invention—the

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gives you your own electric light and power plant—economical, efficient, trouble-proof. Reduces fire hazard.

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It will therefore do its work much more satisfactorily, and it's the only battery with a four-year guarantee (which it will greatly outlast).

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twenty minutes. If desired this may be baked in a large dish, lengthening the cooking to thirty-five minutes.

Horticultural Bean Loaf

Mix two cupfuls of beans with three chopped pimentos, one cupful of breadcrumbs cooked to a paste with half a cupful of tomato puree. Season with pepper, a teaspoonful of salt, grated lemon rind and a few drops of onion juice. Beat the yolks of two eggs well, add to the mixture, and fold in the stiffly beaten whites. Pile into a well-oiled bread-tin, set in a moderate oven and cook until firm. Serve with tomato sauce.

Red Kidney Beans with Spaghetti

The red kidney bean is widely used in Italy, where it is combined with spaghetti into a dinner dish. Olive oil is the fat generally used with it, but if this is too expensive, bacon fat may be substituted. Stew one cupful of red kidney beans, seasoning with one teaspoonful of salt. Cook one cupful of spaghetti until tender, and make a sauce by cooking two tablespoonfuls of minced onion in two tablespoonfuls of bacon fat until softened; add flour to thicken and half a cupful of tomato puree; season well, add to the spaghetti a little grated cheese. Pour the beans, which should be dry, upon a platter, surround with spaghetti and garnish with cooked bacon. These beans are one of the most delicious foods in the legume group.

Baked Beans With Cheese

Prepare the beans as for ordinary baking and add a small onion shaved very thin. Place in the baking dish, cover and bake until twenty minutes before removing; then cover the top with a thick layer of thinly sliced American cheese; cook until melted and brown.

Bean Cakes

Three cups cold boiled beans, put through the meat cutter. Two eggs beaten in a cup of sweet milk. One teaspoon of baking powder. Add flour so you can drop from a spoon. Fry in a spider salt pork or bacon. Remove pork and fry the bean cakes.

Bean Croquettes

Mince any left-over beans and mix with twice their bulk of mashed potatoes. Add a beaten egg and season to taste. Dip the hands in flour, mold the mixture into small rolls, let lie a moment, and then dip them in fine bread or cracker crumbs and fry a crisp brown. Combined with onion and potatoes and well seasoned, left-over beans make an excellent hash, which may be served on crisp toast, or with mustard or ketchup they make a good filling for sandwiches.

Famous Newspaper Writer Endorses Karo Syrup

Marion Harland of Newspaper Fame—Writer of Culinary and Household Page—Prefers It

Marion Harland writes: "I do not hesitate to award Karo the preference above any other table syrup used in my household.

"As an accompaniment to waffles and griddle cakes, it deserves all that can be said in praise of it. It is as clear and as sweet as honey and richer in consistency, without the cloying quality that makes honey distasteful to some, and unwholesome if eaten freely.

"I have also used Karo in the preparation of puddings and gingerbread, with satisfactory results. The candies made from it are pure and delicious."

For griddle cakes and waffles, candy making, icings, cakes, pies, sauces, and many other table delicacies, demand Karo Syrup of your grocer. Nothing will please the children better than a slice of bread thickly spread with Karo. Besides, it is a healthful food, and the little ones will thrive upon it. Ask your grocer for the little book of recipes, which explains the dozens of ways in which Karo is being used daily by women all over the country.

All modern grocers carry Karo. Do not accept any substitute, but try it once, and you will use it always.

Bean Croquettes

Press through a sieve cooked beans, season with salt and pepper and sufficient beaten egg to bind; make into croquettes and set aside to cool and harden. Then roll in beaten egg and breadcrumbs and fry until brown. I serve this on rice with a thick tomato sauce.

Bean Salad

Take one pint of dry white beans, boil them until tender, as for baked beans; allow the water to boil away, season, and mash with the potato-masher. Pack tightly in a dish and, when cold, cut in slices and serve on lettuce leaf with mayonnaise.

Baked Cowpeas

Cook one quart white cowpeas slowly in water until they begin to soften. This will require five or six hours. Put in a bean pot, add one-half pound of salt pork and one tablespoon molasses, and salt to taste. Cover with water and cook slowly six or seven hours. Have pot covered except during last hour of baking.

Hopping John

Soak one quart dried cowpeas over night in water to cover. Cook until tender, adding more water if necessary. Cook a pint of rice in three pints of water, mix the two, season with two tablespoons of butter and two teaspoons of salt. A little beef or pork may be added to the water in which the peas are cooked.

Cowpea Soup

One tablespoon butter or pork fat, one tablespoon finely chopped onion, one stalk celery, finely chopped, one cup dried cowpeas, salt. Soak the peas eight or ten hours in water enough to cover. Fry the vegetables in the butter, add the peas in the water in which they were soaked and cook (preferably in a double boiler) until the peas are tender. Put the mixture through a sieve and add water enough to bring to the desired consistency. Reheat. If this soup is thickened with one tablespoon of flour mixed with a little water the pea pulp will be prevented from separating.

Baked Cowpeas With Cheese

One tablespoon butter, one tablespoon finely chopped onion, one tablespoon finely chopped green pepper, two cups cooked cowpeas, one-half cup grated cheese. Press the peas through a sieve to remove the skins and mix with the cheese. Cook the onion and pepper in the butter, being careful not to brown and add to the peas and cheese. Form the mixture into a roll, place in a buttered earthenware dish and cook in a moderate oven until brown, basting occasionally with butter and water. Serve hot or cold. The latter makes a good sandwich filling.

Cowpea Salad

Mix cold cooked cowpeas with French dressing and serve on lettuce, endive or water cress.

RABBITS AND MARMALADE

In our household department of March 11 appeared requests for recipes for making orange marmalade and cooking Belgian hares. The response was instant and generous. Many excellent recipes were sent in. The first received were published in the following week's issue, that of March 18. Others which came later we have not yet found room to print. Therefore we wish to acknowledge here the courtesy of those whose recipes have not been published as yet. Those who gave us their best method of making orange marmalade are:

Mrs. Ralph Williams, Acton; Mrs. C. H. Crabtree, Sanger; Mrs. B. S. Cummins, Auld; Mrs. E. E. Sherwood, Strathmore; Mrs. Ruth V. Kerfoot, Lemon Grove; Mrs. H. Madsen, Alpaugh; Mrs. H. R. Franck; Mrs. W. H. Sangster, Goleta; Mrs. J. C. Rogers, Fullerton; Mrs. J. T. Pfeiffer, Laton; Mrs. Minnie Carner, Orange; Mrs. N. C. Johnson, Chatsworth; Mrs. E. R. French, Santa Paula; Lotta B. Gitchell, Orange; Mrs. S. D. Teel, Santa Ana; Subscriber, Wahtoke; Subscriber, Pacific Grove; Mrs. J. B., and others who signed no name or address. Next week we will publish the rabbit recipes.

The Agency of a United People

A striking comparison between a homogeneous country and a heterogeneous group of countries is obtained by placing over the map of the United States the map of Europe. These represent the same area—about 3,000,000 square miles—if a few of the remote provinces of Russia are omitted.

Europe has the advantage in population, with more than four times as many people as the United States; in the number of large cities, with two and a half times as many cities of over 100,000 population.

Yet the United States, a comparatively young country, has outstripped Europe in the diffusion of civilization, because of its wonderfully greater means of communication between all parts of its area. The United States not only excels in transportation facilities, but it has nearly three times as many telephones as Europe, or about eleven times as many in relation to population.

By the completion of the Transcontinental Line we now talk from one end of this country to the other, while in Europe the longest conversation is no farther than from New York to Atlanta, and even that depends on the imperfect co-operation of unrelated systems.

Europe, with twenty-five countries and many different languages, serves as an illuminating contrast to the United States, with one language and a homogeneous people, despite the fact that our population has been derived from all parts of the world.

During the last forty years the steadily extending lines of the Bell System have contributed in no small measure to this amalgamating of different races.

The latest achievement—the linking of coast to coast—has given greater force to the national motto, "E Pluribus Unum."

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
AND ASSOCIATED COMPANIES

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See Announcement at Head of Editorial Page

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, April 7, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade 3 to 4 cents above following quotations:

Creamery Extras 22
Firsts 20
Country 19
Ladle 18

CHEESE

Prices to trade, 1 and 2 cents higher:

California Fresh ....13@13½
Cheddar ....19@20
Domestic Swiss ....20@21
Eastern Daisy ....18½@19
Oregon Triplets ....17@17½
Longhorn ....18½@19
Imported Swiss....32-@34

EGGS AND POULTRY

Prices to trade, 3 cents higher than following quotations:

Fresh Ranch, case counts....19
Candled ....21@23
Northern, case counts....21½
Petaluma-Santa Rosa 22½

Prices to producers:

Hens, lb. ....16@18
Roosters, old 9
Broilers, lb. 28
Fryers 23
Roasters, lb. 20
Turkeys ....17@20
Ducks 19
Geese 16
Squabs, doz. 3.00

LIVE STOCK

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs., per cwt....7.85
Prime Steers ....7¼@7½
Heifers ....6¼@6½
Calves, lb. ....8½@9
Sheep—
Ewes, head 4.50
Wethers 5.00
Lambs, head ....4.50@4.75

POTATOES

Wholesale selling prices:

Idaho Russet ....1.85@1.90
Idaho Rurals ....1.35@1.45
White Rose ....1.85@2.00
White Rose Seed ....1.50@1.60
Sweets, lug ....70@80
New Early Rose, lug....1.35@1.75
Northern Burbanks, cwt....1.80@1.90
Salinas ....2.00@2.10
Lompocs ....2.00@2.10

ONIONS

Wholesale selling price:

Australian Brown, cwt....90@1.10
Oregon Globes ....1.35@1.50
Yellow Danvers ....1.00@1.25
Sets—
Yellow 10
White 12
Garlic ....22@25

VEGETABLES

Wholesale selling price:

Asparagus—
White ....5@8
Green ....8@10
Artichokes, Northern, doz. ....35@75
Brussels Sprouts, lb....12@15
Beets, doz. ....30@35
Beans, Green, lb. ....30@35
Cabbage, sack ....75@85
Carrots, doz. ....30@35
Cauliflower, doz. ....1.00@1.10
Celery—
Local ....3.00@3.25
Northern, crate ....4.25@4.50
Chicory ....30@35
Cucumbers, Hothouse ....75@2.50
Egg Plant, lb....23@25
Escarole, doz. ....35@40
Horseradish, lb. ....10@12
Leeks, doz. ....35@40
Lettuce, crate ....90@1.00
Mint, doz. ....35@40
Mushrooms, Outdoors, lb....35@40
Onions, Green, doz. bunches....15@20
Oyster Plant, doz. ....35@40
Parsnips, doz. ....35@40
Peas—
Telephone ....6@7
Small ....5@6
Peppers—
Bell, lb. ....25@30
Chili, lb. ....25@30
Pumpkins, lb. ....1¼@1½
Rhubarb—
Crimson Winter ....75@85
Strawberry ....1.00@1.50
Spinach, doz. 20
Squash—
Hubbard, lb. ....2¼@2½
Tomatoes, Mexican ....2.75@3.00
Turnips ....25@30

FRESH FRUIT

Wholesale selling price:

Apples—
Bellflowers ....60@1.00
Jonathans ....1.60@1.75
Rome Beauties ....1.25@1.75
Pearmains ....1.25@1.65
Spitzenbergs ....1.50@1.75
Avocados, doz. ....8.00@12.00
Bananas ....4@4½
Berries—
Strawberries, basket ....6@10
Blackberries ....10@12
Cherimoyas, lb. ....25@35
Loquats. lb. ....5@8
Pears, Winter Nelis, lug 1.50
Pineapples, lb. ....6@7

CITRUS FRUIT

Wholesale selling price:

Lemons ....1.00@2.00
Grapefruit, Seedless ....1.75@2.25
Navels ....1.00@1.75
Tangerines, half box....1.25@1.50
Limes, basket 1.00

DRIED FRUITS

Wholesale prices to retailers are:

Evaporated Apples, Fancy, lb. boxes ....7¾@11½
Apricots ....9½@11
Nectarines 12½
Peaches ....5¾@6¾
Pears ....10@11
Prunes ....5½@15
Plums 10

HONEY

Wholesale selling price:

Comb, Fancy, Water White....14
White 12
Light Amber 11
Extr. Water White 7
White 6½
Light Amber 5½
Beeswax 32

NUTS

Prices named by California Walnut Growers' Association are:

No. 1 ....16½
Budded Walnuts 20
Jumbos 19
No. 2 12
Culls 9

Prices fixed by California Almond Growers' Exchange, f. o. b. California.

Almonds—
Nonpareil ....21@22
I X L ....20@21
N P U ....19@20
Drake's Thinshell ....17@18
Pecans 17
Peanuts—
California, Raw 6
Japan 7½
Eastern 7½
Rice Corn....5.00@5.25

RICE

Wholesale selling price:

California ....4.75@5.00
Broken ....3.75@4.00

BEANS

Wholesale selling price:

Producer's price not far from one dollar under these quotations:

Limas ....6.35@6.50
Bayous ....6.00@7.00
Lady Washington ....6.00@6.10
Pinks ....5.00@5.10
Black Eyes ....6.75@7.00
Lentils ....10.00@12.00
Small White ....6.00@6.10
Garbanzos ....7.25@7.50

HAY

Prices to producer f. o. b. Los Angeles:

Barley Hay ....9.00@13.00
Wheat Hay ....8.00@11.00
Tame Oat ....9.00@14.00
Alfalfa ....8.00@10.00
Volunteer ....5.00@7.00
Straw ....5.00@6.00

GRAIN

Wholesale selling prices f. o. b. Los Angeles:

Corn, Yellow 2.10
Corn, White 2.20
Wheat ....2.50@2.55
California Red Oats....1.85
Oats, White 2.15
Oats, Hulled 2.55
Millet 3.75
Popcorn ....4.75@5.00
Egyptian Corn 2.10
Barley Seed 1.60
Barley, Hulled 1.95
Milo 1.90
Rye 2.30
Sunflower Seed 7.50

FEED STUFF

Wholesale selling prices f. o. b. Los Angeles:

Bran, Heavy 1.65
Alfalfa Meal 1.15
Alfalfa Molasses. per cwt.... 1.20
Beef Scraps 3.00
Beet Pulp 1.25
Cracked Corn, cwt. 2.15
Cracked Wheat. cwt.... 2.65
Cotton Seed Meal....1.80
Bone Meal 1.95
Meat Meal 3.00
Bone, Green 1.65
Charcoal 2.00
Oil Cake Meal 2.50
Fish Meal ....3.15@3.25
Rolled Oats 2.20
Middlings 1.95
Rolled Barley 1.50
Feed Meal 2.20
Scratch Feed ....2.20@2.40

San Francisco Market

SAN FRANCISCO, April 6, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade, 4 cents above following quotations:

Extras 23
Prime Firsts 22½
Firsts 22

CHEESE

Wholesaler to retailer.

Oregon Y. Am....14
Young America ....12@12½
California Flats ....8@13
Cheddar 20
Oregon Twins 14

EGGS AND POULTRY

Prices to trade 3 cents higher than following quotations:

Extras 21½
Firsts 19½
Select Pullets 18

Price to producer:

Hens. lb. ....16@18
Fryers ....24@28
Broilers ....28@30
Roosters, Young ....22@25
Broilers ....32@36
Squabs ....2.50@3.50
Ducks ....15@17
Geese ....2.50@3.00
Belgian Hares, lb....7@9
Turkeys, live ....16@18

LIVE STOCK

San Francisco prices. gross weight:

Steers ....4@7
Cows and Heifers....3@6¼
Calves, lb.. live weight....6@6¼
Hogs ....5@7¾
Wethers ....6½@7
Ewes ....6@6½
Yearling Lambs ....7½@8
Milk Lambs ....8@8½

POTATOES

Wholesale selling price:

Idaho Rose ....1.15@1.30
Idaho Russet ....1.40@1.60
Delta Burbanks ....90@1.60
Salinas Burbanks ....1.40@1.50
Oregons ....1.40@1.75
Shimas ....1.00@1.40
Washington ....1.30@1.40
Watsonville ....85@1.00
New Potatoes, lb....6
Sweets, cwt. ....2.25@2.50

ONIONS

Wholesale selling price:

Onions, cwt. ....60@1.00
Garlic, new ....20@22½

VEGETABLES

Wholesale selling price:

Asparagus, box ....1.25@2.00
Canners' offer ....1.00@1.25
Beans, string ....10@12½
Brussels Sprouts, lb. ....3@5
Celery ....2.00@2.50
Cucumbers, Hothouse, doz. ....90@1.10
Lettuce ....75@1.00
Peas, lb. ....3@7
Peppers—
Bell, lb. ....2@15
Chili, Mexican ....3@5
Rhubarb—
Southern ....75@1.00
Alameda ....65@1.00
Squash, Summer, crate....2.00@2.25
Tomatoes, Mex. ....1.75@2.25

FRESH FRUIT

Wholesale selling price:

Apples—
Newton Pippins ....50@90
Bellflowers ....25@50
Berries—
Strawberries—
Southern, cr. ....1.75@2.00
Watsonville, Drawer ....75@85
Bananas, Hawaiian, bunch....1.25@2.00
Pineapple. doz. ....2.00@3.50

CITRUS FRUIT

Wholesale selling price:

Grapefruit, Seedless, new crop.1.25@3.50
Lemons ....1.50@2.50
Lemonettes ....1.00@1.50
Navels ....1.00@2.00
Limes, case ....1.50@5.00
Tangerines, halves ....75@1.75

DRIED FRUITS

Wholesale prices are:

PRUNES—1914 crop, bulk basis: 30-40s, 7c; 40-90s, 6½c; 90-100s, 6c. The above are for both Santa Clara prunes and stock from outside sections.

Other Fruits. 50-lb. boxes—	Standard	Choice	Extra Choice	Fncy
Ev'p'd Apples		7¼c	7½c	8 c
Peaches	4 c	4¼c	4½c	5¾c
Apricots	9 c	9½c	10 c	11 c
Pears	7 c	8 c	9 c	10 c

RAISINS

California Associated Raisin Company's f. o. b. prices, 1914 crop, guaranteed against decline to August 1: Seeded fancy, 16 oz., 7¼c; 12-oz., 5⅞c; bulk, 6c; choice, 16-oz., 6⅞c; 12-oz.. 5⅞c; bulk, 5¾c two-thirds fancy, one-third choice, 16-oz., 5c; per case, 48 pkgs., $3.40. Loose Muscatels, 4-crown. 50-lb. cases. per lb., 6c; 3-crown, 50-lb. cases, per lb., 5⅞c; 2-crown, 50-lb. cases, per lb., 5½c; 1-crown, 50-lb. cases. per lb., 5½c. Seedless Thompsons, 50-lb. cases, 6½c; 16-oz. pkgs., 7⅝c; 12-oz. pkgs., 6⅛c. Sultanas, 50-lb. cases. 6c; 16-oz. pkgs., 6¾c; 12-oz. pkgs., 5½c. Layers, bulk layers, 50-lb. boxes. $2.75; 6-crown, 20-lb. boxes, $2.75; 5-crown, 20-lb. boxes, $2.25; 4-crown, 20-lb. boxes, $1.60; 3-crown, 20-lb. boxes, $1.30; 5-lb. boxes, add 50c; 10-lb. boxes, 25c. Cartons, No. 1 clusters, 20 to case, $1.70; No. 2 clusters, 12 to case, $2.10; No. 5 culsters, 4 to case, $2.25.

NUTS

ALMONDS — Prices fixed by Almond Growers' Exchange to the trade, f. o. b. California:

Nonpareil 21
I X L 2
Ne Plus Ultra....11
Drakes 1

Wholesale selling price:

Peanuts—
Unpolished ....5@
Polished ....6@6½
Shelled, Jap ....6¼@6¾
Italian Chestnuts ....6½@

BEANS

Wholesale selling price:

Limas ....5.40@5.5
Pink ....4.30@4.4
Black Eyes ....6.00@6.2
Cranberry ....5.00@5.2
Small White ..5..5.30@4.5
Garbanzos ....6.50@6.7
Large White ....5.25@5.3
Bayou ....5.30@5.5
Manchurian Speckled Bayous.4.00@4.1
Manchurian Butters ....4.50@4.7
Red Mexican ....5.50@5.6
Red Kidney ....6.00@6.2
Horse Beans ....3.50@4.0

HONEY

Wholesale selling price:

Comb, Water White ....14@1
Amber ....10@1
Dark ....7@1
Extracted White ....7@
Light Amber 5½
Dark ....4@5½
Beeswax ....27@3

HOPS

1914

Wholesale selling price:

Sacramento Valley ....12½@14½
Sonoma-Mendocino ....12½@1
Oregon Clusters ....12@1

HAY

Under date of April 6 Scott, Magne & Miller say:

Receipts of hay for the past wee were about the same as the precedin week—about 2150 tons. There are ver few changes to note in the market Quite a lot of alfalfa is arriving fron the interior. Most of this, however, ha been purchased for export and has bee brought to this city to be double com pressed to be shipped to Australia th first of May, one shipload having bee sold by Scott, Magner & Miller for thi purpose. It is to be hoped more trad in this line will follow, but as yet nothing is definite. An occasional car o fancy wheat hay or fancy red oat ha will sell at times for as much as $1.0 per ton above our quotations, but an quantity could not be placed at thes figures. Straw remains the same.

We quote the average wholesale pric of hay in carload lots on today's marke as follows:

Fancy Wheat Hay (light bales) ....11.50@12.5
No. 1 Wheat or Wheat and Oat ....9.00@10.5
No. 2 Wheat or Wheat and Oat ....6.00@8.5
Choice Tame Oat....10.50@11.5
Other Tame Oat....6.00@9.0
Barley ....5.00@8.0
Wild Oat ....6.00@8.0
Alfalfa ....6.00@9.0
Stock Hay ....4.50@5.0
Straw, per bale....30@4

GRAIN

Alfalfa Seed 16½
Wheat. Cal. Club....2.32½@2.3
Corn, Egyptian White ....1.85@1.9
Corn, Eastern Yellow....1.72½@1.7
Barley, Feed ....1.27½@1.32½
Oats, Red, Feed....1.45@1.5

WEATHER CONDITIONS

April 3, 1915.

Report from the various stations of the United States Weather Bureau, by George H. Wilson, director, San Francisco.

	Rainfall Data: Past Week	Seasonal to Date	Normal to Date	Temperature Data—Past Week—: Maximum	Minimum
Eureka	1.10	39.33	39.04	68	48
Red Bluff	2.42	31.64	21.63	70	48
Sacramento	.76	13.94	17.19	70	48
San Francisco	2.13	23.62	19.68	70	52
San Jose	.88	18.90	14.78	72	48
Fresno	.38	9.08	8.32	74	46
Independence	.08	2.92	8.22	74	....
San Luis Obispo	.73	23.77	18.21	76	44
Los Angeles	.60	15.35	14.11	82	48
San Diego	.18	12.93	8.91	70	48

Oats, White Feed	1.80@1.85
Millet	2½@3¼
Flaxseed	5@5½
Rye	2.00@2.25
Sunflower	5@5½

FEED STUFF

Wholesale prices.

Alfalfa Meal, car lots	14.50@15.50
Bran, ton	27.00@28.00
Feed Cornmeal	39.50@40.00
Cracked Corn	39.50@40.00
Rolled Barley, ton	28.00@29.00
Rolled Oats, ton	37.00@37.50
Middlings	32.00@34.00
Shorts	29.00@30.00
Oilcake Meal	38.00@39.50
Cocoanut Oilcake Meal	24.00@25.00

Citrus Fruit Market

LOS ANGELES, April 7, 1915.

Some of the decay which California oranges are showing is not entirely due to blossoming season. It is almost impossible to secure conscientious help which will handle oranges as they should be handled, and both in orchard and packing house eternal vigilance is the price of sound fruit. There is an apparent letting down of this vigilance. for the season cannot be accountable for all of the decay which has been so manifest. Even under ice a large percentage of decay is still showing. However slightly better conditions obtain than last week. Prices being received are slightly higher and more fruit is being moved. Prices are also somewhat better than last year this same date, but averages for the entire season are somewhat lower than last year. Excepting Valencias there are perhaps 11,000 cars yet to go, which should all be cleaned up prior to May 20. Of Navels there are probably not far from 8000 carloads. The remainder is made up of St. Mikes, Seedlings, Sweets, Tangerines, Bloods and others.

The lemon market is featureless.

Shipments

Shipments of oranges to date from Southern California since November 1. 1914, 15,175 cars, lemons 1.917. total 17,092. To same date last season: Oranges 16,879, lemons 956, total 17,835. Tulare and Northern California points have done no shipping during the past week.

NEW YORK, April 5.—Thirty-six cars navels, four navels and bloods, one navels and tangerines, and three cars lemons sold. Market about 10 cents lower on navels, unchanged on lemons. Cloudy.

NAVELS—	Avge.
Orchard, imp., National O. Co.	$2.25
Standard, imp., National O. Co.	2.00
Orchard, National O. Co.	2.15
Standard, National O. Co.	1.90
Orchard, imp., National O. Co.	2.15
Standard, imp., National O. Co.	1.75
Euclid, Growers Ft. Co.	2.35
Uplanders, Growers Ft. Co.	2.15
Uplanders, imp., Growers Ft. Co.	2.15
Rosemont, Growers Ft. Co.	1.80
Champion, Denman Sons	2.05
Seal Rock, Denman Sons	2.05
Cleghorn, Cleghorn Bros.	1.80
Prospector, Cleghorn Bros.	1.65
Uplanders, imp., G. Ft. Co.	2.10
Euclid, Growers Ft. Co.	2.30
NAVELS—HALVES—	
Mahala	$1.10
TANGERINES—HALVES—	
Orchard	$1.50
Pinnacle	1.20
Quail	1.00
Lotus	1.25
Monogram	1.05
LEMONS—	
Pride of Corona	$2.60
Corona Beauties	2.35
Mt. Wilson	2.45
Mt. Lowe	2.30
Hillcrest	2.25

BOSTON, April 5.—Sixteen cars sold. Market is strong.

NAVELS—	Avge.
Alpha, R. Henderson	$2.50
Orchard, National O. Co.	2.30
Gold Medal, G.O. Groves, Inc.	2.30
Elk, R. Henderson	2.25
Silver Medal, G.O. Groves	2.15
Pachappa, xf.	2.10
Medal, G.O. Groves	2.10
Brownie, Rialto Ft. Co.	2.05
Delta, R. Henderson	2.00
Pachappa, fy.	2.00
Thor, Amer. Ft. Dis.	1.90
Vulcan, Amer. Ft. Dis.	1.57
Belt, R.H. Ex.	2.05
LEMONS—	
Whittier, S.T. Ex.	$2.60
Pico	2.25
Pet, S.D. Ex.	2.90
Greyhound	2.55

PHILADELPHIA, April 5.—Eighteen cars sold. Market is lower.

NAVELS—	Avge.
Arcadia, Baldwin Estate	$2.05
Eagle Head, I. L. Lyon Sons	1.95
Highlander, Highland F.G.A.	1.80
Duarte Beauties, H. J. Coughlin	1.70
Buffalo Head, I. L. Lyon Sons	1.70
Mojave, Pas. F.P.C.	1.60
Lilac, Randolph Ft. Co.	1.60
Lighthouse, H. J. Coughlin	1.50
Hunter, A.C.G. Ex.	1.70
Quail, O.K. Ex.	2.10
Coyote, O. K. Ex.	1.85
Red Hussar, O.K. Ex.	2.05
LEMONS—	
Mt. Wilson, A.C.G. Ex.	$2.25
Mt. Lowe	2.00
NAVELS—HALVES—	
Crystal	$1.65

KANSAS CITY, April 5.—Attendance good. Weather fair, warm. Two mixed cars sold by Kansas City Fruit Auction Co.

NAVELS—	Avge.
El Toro	$1.53
LEMONS—	
Sardonyx	$2.00
El Toro	1.95
La Belle Creole (straight)	2.15
Carlington	1.65

PITTSBURGH, April 5.—Twelve cars sold. Market is strong.

NAVELS—	Avge.
Fuchsia, S.A. Ex.	$1.95
Cougar, Covina Ex.	1.95
Green Crusader, A.C.G. Ex.	1.75
Green Crusader, imp., A.C.G. Ex.	1.90
Special Coyote, O.K. Ex.	1.95
Imperial, O.K. Ex.	1.75
Pepperleaf, Riv. Ex.	1.95
LEMONS—	
Housewife, Riv. Ex.	$2.05
Lemonade, Or. Ex.	.185

ST. LOUIS, April 5.—Twelve cars sold. Market is unchanged.

NAVELS—	Avge.
Orchid, Dalrymple Ft. Co.	$2.10
Defender, Dalrymple Ft. Co.	2.00
Duarte Beauties, H. J. Coughlin	1.80
Lighthouse, M. J. Coughlin	1.75
Cactus, Highland F.G.A.	1.70
Cornucopia, R.H. Ex.	1.95
Pepperleaf, Riv. Ex.	2.00
Cal. Orange, Riv. Ex.	1.80
Prairie Chicken, A.H. Ex.	2.10
Oriole, F.C. Ex.	1.70
LEMONS—	
Cactus, Highland F.G.A.	$1.50
Victor, O.K. Ex.	2.20
Crest	2.05
Blue Jay	1.75

CLEVELAND, April 5.—Market is strong. Eight cars sold.

NAVELS—	Avge.
Pearl, R.H. Ex.	$1.75
Alhambra, S.T. Ex.	1.95
Don Quixote, S.T. Ex.	1.85
Trail, A.C.G. Ex.	2.15
Canyon, A.C.G. Ex.	1.90
Mt. View, Moose, O.K. Ex.	2.55
Prong Horn, O.K. Ex.	2.30
Buck, O.K. Ex.	2.15
Gold Buckle, R.H. Ex.	2.35
LEMONS—	
Cycle, F.C. Assn.	$2.30
Oriole	2.15
TANGERINES—	
Buck	$1.75

CINCINNATI, April 5.—Three cars sold. Market unchanged.

NAVELS—	Avge.
Blue Winner, Covina Hgts, G.	$2.20
Red Winner, Covina Hgts, G.	2.20
Homer, Q.C. Ex.	2.30
Camel, Q.C. Ex.	2.20
LEMONS—	
Pet, S.D. Ex.	$2.50
Arab, S.D. Ex.	2.30
Pup, S.D. Ex.	2.15

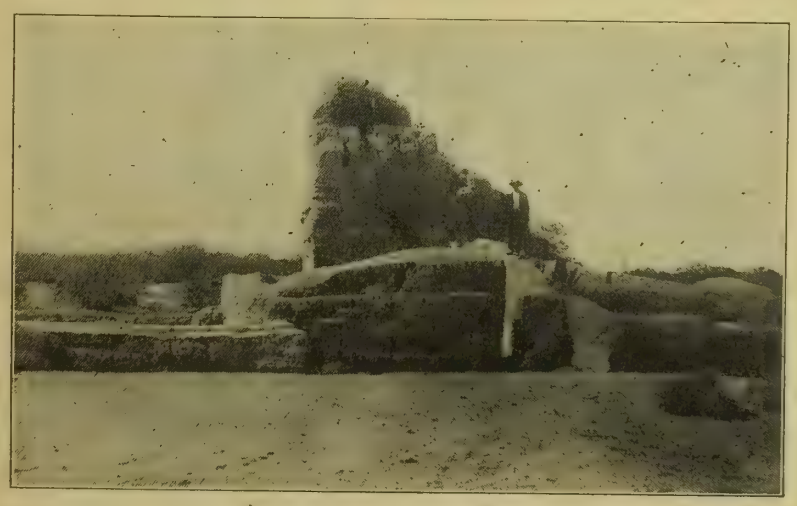
CHICAGO, April 5.—Oranges, boxes, California navels, 2.10@2.50; Floridas, 2.00; Valencias, 2.25@2.50. Lemons, boxes, Californias, 300 count, 2.65@2.90; 360 count, 2.50@2.75. Apples, boxes, western stock, 1.35@1.75; barrels, 2.50@6.00. Grapefruit, boxes, 1.65@2.50. Kumquats, 15 per quart. Strawberries, Floridas, 15 to 25 per quart; Louisiana, 2.70@3.50 for 24-pint cases.

PLANTING AND GROWING BEANS

(Continued from Page 427)

ing until March when tender round podded varieties are used. The Ventura Wonder Wax are, however, used throughout the year by the truck growers. Although other varieties are tenderer the Venturas have a better appearance.

Although plantings of beans are made every month the seedings are very limited until March. It is useless to plant beans sooner unless one's location and soil are particularly adapted, as they must have warm, well drained soil in which to germinate. If the soil is cold and damp the seed will rot in the ground without sprouting, or what few do get through the ground will soon die.



Adobe Ruins, Casa Grande, Arizona, Where Tepary Beans First Grew.

In the Imperial and Coachella Valleys the weather is warm enough so that plantings of beans may be made during February. The product of these are ready for market during April, getting in just ahead of the beans grown nearer the coast.

As spring weather comes on beans may be planted freely, first the hardier bush or dwarf varieties such as the Canadian Wonders, Early Valentine and French Mohawk. These are of the flat type and are inclined to be stringy if not picked very young. These are followed by the tenderer round podded varieties such as Burpees Stringless Green Pod, which is the most popular bush bean grown; Stringless Refugee Green Pod and Early Refugee, in green pods, and Stringless Refugee Wax, Black Wax and Golden Wax in the yellow podded varieties.

By the middle of April in practically all locations any or all varieties of beans can be planted. At this time the popular Kentucky Wonder and other pole or vining varieties and all varieties of Lima beans are put in. There are four varieties of Kentucky Wonders offered, each with its good points. The brown seeded, or Old Homestead, is the most popular. This has light green pods and is well known to all who have ever grown beans. The White Seeded Kentucky is becoming very popular with the market gardeners because it has a deep green pod giving it a very attractive appearance. Besides it is more resistant to mildew than the ordinary Kentucky Wonder. The gray or speckled seeded (see cut) is particularly a good variety, having deep green pods considerably broader than the other varieties. This variety must be poled to get the best results. Then there is the Kentucky Wonder Wax which has the good qualities of the other varieties of Kentuckys but with clear waxy yellow pods.

Gray Seed Kentucky.

Lima beans may be planted as early as March, but to little purpose as beans will not set on the vines until warm weather has set in during July. The bush varieties are far more popular than the pole varieties although the latter will produce more pods per plant. Fordhook bush is becoming the most popular of the dwarfs on account of its plump kernels.

From the middle of August on we use only very quick maturing varieties like Early Refugee or the hardier ones like the Canadian Wonders. During the late fall months a coarse bean known as the Horse or Broad Windsor Bean, is planted for winter use. This bean is highly prized by Europeans as a shell bean.

Garden beans require fairly rich, loose, well drained soil, well cultivated to insure a quick uninterrupted growth.

The plot selected should be deeply plowed and thoroughly harrowed and leveled. If rains do not come irrigation must be resorted to. Each rain or irrigation should be followed by cultivation to make a mulch to retain moisture and destroy weeds. Bush varieties will be ready to pick six to eight weeks from planting, while the pole varieties and Limas are two to four weeks longer.

When beans have been up four or five weeks they should be sulphured by dusting a small quantity of flowers of sulphur over the plants. This prevents mildew. As soon as the crop of green beans has been gathered it is advisable to plow the vines under. They make fine fertilizer. There are some varieties, however, that produce several crops, notably the Kentucky Wonder; green beans may be gathered for several months.

EFFECTIVE

Police Commissioner—If you were ordered to disperse a mob, what would you do?

Applicant—Pass around the hat, sir!

Police Commissioner—That'll do. You're engaged.—Satire.

SLOW

Nellie—Is that fellow of yours ever going to get up the courage to propose?

Belle—I guess not. He's like an hour-glass.

Nellie—An hour-glass?

Belle—Yes—the more time he gets, the less sand he has.—Philadelphia Times.

COMPLETE REFORM

"My wife married me to reform me."

"Did she succeed?"

"Yes, thoroughly. I wouldn't marry again if I lived to be as old as Methuselah!"—Puck.

Watch the fellow ahead, but remember the fellow behind who is after your job.

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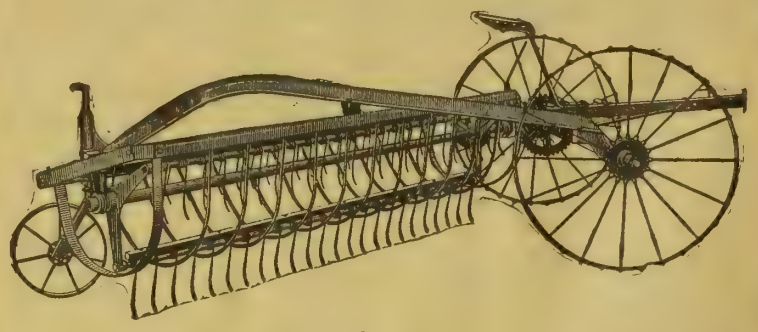
International Harvester Haying Machines



YOUR haying tools must be strong and steady in frame; they must work easily and smoothly; they must get all the hay and put it into the best shape possible. That is why you must consider **International Harvester** hay machines, for I H C hay machines have never been beaten for good work in the field or for durability, at any time or place.

I H C local dealers sell these machines. It is to their interest to see that your hay is put into the barn, stack or bale, in the best condition, regardless of the weather or accident. When they sell you an **International Harvester** tedder, side delivery rake, self or hand dump rake, stacker, sweep rake, loader, combined sweep rake and stacker, or hay press, they sell you a machine that you can depend upon; that will give you perfectly satisfactory service.

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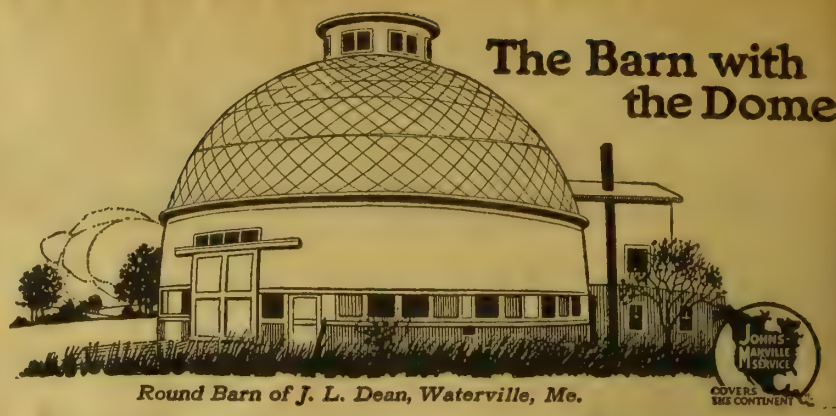
The Barn with the Dome



Round Barn of J. L. Dean, Waterville, Me.

The owner of this barn put on J-M Asbestos Roofing because it never needs painting and is backed up by

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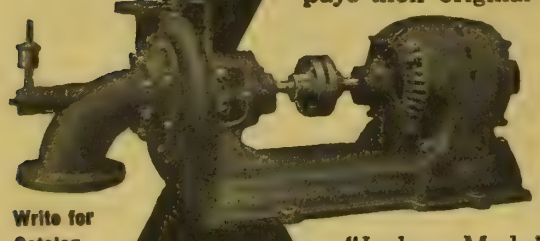

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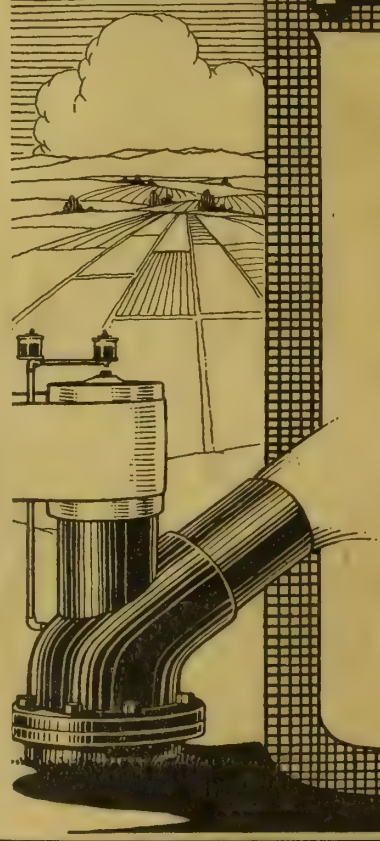

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The Layne & Bowler Pump is the best all around practical irrigation pump but we prove it.

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American Surface Irrigation Pipe is made heavy enough to last a lifetime. There are NO rivets. Riveted pipe is all right for underground work but surface pipe should NOT be riveted. Our surface pipe is made with our famous double-locked Seam that NEVER leaks—even if the pipe is crushed flat and opened out again. Write for illustrated catalog and irrigation circular.

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ALL ENGINES ARE BRAND NEW.

Write us for descriptive literature and price list. We have only nine engines left on this BARGAIN LIST.

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CALIFORNIA CULTIVATOR

Rural Californian combined with California Cultivator

An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES April 15, 1915 SAN FRANCISCO

Burden Bearers in Peace and War

A Bunch of Fine Animals on the Ranch of
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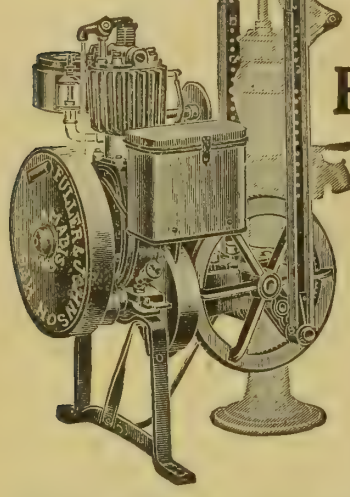
270 to 2450 Gallons of Water per Hour

Fits Any Pump — Anytime— —Anywhere



This is what the Famous

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will give you—Mr. Farmer and Mr. Ranchman—at trifling cost. No matter how hot or how calm or how dry it is, you can have all the water you want—for watering your stock, your gardens or your lawns, for household use, for washing your wagons and autos, etc., and for drinking purposes—fresh cool water direct from your well. And in case of FIRE, you can command a strong, steady stream at once that will shoot clear to the ridge-pole of your buildings—simply by attaching this wonderful little engine to your hand or wind-mill pump without cleats, special foundation or braces. BESIDES THIS, it will run your cream separator, washing machine, churn, grinder, or any other light mechanism.

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Besides costing next to nothing to run, the FULLER & JOHNSON Pump Engine costs very little to buy. It comes complete in one crate ready to use. You cannot afford not to have it.

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Send me your big catalog describing Fuller & Johnson Farm Pump Engines and price list—at once.

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Little Stories of Success

No. 6

A few weeks ago we got signed upkeep reports from 16 owners and operators attending one of our Caterpillar schools—16 little stories of success. The average engine had been in use two years—190 days each year—and had cost only $155 in extras, track and all. These men "behind the engine" figured 1244 working days as the life of the average Caterpillar. One Caterpillar had run five years—180 days and 150 nights each year—and the owners, Williamson Bros., of Farmington, say: "She is good for a lifetime."

Let us give you the name of a Caterpillar owner near you, and let him tell you direct his little story of success.

Both Expositions—San Francisco and San Diego

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Don't say Caterpillar unless you mean Holt

The Holt Mfg. Co.

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Plant "Pure Bred"

Acclimated California Grown

White Corn

This seed is originally from pedigreed Nebraska Corn and has had 10 years of careful selection on our own ranch. Now we raise 60 to 70 bushels per acre. You can do the same with our seed.

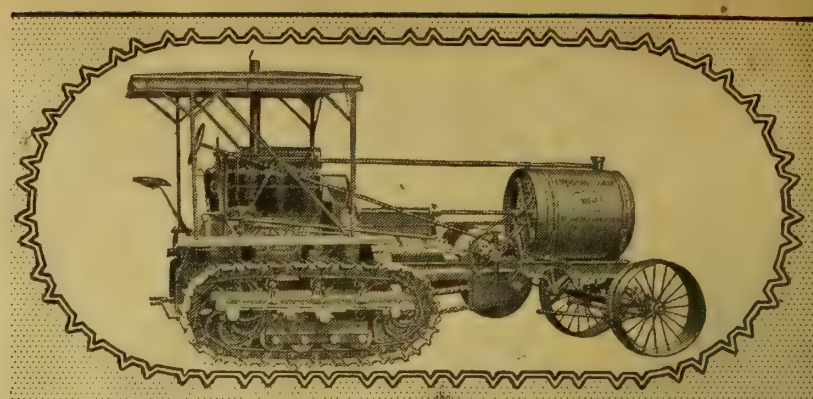
Select on ear, 4c per pound.

Select shelled, 4c per pound.

Any quantity F.O.B. Riverside.

Rough's Greenfields,

Arlington, Riverside Co., Cal.



Get Your Crop in on Time with a "Creeping Grip" Tractor

WHY let low, wet spots in your field set you back? Your time is limited—your crop must be started without delay if you want maximum yield when harvest time comes.

Here's the tractor that asks no favors of soft, wet ground. It can pull your plows through any ground that's worth working. The creepers do not sink or pack the soil—they cannot slip and lose power. They creep along over the ground, getting a firm grip and giving you maximum traction with the least weight on the soil, least consumption of fuel, and least wear and tear on the power plant.

The machine rides on steel rails on the endless track. The creepers oscillate over rough spots. Thus the power plant is carried smoothly, free from jolts and vibration. The frame sets upon 3 points of suspension, which eliminates binding on the bearings.

No other power is as well suited for pulling your plows, harrows, seeders and combined harvesters. Let us tell you how you can cut your present cost of doing this work.

Write for Catalog

No other tractor is as carefully built as the "Creeping Grip." We put in it the best materials than can be produced. A demonstration will convince you. In writing please tell us how many acres you operate, so that we can suggest the best size suited for your work.

Bullock's Orchard Tractor

741 Consolidated Realty Building

6th and Hill — Phone F 3626 — Los Angeles, Cal.

An Overproduction of Apples ?

The present demand for apples in the United States, including those used for export, is placed by the Department of Agriculture at 55,000,000 barrels. If that many apples were raised in this country there would be no overproduction. Figures from the Department of Agriculture show there has been an average annual decrease of 25 per cent in the apple production during the last nine years. The serious shortage that exists for apples is attributed largely to the dying out of the old orchards and the insufficient plantings of new ones.

The Yucaipa Valley, eight miles from Redlands, altitude 2400 to 3000 feet, is the place to plant an apple orchard, and this is the time of year to visit Yucaipa and see what you would have if you had planted four years ago. It is not too late to make a start.

Come to Redlands and let us take you to Yucaipa and show you our five, ten and twenty acre tracts at $285 per acre, on very easy terms. One share of stock in a Mutual Water Company with each acre.

Redlands & Yucaipa Land Co.

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209 Orange Street — REDLANDS, CAL.

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If interested in the subject of pumping from wells—write for a copy of our catalogue No. 103 with valuable information on irrigation.

For deep lifts as well as shallow lifts, combined with high heads above surface and through long pipe lines. No auxiliary pump needed for forcing water above surface.

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No pit required. Does not get oil into the water. Consumes less power per unit volume of water pumped.

Pomona Mfg. Co., Pomona, Cal.

Pomona Gates and Valves for cement pipe irrigation are acknowledged to be the best.

California Cultivator

Rural Californian combined with California Cultivator

Vol. XLIV No. 15 LOS ANGELES: THURSDAY, APRIL 15, 1915 One Dollar Yearly

More Live Stock in California

There Has Been no Time in the History of the State When There Was so Great an Interest in Live Stock as Today. No Section Offers Better Opportunities. Then Why Purchase From Other States so Much of Meats and Meat Products?

NEVER was there a time when California live stock growers were so much alive, were showing so much activity in advancing their interests as now. More cow testing associations are being formed, state associations of horse breeders, cattlemen, swine breeders, sheep and wool growers, poultry breeders and others are all most active. The general financial depression is a serious handicap to advancement, but in spite of it the live stock industry grows.

"A live stock country is always a rich country" is as true as it is trite and old, so speed the day when the Pacific coast shall have reached its full capacity as a live stock producer. "Its full capacity" means much, for with California soil, water and climate the wonder crop, alfalfa, richest and most productive of all feeds, makes a condition vastly different from the "50 acres to the cow" of old range days. California has no ambition to feed the world, but it should and surely can feed itself.

The doleful, the long-faced pessimist is throwing fits because of tuberculosis, hog cholera, foot and mouth disease, glanders, the exactions of the railways and the packing trust, but possibly a dash of water in his face may shock him into determination to force from all these adverse factors the success which comes to the steadfast.

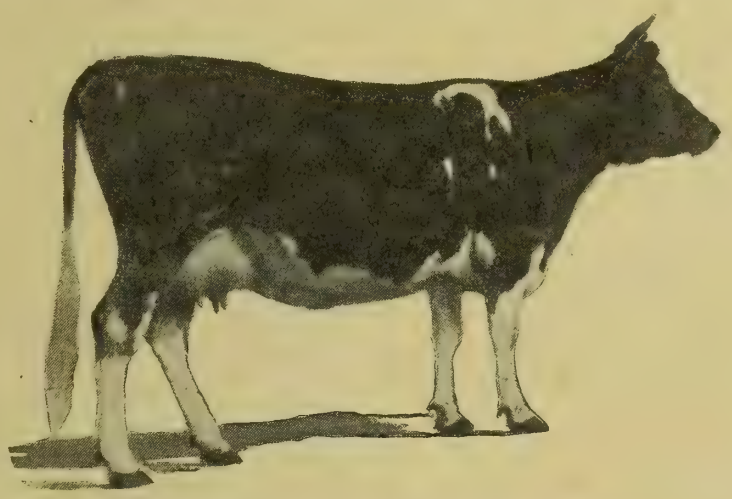
As to the foot and mouth disease, however, it has been kept from the state by rigid quarantine. If this is continued it will prove greatly to the state's advantage. Fortunately there is now within the state's boundaries some of the finest blooded stock in the world. We wish there were more, but in the hands of careful breeders it will rapidly increase and even if no imports are permitted the state's normal demand may be met.

One good feature of the live stock industry is that not only is the wealthy man putting much capital into its development, but the increase in stock is noted on almost every one of the small ranches of the state. The small farmer is finding that from a dozen to 50 sheep are an excellent aid in keeping down weeds along ditch banks and in affording opportunity for fresh meat without paying the long prices required by the butcher's wagon which calls at the door daily or semi-weekly.

We give on this page photos taken by the Cultivator on one of the most highly improved stock ranches of the state. It is that of the Elliott-Brant Rancho in the San Fernando Valley, Los Angeles County. The location is some 30 or 40 minutes run from the center of Los Angeles city, and in a most beautiful locality surrounded by green hills. Within the boundaries of the ranch there are 640 acres, but several hundred other acres are being used to grow grain and supplies for the live stock. The photos given show the care which is bestowed upon the dairy end of the farm. We may refer to the fact that in addition to the dairy department the ranch work is all done by magnificent pure bred Percherons which are also used for breeding purposes.

The swine, Tanworths and Berks, everyone pure bred, have quarters as attractive as are the dairy quarters shown on this page. Several hundred head of pure bred Shropshire sheep with nursing young lambs are in the corrals. Later they will be used to glean over the grain fields.

Even the poultry department of the ranch runs entirely to pure breds. There are several thousand White Leghorns but these are gradually being reduced and the energies of the department given over almost exclusively to the production of Bronze turkeys. Each pen is large enough to contain several dozen turkeys but the number is reduced so that the birds in each pen have abundance of room for exercise and range for insects.



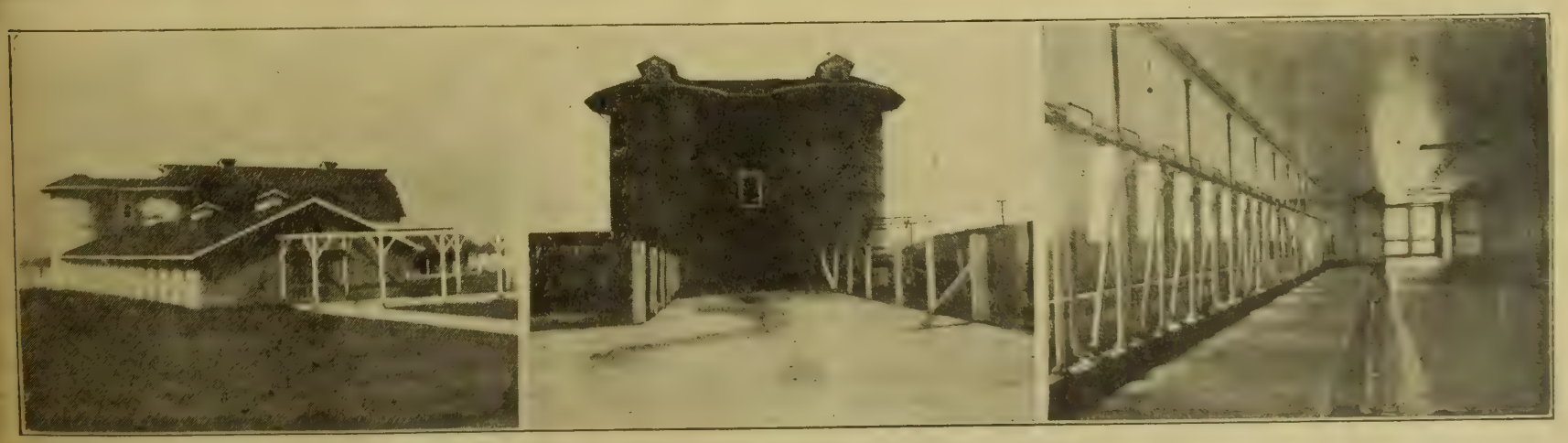
NELLIE'S CARNATION, GRAND CHAMPION COW CALIFORNIA STATE FAIR, 1914

Returning to the dairy we may call attention to the fact that there are some magnificent Guernseys in the herd. Nellie's Carnation, whose photograph appears, is a grand champion not only as to points which the judge at the state fair would consider but as to production. She is now under the advanced registry test and is far enough along to show very plainly that she will be admitted and that she and her offspring will make records as producers in the Guernsey world.

Mr. A. T. Brant, who has charge of the dairy herd, takes much pride in the stables and surroundings. When the writer visited the ranch he went unannounced and uninvited. The photographs of the interior of the "milking parlor," which Mr. Brant prefers to call the stable, were taken without any preparation or cleaning and just as the stable hands had left it after the stock had been turned out for the day. After a thorough inspection of it and the adjoining barns we concluded that Mr. Brant's "milking parlor" was entirely justified. No milking machines have as yet been installed, the preference being for the old time method of milking.

The photographs of the silos in the foreground show the perfect arrangement of the corrals. The soil around the barns is of a sandy loam nature so that but little working up of a muddy condition in the corrals would be possible, but even considering that, Mr. Brant prefers the perfect cleanliness possible only with cement bottoms and abundance of water for flushing. This is also true of the approach to the stables from the front. Broad concrete walks prevail everywhere. At first this may appear like needless expense, but with a perfect product, which is the ambition of this ranch, perfect cleanliness is necessary. The dairy is not what is termed a certified dairy, but its product is the equal of any certified dairy for every precaution is taken to produce for particular customers the very finest product possible from a dairy.

The dairyman who would secure ideas on dairying of the up-to-date kind may have an inspiration by inspecting conditions at the Elliott-Brant Rancho.



AT THE ELLIOTT-BRANT RANCH, LOS ANGELES COUNTY.

Showing concrete milking parlor, silos and feed barn. Bunk house and calf barn on the right.

Concrete silos 37x14 feet. Capacity 250 tons. Sunk into Ground six feet. Tar lined.

Milking parlor interior. Metal stanchions, concrete floors, wide shallow gutter. Note abundance of light, electric lights and ceiled roof.

Absolute Dispersion Sale

of the

P. F. SCHUMACHER HERD

(Recently Tuberculin Tested)

75---Registered Holsteins---75

Ascot Park, Los Angeles
Wednesday, May 12, 1915

Greatest Event!

This is undoubtedly the greatest event of its kind ever held in the West. This sale comprises 60 head of splendid young cows and heifers and 150 highly bred bulls and bull calves.

Great Records

There will be more high record cows in the sale than in any sale previously held on the Coast, including:

White House Belle, 29.27 lbs. butter and 660.2 lbs. milk in 7 days

Alba Sadie Cornucopia Creetia, 28.85 lbs. butter and 612.3 lbs. milk in 7 days

Breeding! Individuality!

Among the good ones to be sold are daughters and granddaughters of such great sires as Sir Sadie Cornucopia, son of the first 30-lb. cow; Rag Apple Korndyke 8th, the $25,000 Bull; Pietertje Hengerveld Segis, son of King Segis out of a 33-lb. cow; Sir Fayne Concordia, grandsire of world's champion heifer under 2 years; Pontiac Hesseltje Korndyke; Aaggie Cornucopia's 3rd, Lillith and others. Also the 3d prize 3-year-old at Chicago National Dairy Show in 1910 and the first prize calf in the Colorado State Fair, 1914.

Bred to Greatest Bred Bull

A noteworthy feature of this sale is the large number of females in calf to **Tilly Alcartra's Son**, junior herd sire of McAlister & Son, the greatest bred bull of the breed and son of the only cow to make over 30,000 lbs. milk in one year. This alone is sufficient to put this sale among the topmost of the sales held in the U. S.

Bulls! Bulls! Bulls!

McAlister & Son, having recently purchased the famous Merci Ranch Herd of Modesto, are consigning their herd bulls, which are among the best of the breed. They are a 3-year-old son of King Segis Pontiac Emperor, seven-eighths brother to the $50,000 bull out of a 20-lb., four-year-old daughter of Juliana King of Riverside; a 2-year-old son of King Pontiac Artis, the greatest son of the Great King of the Pontiacs out of a good record daughter of Prince Hengerveld De Kol who contains 75% same breeding as Hengerveld De Kol; a 2-year-old son of Pontiac Hengerveld Parthenia, sire of the former world's champion, four-year-old out of daughter of Sir Korndyke Manor De Kol, sire of 330-lb. daughter. Other splendid young herd headers to be sold are a son of De Kol Hengerveld Burke, sire of 230-lb. daughters; a grandson of the Pontiacs and a son of the cow that sold for $625.00 at the Hanford sale.

Bull Calves

There will be seven or more splendidly bred bull calves sold, including sons of the above mentioned 28 and 29-lb. cows. They are good enough for anybody.

Your Opportunity

On account of the outbreak of the foot and mouth disease in the East and Middle West there is a quarantine against all shipments of live stock from those sections. This will be your only opportunity for many months to buy high-class registered Holsteins at your own price.

Terms

$500 and under, cash. Over $500 ⅓ cash; balance in three equal installments of 3, 6 and 9 months with bankable note bearing 8% interest; 5% discount allowed on time sums. Buyers from a distance must bring satisfactory bank references.

For catalogue address

JAMES W. McALISTER, Jr., Sales Manager

CHINO, CALIFORNIA

or

COL. BEN A. RHOADES, Auctioneer

1505 S. Main Street **LOS ANGELES**

The Useful Goat

Written for the California Cultivator
By Leroy Anderson

INTEREST in these oft-despised animals is much on the increase, so say goat raisers. A well known breeder said to me the other day that he had never known a time of more frequent inquiries. A breeder of milch goats said that in answer to an advertisement which he placed in an agricultural journal to sell three bucks, he received over two hundred letters.

Milch Goats

It has been estimated that in Germany seventy-five per cent of the households keep goats. They are not confined to the poorer people but the prosperous middle classes consider the goat of advantage to them also. Other European countries, especially those bordering upon the Mediterranean, could probably show as high a percentage of families depending upon the goat for their supply of milk, butter and cheese. A German author writing of the goat says: "It furnishes to its owner without doubt, the best milk for nourishing infants for the household, for the cooking of food, and for coffee, besides butter and cheese.

Geneva and Three Babies

When one considers that it very often depends solely on the milk production of the goat whether the nutrition of the child and the whole family is good or bad—and the nutrition from infancy on has a bearing on the ability to perform a greater or a comparatively small amount of work in later life—then one will believe me when I say the goat is in a position to wield a great influence in sustaining life.

Jensen in his "Milk Hygiene" gives the composition of goat, cow and human milk as follows:

	Goat.	Cow.	Human.
Water	87.30	87.75	87.92
Casein	3.00	3.00	0.58
Albumin	0.50	0.50	0.52
Fat	3.90	3.40	3.43
Lactose	4.40	4.60	7.12
Salts	0.80	0.75	0.25

J. R. Chisholm of Queensland, Australia, several years ago wrote: "We had a terrible season last year and most of us lost heavily in sheep, but the goats kept us going on their milk all the time; and it was in that dry time that I overcame my prejudice and ate and relished goat meat, or, as you would call it, venison. The goats served us well until the rains came. I have just asked my girls about the flock, and they tell me they milk 18 nannies and make from four to five pounds of butter weekly from them and have besides an abundance of milk for our household of eight."

Breeds

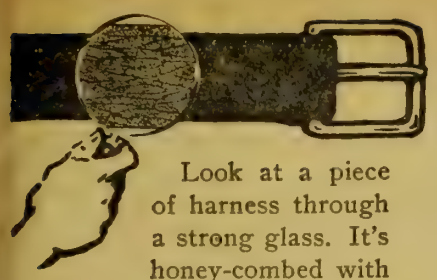
One would need to name nearly all the countries of Europe, Asia and Northern Africa to list those having particular breeds of milch goats. But that would not be sufficient to number the breeds, for Switzerland is credited with having at least 16 pure bred varieties. Every valley in the little country has its distinct type. The chief breeds that have found their way to this country are the Toggenburg, Saanen and Schwarzwald, the two former from Switzerland and the third from Southwest Germany. So far as California is concerned the two Swiss breeds are the prominent ones, with Toggenburg in the lead. The illustration in this issue is of pure bred Toggenburgs, owned by a prominent breeder in Alameda county.

The Toggenburg is brown in color with a white bar down each side of the face, and the legs below the knee are light gray or almost white. The Saanen is pure white or creamy white. It is the largest breed in Switzerland. Both breeds are lean and lanky in appearance, "of pronounced dairy type," the cow man would say. A good average production of milk for these breeds is four or five quarts a day. The best produce about six quarts daily with occasionally one showing up even better. As a rule they are quite persistent milkers, holding out well toward the next kidding time.

Prices obtained for stock in California are remunerative. Registered Toggenburg bucks sell from $50 to $100 per head. Registered does are so scare and so few in number comparatively that there is no established price. If a breeder is willing to sell a pure bred doe he has no trouble in securing almost any price he may ask. Grade does sell from $20 to $30 per head, and these are purchased by families who want a goat to supply milk either for infants or for the family. There is a good market for grade bucks with Italian butchers, in San Francisco for instance. Such kids when only six to eight weeks old sell at the door, alive, at $2.50 to $3.00 each for the Easter market. Following Easter the price is usually $2.50 f. o. b. station, the breeder crating and shipping them. The meat at this age is considered a great delicacy among the Italian colony.

California Experience

Every time I go out to visit a goat ranch I look for it on a hillside and I have never yet been disappointed. Milch goat ranches are now located for the most part in the neighborhood of cities, large or small. There is the market for the milk which retails usually at 25 cents a quart. There is also the chief market for does, purchased by town and city families. However, goat men tell me there is no reason why one should not establish himself on a level piece of land in a strictly agricultural section, even in an alfalfa district, if still quite accessible as to transportation. Suburban goat ranches are on land held at $500 to $1000 an acre to as much as



Look at a piece of harness through a strong glass. It's honey-combed with pores—like a sponge. But you can't see them with the naked eye.

EUREKA HARNESS OIL

If moisture, sweat and dust are allowed to get into these pores, they gradually sap the life and strength of your harness. An occasional application of Eureka Harness Oil fills the pores of the leather and resists the attacks of the elements. Eureka adds years of life to your harness. It pays to use it. Dealers everywhere.

Standard Oil Company
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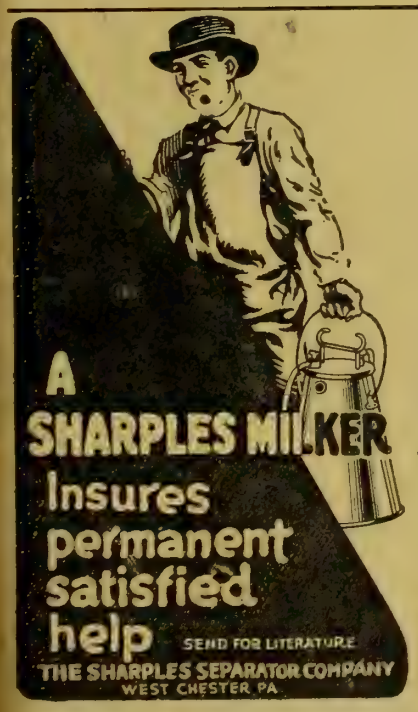

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also any Bunch or Swelling. No blister, no hair gone, and horse kept at work. Concentrated—only a few drops required at an application. $2 per bottle delivered.
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Calf Profits

Are you getting them? Calf profits mean more to you now than ever before.

Blatchford's Calf Meal

has been known since the year 1800 as the complete milk substitute. Costs less than half as much as milk—prevents scouring—promotes early maturity. Sold by dealers or direct from the makers.

Write for New Data See actual figures showing you how to increase your calf profits.

Blatchford Calf Meal Factory, Dept. 4264 Waukegan, Ill.

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Germain Seed & Plant Co.
Established 1871
326-328-330 So. Main St.
Los Angeles. California

for a building lot. Here practically all feed is purchased through several middlemen. The ranch in the country raises its own feed and operates on land of much less market value. The chief drawback to a goat ranch at a distance from milk consuming population is the disposal of surplus milk. Making cheese offers the best solution of that question.

For a single feed nothing seems better than alfalfa hay with a little rolled barley. Asking a breeder near Oakland as to the cost of keeping a goat he said he charged one dollar a month for boarding does and that just about covered the cost of food. The goat likes a variety and is never happier than when on a grassy, weedy, bushy hillside where it can vary its diet at every mouthful. The doe must, however, have plenty of nutritious food if it is expected to give a lot of milk. The same rule holds as with the milch cow. An alfalfa rancher has all the advantage of feeding conditions if he likes breeding live stock.

Prejudice against goats has hindered and still hinders trade in them. Americans are so fond of doing big things that they think anything so small as a goat is not worth considering. Our conception of the goat was a plaything when we were children, an eater of tin cans in our back yards and a butt of ridicule at all times. That this prejudice gets hold of foreigners who settle here is illustrated by experiences related by a goat breeder who lives near a Portugese settlement. He says the parents keep a goat because they were accustomed to milking goats in Portugal where they had them giving as much as four quarts a day. But as the children grow up they become ashamed of goat society and induce the old folks to part with nannie. Such prejudice must be lived down and is being lived down as all classes of people are learning by experience the life saving qualities of goat's milk. This is evidenced by the fact that the demand for milking does is ahead of the supply.

The doe has from one to three kids, the young does usually one and when older usually two. The average of a flock would be two kids for each doe yearly. The first kid should not be dropped until the young doe is two years old, and then the doe is bred once a year. The goat has a comparatively long life, 10 to 15 years. In comparison to sheep raising on a small scale it would seem that milch goats promise well, with grade male kids worth $2.50 at six to eight weeks old, grade does in milk at $20 to $30 and registered stock at high prices.

Angoras

So much is known of the Angora that it may be sufficient to quote here now some prices of animals and products. The mature goat produces about four pounds of hair worth 30 cents a pound. The skins are worth from one to two dollars each for large ones and from 10 to 50 cents for small. Angora goat meat sells at about one cent less per pound than mutton, though I presume we consumers pay the same. Registered males sell for $25 to $100 each and registered does from $12.50 to $25.00. It is usually considered that hilly land is best for them but they will thrive on level land if not wet so as to cause foot rot. Angoras are valuable for hair and meat and the skins and since not counted in the milk producing class must be kept on the cheaper land.

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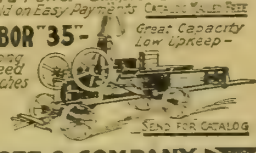

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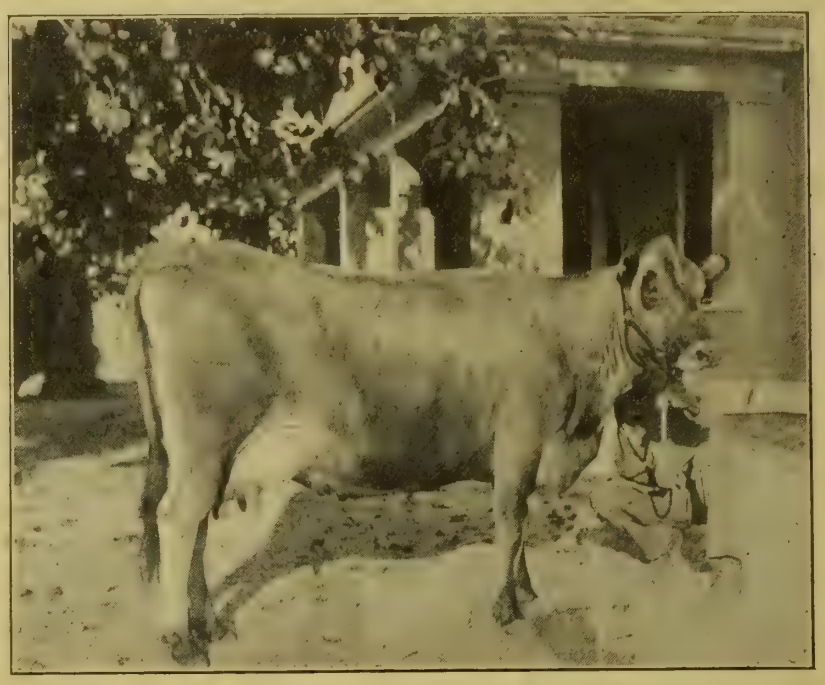
Why Cow Testing Associations Fail

Written for California Cultivator
By Guy H. Miller

FEW practical dairymen nowadays will deny that the organization of a cow testing association in a dairy district is a public and private benefit, for the fact that the individual cows composing dairy herds should be tested for yearly butter fat production, that the unprofitaable producers may be weeded out, is, at last, slowly but surely, being realized by the dairying public.

That the cow testing association is one of the easiest, simplest and cheapest means of doing this work is also realized, and many cow testing associations are being formed. Such movements are an assurance of progressive ideas among the dairymen of a community and should be fostered and encouraged. But every dairyman who joins a cow testing association should bear in mind—in fact, should take it seriously to heart—that attending the first few organization meetings and agreeing to have his herd tested is but the smallest part of his duty to the organization and to his fellow members.



WANDA OF VENADERA
One of Guy Miller's Breeding

The forming of a cow testing association is the forming of an organization for mutual benefit, wherein each member by the help of his financial and moral support attains a desired end, which is that each member gets his cows tested for a year by a man competent to do this work. One of the greatest factors in bringing about the failure of many cow testing associations is the neglect on the part of so many of the individual members to realize and appreciate this fact. Many dairymen attend the organization meetings and display much enthusiasm, sign up the contract to have their herds tested, agreeing to pay for this work in certain payments at certain times, help elect a president, a secretary and a board of directors, all of whom, except the secretary, are expected to donate their services free of charge. Then the dairyman goes home and forgets that he has any further duties in the matter; forgets that he has become a member of an organization for mutual benefit and for the benefit of the community. When the tester comes to his place he has his cows tested, but when his payments come due he forgets all about sending the secretary a check for the amount; neither does he ever find time to attend the meetings when called. After a while he receives a bill for his dues, calling his attention to the matter, and he forgets it again. Later he gets another bill and a letter saying that the board of directors are urgently in need of funds with which to meet the expenses of the organization, and asking him to remit. Then he gets mad and begins to kick about the way the thing is run—says the tester does not attend to his work, or accuses the officers of misusing the funds, makes up his mind he will quit testing, tells the tester not to come any more and refuses to pay his bill.

Sometimes, after testing a few months, a dairyman whose herd has shown up well will use the records made as a means to sell his herd at a good figure, and then says he has sold out and that the association is no further benefit to him, so he should not be asked to pay his dues as promised, though the work of the association enabled him to get an advanced price for his cattle. Or a dairyman finds that his herd is one of the lowest producers in the association, and he decides that he wants to stop testing and sell out before the public finds out anything about it; so he says the tester doesn't know his business or the association is a fake and so he gets out of it. Of course he never pays his dues and pretends he is insulted if he is presented with a bill.

A cow testing association when organized generally makes the dues as low as possible consistent with the known necessary expense. Only a limited number of herds can be tested by one tester. It is not an organization with a surplus working capital engaged in a business for the purpose of making a direct profit. But it is a fraternal organization for mutual convenience in obtaining a desired end, that the members may have a better knowledge of their own private business; and every dairyman on joining a cow testing association should cheerfully assume the obligations of paying his dues promptly, giving the officers his support and good will, thus showing appreciation of the fact that the directors are giving their time free for the management of the affairs of the business. All the money promised in dues is required to meet the obligations of the organization. The dairyman should remember that if he fails to come through with his share of the money the association will lack that much of being able to meet its expenses. This condition helps to cast discredit on the officers and the association.

If any member thinks the tester is not competent or is negligent he should at once take the matter before the directors at a regular meeting in a friendly spirit, for all are equally interested and all are desirous of securing reliable and accurate results.

I do not wish to be understood as saying that all cow testing association members are shirkers, or that they try to evade their dues. There are many loyal members who pay their dues promptly and who work for the association and stand by it through thick and thin; but there are unfortunately some shirkers in nearly every association, and in many associations there are enough of this kind to keep the organization in embarrassed circumstances continually, because they are so negligent in making their proper payments. For the lack of funds the association gets behind in paying the tester's salary and it is hard to keep a good tester on the job. The secretary fails to get his salary. And if

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this condition persists the association will necessarily go on the rocks.

The time is rapidly approaching when the testing of each cow will be recognized as almost a necessity. There are more reliable ways of doing this than by joining a cow testing association, where but one day's milking monthly is weighed and tested; but there is no cheaper or easier way. A man can test his own cows and get more reliable information than through the association. A cow's milk should be weighed at every milking throughout the year; not one day in a month, and it should be tested for at least four successive milkings during each month. Any careful dairyman can learn to test his own cows; but this work takes time and patience, and few dairymen will give the necessary time to this work to do it right. They start out with good intentions but fail to keep up the good work. As proof of this assertion I will call the reader's attention to the many Babcock milk testing machines throughout the state stowed away where they have not been touched for many months. The realization of such a condition brought into existence the cow testing association for the mutual convenience of the busy dairymen. And every dairyman who has any appreciation of fair play should realize the mutual obligation assumed in joining and be willing to keep up his end of the bargain.

California Stock Raising

Written for California Cultivator
By Sacramento Valley Contributor

CALIFORNIA has always in one way been a big producer of live stock. All of the mountain and hill ranges furnish grazing for thousands of cattle and sheep, and some of the big live stock companies of the United States are located here.

And only 28 per cent of the area of California is land in farms and only 11.4 per cent improved land in farms, leaving a large per cent for grazing and waste land.

In many places, not only in the eastern states but right here at home, it is thought that California is a fruit state principally and it is possible that many fairly well informed people would guess and state that citrus fruit brought to the state the greatest single revenue. Yet of the agricultural wealth produced in the state annually 19 per cent comes from hay and forage, 15 per cent from animals sold and slaughtered, 13 per cent from cereals, nine per cent from dairy products, and only eight per cent from tropical fruits, including oranges, lemons, olives, figs, grapefruit, loquats, dates, etc. Other orchard fruits; plums, peaches, prunes, apricots, cherries, etc., make up another eight per cent, and grapes five per cent more.

There is not included in the animals sold and slaughtered four per cent for fowls and eggs sold and one per cent for wool and mohair.

The money value of all of the agricultural products is $219,021,000. The animals sold and slaughtered return $33,627,000.00.

Agriculture without live stock is not on a sound basis. This statement is made with a permanent agriculture covering a long period—many generations, in fact—in view, and from this viewpoint certainly cannot be contradicted. It is true that some highly specialized forms of production in specially favored localities have been and are being carried on without that diversity which brings live stock directly into the operations, but there are few, if any, that do not use quantities of animal manures.

The most satisfactory system of farming, from the standpoint of the individual and the welfare of the nation, is a diversified agriculture with the production of live stock in a prominent position, but with the intensive orchard or field crops for which the location is suited being developed to whatever degree is justified. In this system the by-products of the crops are turned into high priced live stock products, and the manure from the live stock is invaluable for increasing crops and maintaining and adding to the fertility of the land and the physical or mechanical condition of the soil.

And nowhere are there better opportunities than in California for success in this kind of farming.

The people of our part of the world must have meat, whether they get luxuries or not. Forecasters of affairs are not able to look into the future and see a time when meat products are likely to be produced at a loss or even at a small margin of profits. This is a general proposition and applies to the man on a small diversified farm who not only feeds and finishes, but breeds and grows the live stock he markets. Large operators in feeding enterprises are not always able to figure what the market will be 90 days or six months hence, and frequently lose large sums, as cattle feeders did during the past season. But the small grower made money.

It is interesting to note that even in districts that are being boomed for one kind of crop or another, oranges or prunes or rice or some other special crop that promises fabulous returns, conservative, far-seeing farmers and stockmen are steadily increasing their operations, growing more alfalfa and other feed, building silos, breeding better stock and making money in a sure if not a very spectacular fashion, apparently willing that the enthusiast who may think them slow should make the big money.

And on the other hand, and along the right thinking line of conservative diversity, old-time grain farmers and stockmen are putting out 10 and 20 and 40-acre orchards on suitable land and in many cases taking good care of them—which is as it should be—both for the individual and the community.

One of the arguments met in the East in connection with the live stock show at the Panama Pacific International Exposition was, "What's the use of taking live stock to an orange country?"

We will do well to let the world know—and fully realize ourselves—that we have one of the greatest live stock states in the Union in spite of the fact that we are specially favored in being able to produce luxuries in the shape of orchard and other crops.

Encourage community cooperation in every way possible with the purpose of obtaining the best educational, social and economic development of farm life.

DAIRYMEN ORGANIZE

Dairymen of Southern California, especially those supplying sweet cream and milk to the Los Angeles market, have organized themselves into the Southern California Milk Producers' Association, an organization for the mutual benefit of milk producers of Southern California. The first move toward an organization was because of a cut made by the purchasers of milk in the Los Angeles market. A cut of 25 cents per 100 pounds was made, reducing the price of $1.60 per 100 pounds for four per cent milk during the months of January, February and March; $1.80 for the second quarter, $2.20 for the third quarter and $2.40 for the last quarter of the year, or practically an average of $2.00 per 100, making a reduction of about 25 cents per 100 pounds.

One cause for the reduction announced by the so-called milk trust was that overproduction made a larger quantity than could readily be handled in that market. To this the dairymen replied that if the consumers of cream in Los Angeles would cease buying low grade skim milk powder and cheap butter and manufacturing homogenized cream there would be plenty of consumers to handle all the fresh cream and milk shipped to the Los Angeles market. In any case, the dairymen propose to get business and fight for their own interests, and one step is an effort to induce the state dairy bureau to do its duty and prevent the use of this manufactured "cream." The matter has also been presented to the board of health of the city of Los Angeles but no effective work has been done yet by the city or state organizations.

The officers of the Southern California Milk Producers' Association are C. M. Whaley, president; L. F. Gillett, vice-president; Ben A. Rhoades, 1505 South Main Street, Los Angeles, secretary. The next meeting will be held at Burbank Hall, Los Angeles, April 21.

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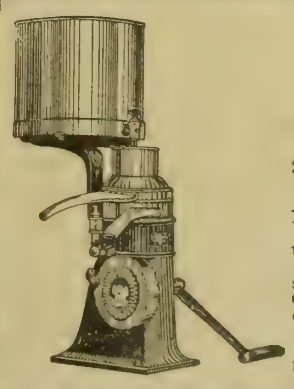

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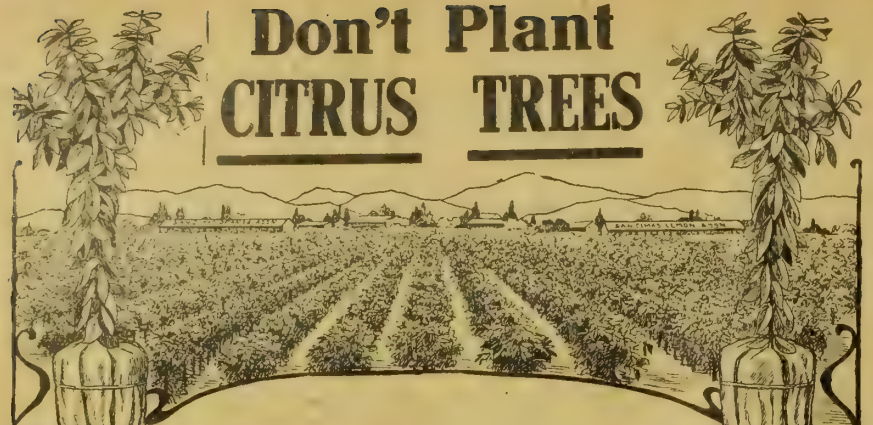

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THE CALIFORNIA ORANGE INDUSTRY

Address by C. C. Chapman at Panama-Pacific Exposition on Orange Day, March 20

THE whole nation rejoices over the splendid achievement of grandeur and beauty of these buildings and the marvelous display of soil and factory—of the genuine, progress and culture of the race which they contain. I am bold to tell you that no people more whole-heartedly rejoice or feel a deeper personal pride in all this glorious enterprise than the orange growers of California.

For more than 20 years I have been closely identified with the orange industry of California, and this occasion when the golden products of our orchards is so highly honored is most gratifying to me and I assure you is greatly appreciated by the orange growers of the state.

It is a great personal pleasure to briefly discuss some of the more important factors entering into the development of the orange industry to its present predominance in the business of our great state, which it has enriched in both wealth and renown, for to me the culture of the orange is a most fascinating occupation, attracting more interest in the process of development of both tree and fruit than any other product grown for profit in this country.

Scientifically speaking, the orange is a berry. The membranes which separate the pulp and the rind are only the enlargements of the vesicles which produce seed.

The original varieties or sub-species, the bitter orange and the sweet or China orange, are distinct in almost every respect, but by cultivation, hydridization and budding with each other and with the citron and the lemon, the orange in its present form has been developed. For beauty, richness of flavor and wholesomeness as an article of food it is without a peer in the fruit world.

To successfully grow the orange, certain fundamental conditions of soil, climate, water and topography must be considered. The Divine Hand has been lavish in bestowing upon California a rare perfection in all these features which combine to produce natural advantages greater than those enjoyed by any other section over which floats the Stars and Stripes.

Our magnificent mountain ranges not only form the most picturesque scenery and giant bulwarks to guard the fertile valleys, but great natural reservoirs where is stored the water to be carried to the beautiful orchards below. Our coasts are washed by the boundless Pacific, with numerous harbors for commerce. Our climate is faultless the year round. In fact, in fertility, topography and climate California is especially adapted to the culture of the orange.

The orange was introduced into California by Catholic Missionaries in the beginning of the last century. About the year 1834 the first planting outside the mission grounds was done, and in 1841 the first orchard for profit was set out on land now in the heart of the city of Los Angeles. During the following 30 years a few small orchards were planted here and there over Southern California, but it was not until in the seventies when the Washington Navel and the Valentia Late were introduced that the orange industry received the impetus which has brought it to its present gigantic proportions and seems destined to carry it beyond all prophecies and all imagination.

The orange at once became the leading product of California and since that time its culture has attracted thousands, until at present there are engaged in its production in this state more than 10,000 growers, cultivating 110,000 acres of bearing trees and 60,000 acres of non-bearing trees. There are upon this vast acreage trees enough to line with branches touching both sides of an avenue that would entirely encircle the globe, and there would still be trees left to border the great Lincoln Highway from San Francisco to Chicago. Approximately $200,000,000 are invested in the industry. More than 20,000 laborers are employed in it, and more than 150,000 people depend directly or indirectly upon it for a livelihood.

The annual production is from 35,000 to 45,000 carloads, or from 12,000,000 to 18,000,000 boxes. To give a more comprehensive idea of the vastness of this quantity of fruit, let me tell you that it would make a solid tower 100 feet square, eight times as high as the magnificently beautiful Tower of Jewels which is unquestionably the crowning architectural achievement of all the gorgeous and pleasing structures of all the fairs ever held. The value of the crop this year is something like $30,000,000; for carrying this fruit to the markets the railways annually receive from $13,000,000 to $15,000,000.

Another indication of the marvelous strides the industry has made and its commercial importance is the fact that a continuous stream of the golden fruit flows out of California to the markets of the East. Until more recent years shipments were made during only a portion of the year but now not a day passes that does not find cars rolling Eastward.

Growers have found that comparative ease in the cultural management of an orchard and its production depends largely upon the initial work in preparation of the ground and in setting the trees. Following in the development and life of an orchard there are certain essential points which must always have attention, such as irrigation, cultivation, pruning, fertilization and the fighting of pests.

It is not my purpose to discuss these questions in detail. I will, however, say that there has been much thoughtful study and investigation along all these lines, until today the average grower is fairly well informed and does good and scientific cultural work. Manufacturers also have given attention to the building of implements best adapted to scientific orchard farming. In addition there is being developed a splendid citrus literature which will prove a valuable aid in the further progress of the industry.

I claim that the orange growers of California as a class are the most in-

telligent and enterprising agriculturists to be found in the world. They have had to meet many difficulties and obstacles in the culture of the fruit, more perhaps than are encountered by other producers, but all these they have successfully mastered. We are deeply indebted to the agricultural department of the government for much valuable assistance in solving many of our problems. Our own state, through the agricultural department of our splendid university, has also rendered the growers' service without which I am sure the industry would not have grown to its present magnitude.

I want also to express the appreciation and gratitude of the orange growers of California for the wise and generous provision recently made by the state legislature for the establishment of a citrus experiment station and graduate school of tropical agriculture in Southern California. This indicates the general interest of the people of the state in this, her most attractive and valuaable product, and instances the enterprising spirit of our public men that has done so much in attracting to California so many splendid people from the East.

Scientific investigation and experimentation by men specially trained will continue to assist the citrus growers in solving the difficulties which confront them, giving added confidence to them, and permanence to the business.

While we grow a hard orange in California, in this respect as in all others better than any other orange grown in the world, yet care in handling must be observed all along the line. Growers have learned valuable lessons in this department of their work, both from their own experience and from the assistance given by experts sent to us from Washington. The result is that today but little complaint is made of decay in California oranges in the East.

In no branch of the industry has there been greater improvement than in packing houses, packing house equipment and methods of handling the fruit. In the preparation and packing of the orange many intricate processes are involved which are perhaps not appreciated by the consumer. We have in this state scores of packing houses provided with machinery and facilites for handling the orange which equal in scientifically arranged convenience and extent many of the manufacturing establishments of cities noted for the quantity and quality of their product.

The marketing of a product so extensively grown and demanding a nation-wide distribution is of itself a Herculean task, but to it our growers and shippers have been found equal. In harmony with all the other branches of this great industry the shipping and marketing of the fruit has come to its present system through processes of evolution.

The bulk of the fruit is handled by the most gigantic and perfectly articulated cooperative marketing system ever organized by the growers of any product. To this system all growers are indebted, for it has in a very real sense been the making and the saving of the industry. There are other smaller cooperative organizations and many splendidly managed independent companies which handle under approved and modern methods a large quantity of fruit. I say without reserve that the various packing, shipping and marketing concerns handling the California orange are a credit to the business interests of the state.

The Citrus Protective League, the organization which I have the honor to represent on this distinguished occasion, has within its membership practically all shippers of California oranges. It is a mutual organization, giving its attention to the general good of the industry. It has rendered valuable service in securing cheaper freight and refrigeration rates, leading our fights for tariff protection and gathering valuable data, and in many other ways has made a large contribution to the industry.

I covet the language that would enable me to adequately set forth my high estimate of the California orange and the fascinating work of its culture, of the commercial importance of the industry to our great state, and of the incomparable beauty and wholesomeness of the fruit as an article of food. It is the king of all fruits, standing without a peer, all of its splendid points considered, and it not only contributes largely to the wealth of the state but to the general health of the whole nation. Its delicious juices are as invigorating as they are palatable, giving to man increased nerve power and a clear brain. May California continue to produce in increasing quantity to supply the greatest nation of the world with a fruit that is fit for the gods.

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Be patient when grinding tools. Take plenty of time and do the work thoroughly, and you will be rewarded by having tools that will hold their edge, and will do good, smooth work. —H. J. Wilson, Colorado Agricultural College.

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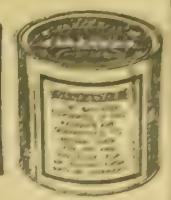

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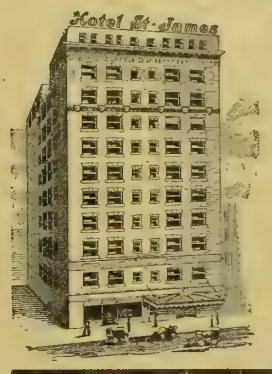

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Deciduous Fruits

CURED FRUIT BULLETIN

San Francisco, April 6, 1915.

OUR dried fruit market is still very quiet and in a very unsatisfactory condition, and on account of there being considerable quantities of spot stocks on hand in the various markets there has been practically no demand for coast shipments, and one of the things that is also preventing much heavy buying is the fact that the indications are for a heavy crop of all varieties of fruit for the coming season.

The lack of demand on prunes has forced prices to a lower point than they have been held. While the carryover, we believe, will not be much over 300 cars, holders seem anxious to unload and move stock and are shading prices. The large sizes, for which there is very little demand, bear the brunt of the reduced prices. Santa Clara prunes today are being quoted at 3¾ cents, and a good many sales have been made at 3½ cents. Outside districts, other than Santa Clara, about ⅛ cent lower. In 1914 on account of the smaller crop of prunes very little distinction was made between Santa Claras and the outsides, but this year with the prospects for a large crop there will more than likely be a better price realized for Santa Claras. Some of the outside districts have prunes which are equal in every respect to the best Santa Claras and which should bring equal prices.

Apricots and peaches are both quoted at lower prices, with the demand very slight. Peaches today are being quoted for about 3¼ cents base for Standards. We are informed that on account of the high price at which prunes have been held that the state board of control in the state of Washington has made a contract for dried peaches for state institutions in preference to prunes because prunes are 50 per cent higher than peaches. On apricots there is practically no demand for new crop. Buyers are holding off with the idea that there will be a diminished export demand, and if this turns out to be the case it is likely that the prices in the United States will be lower. We hear of quotations having been made on the three grades of Santa Clara apricots at 8½ cents basis.

The selling of futures, which is being indulged in to a certain extent, is a very bad practice and should not be indulged in. It is a matter of gambling, and gambling as far as the fruit grower is concerned should be eliminated. The practice of quoting futures at low prices enables the buyers to go out to the producers and offer them low prices for their product. Fruit should not be sold until we are in a position to know approximately what the fruit crop is going to amount to, and we would ask our members to advise all their friends to not sell to buyers until they are more definitely informed as to conditions. The year just past and the outlook for the coming year is a very strong reason why the growers should get in command of the situation and should cooperate much more strongly and endeavor to control their own business.

The present indications are for a large peach crop for 1915, with the prices probably as low as 1914, and on account of this it is very essential for all of our members to be very careful of fruit that they dry this year. In the first place the thinning should be done very carefully, so as to raise the grade of the fruit and thereby get better prices for it, so we would request everyone of our members to thoroughly thin all trees so as to produce larger peaches and thereby a better quality; to thin early and not to wait until the pits begin to harden; and in thinning, as much as possible, to leave the peaches on the underneath portion of the limbs, instead of those on top. The grower who has large peaches will get just as much weight with less labor and more money than those who have a large quantity of poor, undersized fruit. This applies equally to apricots, so don't forget that the large, fine quality of fruit is what you want to get results with. Many a grower is afraid to go to the expense of thinning, feeling that he is not going to get his money back, but our experience has always shown that it is quality that counts. You can always sell good fruit when you cannot get the buyer to talk to you about poor fruit, and by all of our members having good fruit it is going to strengthen your organizations and create a better demand for "Blue Diamond" fruits.

We are receiving a good many letters from our representatives throughout the country, and they advise us that the prospects at the present time look good for a good crop; they also state that jobbers advise that the usual demand for this season of the year has not been as great as for former seasons, and that their spot stocks of California canned and dried fruits are larger than usual, with the possible exception of prunes. They see no immediate prospect for an increased demand, with the result that purchases of additional supplies will be limited from now on. It is generally conceded by Californians that everything points to a large and satisfactory crop for the coming season, and because of this fact, jobbers and dealers are not inclined to anticipate their wants, and there are so many features that will enter into business during the balance of this year, all of which will have a tendency to keep market values down.

Weather conditions have until lately in the East been very good, but we notice in the last few days that there has been considerable damage done by frost in some sections, and should the report of this damage be founded on facts it may help things materially, but one thing to be carefully thought about is the fact that growers must cooperate to get results; they must own and control the fruits of their investments, and when they do control, they will receive much better prices than they can get today when their output is controlled by those who seek to handle it for profit.—California Cured Fruit Exchange.

CROP ESTIMATES

RETURNS are coming in from various sections of the state where subscribers of the Cultivator are observing conditions in the apricot orchards. Only a faint idea is to be had this early, but plainly the apricot crop will be short. However, the state is more or less spotted, as will be observed as the reports continue to come in. We will let our subscribers speak for themselves.

G. H. Waters, Pomona, Los Angeles County

The apricot crop is up to the average. Trees are looking fine. Peaches are setting well on most all varieties. Looks as if a full crop would mature.

A. Everett, Moorpark, Ventura County

The present indications are for not over one-half of an average crop of apricots. The trees are irregular in blooming, the leaf buds starting too soon. Many trees have a thin setting of apricots as large as ripe cherries,

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and with leaves half size, while some of the branches are just blooming. A few trees are too heavily loaded with fruit while many other trees have hardly any.

Prunes and peaches are not raised here commercially, but the few trees grown indicate good crops.

A. L. Shively, Santa Paula, Ventura County

From the best information that we can gather the apricot promises to be only a medium crop; some orchards having a good setting while others are very light. We have no peaches in this vicinity.

C. C. Thorpe, Manager California Walnut Growers' Association

I just returned last week from a trip through Ventura County and noticed that the apricot crop is not going to be as heavy there as it was last season. The setting is quite light and I don't believe that there will be much over 70 per cent of last season's crop in Ventura County.

At the present it looks as though the state would turn out this season the largest walnut crop ever shipped. Conditions have been ideal and the setting of fruit on the trees is unusually heavy.

J. G. Berneike, Santa Ana, Orange County

The apricot crop will be light. The sulphur salesmen claim to have placed about 60 per cent of orders, compared with last year. The output of dried apricots for 1914 for Orange County is stated to have been 1200 or 1250 tons, I believe. I look for this to be cut about one-half because of light crop and cutting out apricot trees, and would consider 60 per cent a maximum figure at present. The quality and size of fruit promise well to date; drying will probably not begin till after July 4.

The peach crop in Orange County is a negligible quantity commercially.

The walnut trees show heavy setting. The crop is likely to be considerably larger than last year with a large per cent of No. 2's and very few Jumbos. The smaller size of the nuts and the probability of later maturing will expose the crop more easily and for a longer time to the danger of burning if a hot wave should come before harvest.

It is therefore very likely that the 1915 crop will by no means equal the 1914 crop for quality.

The fruit growers of California certainly owe the California Cultivator their good will for the effort you are making in getting truthful crop reports.

Leonard Coates, Morganhill, Santa Clara County

The apricot crop in Santa Clara County is "spotted," but promises a fair yield; trees generally looking healthy and vigorous. The Royal is heaviest bearer and needs thinning. Blenheim, however, is the variety most largely planted. Peaches are setting well and prunes look better than they have for several years; this is shown in free shedding of the "jackets" and rapid swelling of the young fruit.

There is quite a difference between economics and practical farmers, yet some of the economists do not seem to discriminate. Economists may be poor farmers and farmers poor economists and it would not be wise for either to give the other advice as to the other's business. The economist may render much valuable assistance in marketing and rural credit, but as an adviser in farm management he is as far out of his sphere as a farmer in politics.

SPRAYING POME FRUITS

The pear, apple and quince belong to the pome fruits. These fruits are subject to the attacks of the codling moth. The late ripening varieties of these as a rule suffer more from the codling moth than the early ripening kinds because the later broods of the codling moth are considerably larger than the early broods. In the warmer and lower valleys the unsprayed orchards are liable to have more wormy fruit than the orchards of the same varieties in the cooler and higher altitudes. In the higher altitudes there are not as many broods of the codling moth nor as many worms of the different broods, consequently it is necessary to give more careful attention to the subject of spraying the pome fruits in the lower and warmer valleys than it might be in the higher districts.

Entomologists have observed that the life cycle of the codling moth is approximately seven days from the egg to the larva; 19 days from larva to cocoon stage; 18 days from cocoon stage to the emerging of the moth; five days from the emerging of the moth to the middle of the egg laying stage, being approximately 49 days, or seven weeks. Since the life of the summer broods is approximately 50 days and, if the broods did not tend to overlap, as they do in southern New Mexico, three sprayings would probably be enough for the number of broods that have been observed at the experiment station. It is found however that the broods overlap and that there is a continuous stream of larvae coming out during the growing season.

In order that there might be a more or less definite period at which practical orchardists may apply the spray, a spraying schedule has been worked out at the experiment station, based upon the number of the broods and their habit of emergence.

The first spraying is given when about 90 to 100 per cent of the blossoms are off the trees. This is a calyx spray and should be applied with considerable force and be somewhat coarse. The second spray is given about 20 or 25 days after the first one. The subsequent sprayings are given every 25 days after the second one. If this schedule is followed the orchardist is more likely to get the spray on all of the fruit just before the maximum number of larvae of each brood is ready to enter the fruit and also have the poison on the fruit for the larvae which emerge between the maximum periods. The number of sprayings necessary for the best results depends upon the locality and upon whether the fruit is early or late ripening. Under valley conditions at the station it has been found that it pays to spray the late ripening varieties from five to six times. In the higher altitudes this number of sprayings may be reduced to three or four. For the early ripening varieties two or three sprayings give excellent results.

Last year's spraying results for the Bartlett pear were very encouraging. The Bartlett was in full bloom on April 10. The maximum number of moths of the wintered-over larvae emerged during the first ten days in April. The larvae from the maximum number of the wintered-over moths were ready to enter the fruit approximately on April 20. The first or calyx spray given the Bartlett pear trees was on April 22. This spray was thoroughly done with a power sprayer using 180 pounds pressure. A Bordeaux nozzle giving a coarse driving spray was used. One and one-half pounds of the dust form of arsenate of lead was used to 50 gallons of water for the first and second sprayings. The second spray was applied on May 16. The third was applied on June 15, five days later than the scheduled time because the orchard had been irrigated and was too muddy. The fourth spraying was given on July 10. Three pounds of the paste form of arsenate of lead was used for the third and fourth sprayings. The last three sprayings were applied with a Vermorel nozzle giving a fine, cone-shaped spray which seemed to coat the pears with arsenate of lead very well.

On July 25 520 pears were gathered from tree 1. All of these were sound. On August 13, 154, 217, 259 pears were gathered from trees 2, 3, 4, respectively. On tree 2 two wormy pears were found. There were 1148 sound and two wormy pears gathered from the four trees, giving over 99 per cent sound. On August 13, from two unsprayed Bartlett pear trees 488 pears were picked, 214 being wormy and 274 sound, or 56.26 per cent sound. The figures show that the spraying saved over 43 per cent of the crop from being wormy.

It is likely that three sprayings will be sufficient for the Bartlett pear in the lower and warmer valleys.

It is necessary for the best results that the spraying be thoroughly done and that it be applied at the right time. Fabian Garcia, New Mexico College of Agriculture.

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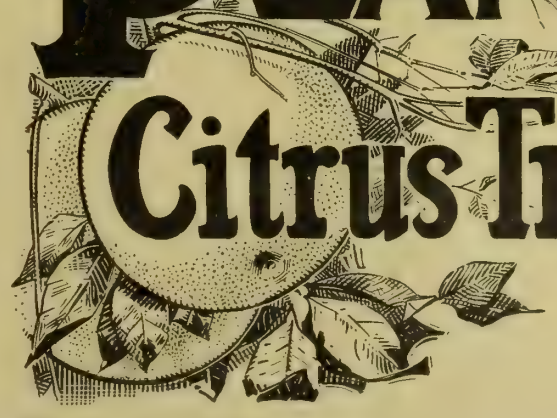

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I use the old Studebaker every day or whenever I need a wagon.

It has always stood out in all kinds of weather up to eight or nine years ago, when I commenced keeping it under cover.

Charles Stratton,
Andover, Ohio

Hauls 3000 pounds of coal on 40 year old Studebaker

CHARLES STRATTON, of Andover, Ohio, is using, every day, a Studebaker Farm Wagon that was bought before he was born—40 years ago or more.

The fact that he can haul a ton and a half of coal on the old wagon indicates that it is still paying returns on the original investment.

Why Studebaker Wagons Last

It is the way Studebaker Wagons are built — and the fine material used — that makes them last so long.

Carefully selected, air dried lumber, tested steel, analyzed paint and varnish, skilled workmanship and the experience of sixty-three years all go to make a Studebaker Wagon last a lifetime,

No other wagon lasts as long, or gives as much service as a Studebaker — and this isn't a "claim," it can be *proved*. We have records of hundreds of wagons forty years old and over.

Divide the cost of your wagon by the number of years' service it gives you and you will find that a Studebaker is the cheapest wagon on earth.

Ask your dealer to show you the proofs he has of Studebaker Wagons lasting forty years and more.

Studebaker Buggies and Harness give equally good service.

STUDEBAKER, South Bend, Ind.

NEW YORK CHICAGO DALLAS KANSAS CITY DENVER
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Adv. 2036

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General Agents and Distributors of

Studebaker Wagons and Vehicles

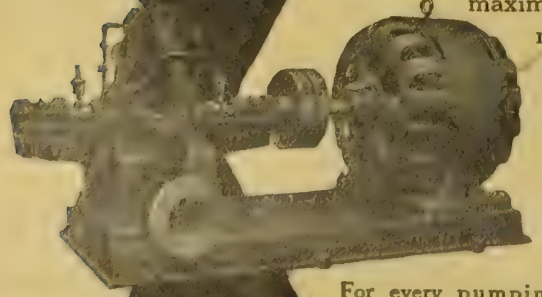
And a Full Line of Agricultural Implements, Dairy Supplies, Road and Grading Machinery, Gas Engines, etc , of Extra Quality. Always honorably made, efficient and never over priced. Full information cheerfully furnished. Correspondence invited.

NEWELL MATHEWS COMPANY

ESTABLISHED 1886

LOS ANGELES AND MARKET STS, LOS ANGELES, CAL.

"Jackson MADE"



The fidelity and regularity with which a "Jackson Made" pump does its work is almost human—no attention is needed—it simply goes on pump, pump, pumping—hour after hour delivering the maximum amount at the minimum expense.

Tell us your pumping problems and our expert engineers will gladly help you free of cost.

For every pumping condition there is a "Jackson Made," which, in satisfactory results, absence of repairs and costly upkeep, excels every other make.

Write for Catalog No. 48G

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Economics on the Farm

RURAL CREDITS

THE following is the full text of the section on rural credits in the report of the secretary of agriculture for the year 1914:

Closely related to production and distribution of farm products is the securing of capital by farmers on better terms. This problem has attracted the profound attention of the country and still awaits a full solution. The difficulties arise partly from the diffusion and sparseness of the rural population, partly from the failure of proper business adjustment, and partly from the inadequacy of the security which part of the farming population normally can offer for loans. The problem is one of extending the banking machinery and facilities more intimately into the country districts for the convenience and the assistance of the rural population and of the effective mobilization and utilization of the resources of the country people themselves.

The chief difference of opinion arises over whether there should be special aid furnished by the government. There seems to be no emergency which requires or justifies government assistance to the farmers directly through the use of the government cash or the government's credit. The American farmer is sturdy, independent, and self-reliant. He is not in the condition of serfdom or semiserfdom in which were some of the European peoples, for whom government aid was extended in some form or other during the last century. He is not in the condition of many of the Irish farmers for whom encouragement and aid have been furnished through the land-purchase act. As a matter of fact, the American farmers are more prosperous than any other farming class in the world. As a class they are certainly as prosperous as any other great section of the people; as prosperous as the merchants, the teachers, the clerks, or the mechanics. It is necessary only that the government, so far as geographic and physical conditions permit, provide machinery for the benefit of the agricultural classes as satisfactory as that provided for any other class, and this the government has attempted and is attempting to do.

It is the judgment of the best students of economic conditions here that there is needed to supplement existing agencies a proper land-mortgage banking system operating through private funds, just as other banking institutions operate, and this judgment is shared by the leaders of economic thought abroad. The national banking system up to the present time has labored under restrictions imposed by law which made it impossible for the national banks to solve the problems in the most effective way. State banks with fewer restrictions, with smaller capital requirements, and abilty to lend on real estate have established more intimate touch and have perhaps rendered greater assistance. Likewise certain agencies, such as building and loan associations, insurance and mortgage debenture companies, and the cooperative credit associations recently created by state legislation in Texas, Massachusettes, New York, and Wisconsin, operate to extend capital to the farming districts, and thereby in a measure tend to cut down the rate of interest.

Federal Reserve Act

When the national banking law, commonly called the federal reserve act, was under discussion in congress the matter of farm credits was considered and debated, but it was decided that the subject as a specific program should be separately dealt with in another act. The federal reserve act was passed with a view to the improvement of the banking conditions of the country in the interests of all classes; to the restoration of normality in banking; to the establishment of a reserve or banking power which could be utilized in times of emergency; and therefore with a view to secure good banking at all times and to prevent panics. It is not a banker's law or a business man's law or a manufacturer's law or a farmer's law; it is a law for all classes—for all the people. However, there were incorporated into the act several very important provisions which had in mind specifically the needs of the farming classes and the possibility of extending banking facilities to the rural districts.

It was specifically provided that a federal reserve bank might "discount notes, drafts, and bills of exchange arising out of actual commercial transactions—that is, notes, drafts, and bills of exchange issued or drawn for agricultural, industrial, or commercial purposes, or the proceeds of which have been used or are to be used for such purposes." The federal reserve board was given the right to define the character of paper thus eligible for discount. It was further distinctly provided that nothing in the act should be construed to "prohibit such notes, drafts, and bills of exchange secured by staple agricultural products, or other goods, wares, or merchandise from being eligible for such discount." It was provided that the ordinary notes, drafts, or bills admitted to discount should have maturity at the time of discount of not more than 90 days, but that notes, drafts, and bills drawn or issued for agricultural purposes or based on live stock might have a maturity not exceeding six months. Not only is paper arising out of agricultural transactions made eligible under the act, but it is given a longer maturing period than other forms of paper. This apparent discrimination arose naturally out of the fact that agricultural operations are seasonal and involve a longer period than other ordinary commercial transactions.

Again, it is provided in the act that national banking associations not situated in the central reserve cities may lend on improved and unencumbered farm lands within the federal reserve district, and that such loans may be made for any period up to five years. Such loans may not exceed 50 per cent of the actual value of the property. Any national bank under this provision of the act may lend on farm lands an amount in the aggregate equal to 25 per cent of its capital and surplus or one-third of its time deposits. The federal reserve act, therefore, so far from discriminating against the farming classes, distinctly bears them in mind, and while not discriminating in favor of them takes just and particular knowledge of their requirements.

Banking Habits

The matter of additional legislation concerning farm credits was promptly brought to the attention of congress by the president at the regular session in his annual message, and many experts have been giving persistent and careful attention to the problem.

The explanation of why special banking arrangements were devised abroad but have not been extensively planned and operated in this country is to be found in the difference in economic, social, and banking habits and conditions. This is the only large country that may be said to have the ordinary banking habit developed in a high degree, with bankng and lending associations democratized and in touch with the masses of the people. The great masses of people in a number of European countries do not have the ordinary banking habit and know little about banking practices. The habit of depositing money in banks, of checking against such deposits, and of making loans through banks in such countries is not general. This may be illustrated by a reference to the Bank of France. This bank, with a billion dollars of bank notes, has only $285,000,000 of deposits. A bank can utilize its assets either through notes or through discount and deposit and

checking. In this country the assets of a bank are utilized to a slight extent through bank notes, the total volume being about $725,000,000, while the total deposits in all the banks are $17,000,000,000. This testifies to an unusual development of the banking habit among our people. Partly because of the lack of the ordinary banking habit on the part of European peoples, partly because of the lack of banking facilities, and partly because of other social and economic factors special agencies had to be devised. There was great need for some addition to their machinery. The land mortgage and the cooperative credit arrangements grew up of necessity. Likewise the savings banks were created for similar reasons. It is noteworthy that only recently have saving institutions been established in great numbers in this country, and that still more recently the government postal savings system has been evolved.

Land-Mortgage Banks

Notwithstanding the fact, however, that the people of the United States have ampler financial agencies than any other in the world, and have developed the habit of using these agencies to a greater extent than any other peoples, students of rural problems have been keenly alive to the need of further improvements. They have insisted upon extensions of the national banking facilities and the creation of special agencies in intimate touch with farmers with a special view to the betterment of financial conditions in the country. At least two definite measures have been prepared and have received special consideration. They are similar in many respects. They provide, in brief, for land-mortgage associations with a small capital, which may make loans on farm mortgages within a district of a state or within a state to the extent of 50 per cent of the real values of the farms. The money arising from such loans is to be used for productive purposes on the farm on which the security is based. It is contemplated in one way or another, either through separate associations or through a central agency, that debenture bonds may be blanketed on the mortgages and offered to the public. It is proposed that the operations of the system shall be supervised by a central agency in Washington and that there shall be adequate safeguards in the way of examination and inspection. It is thought by students of the question that such debenture bonds would be safe, would attract capital, and would bring into the investment field especially smaller holdings scattered through the country which do not now easily find satisfactory investments. A plan of this kind, operating through private funds, should work safely and would probably result in a short time in systematizing credit transactions in rural districts and in reducing the rate of interest.

The office of markets and rural organization has continued its study of rural credits. Information bearing on farm-mortgage loans has been secured from two-thirds of the savings banks, trust companies, and state and private banks in the United States. The estimated total of farm mortgages held by these banks as loans exceeds $930,000,000. This fund is very unevenly supplied. Iowa banks alone furnish nearly 100 millions. Illinois and New York approximate 85 millions each, California 67 millions, and Missouri 58 millions. In Indiana, Vermont and Minnesota the sum in each exceeds 45 millions. The total of farm mortgages held by these banks in the ten states of the cotton belt is approximately the same as that held by Iowa banks.

Bankers in many states, especially in the Middle West, furnish almost as much money for farm loans, through their activity as middlemen, as they do through loans from their own bank funds. In such cases the banker acts as an agent, usually for some insurance company, mortgage company, or other bank. It is estimated that approximately $565,000,000 is thus handled through members of state, private and savings banks and trust companies.

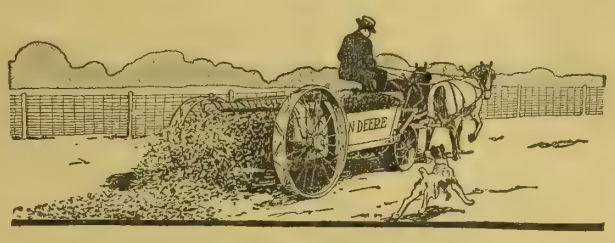
Information secured from insurance companies shows that more than $600,000,000 of their funds are invested in farm-mortgage loans. While mainly confined at present to the corn belt, these investments are being extended into the South and West. The companies have trained field inspectors or rely upon the statements or guaranties of local agents as to land values. Insurance companies usually limit their loans to 40 per cent of the value of the security and to a fixed maximum per acre. The prevailing period of such loans is five years, with the privilege of prepayment on interest dates.

The business of existing mortgage companies in the United States is often that of agents or brokers who bring borrower and lender together and render other services connected with mortgage loans without assuming liability. Such business can be built up with very little capital. The mortgage is made out directly to the lender, who assumes all responsibility. It is evident that the market for such loans is restricted to investors who know the nature of the security, who are willing to lend the particular amount desired, and who will assume all risks.

A limited number of companies deal in mortgages as a jobbing or merchandise business. The mortgages generally are sold after suitable investors have been found. A few of these companies retain ownership in a portion of the mortgages, deposit them with a trust company, and issue debentures secured by the mortgages as well as

(Continued on Page 479)

John Deere Implements



John Deere Spreader

The Spreader with the Beater on the Axle

The beater—the business part of the spreader—and all its driving parts, is mounted on the rear axle. This is a patented feature. You can't get it on any other spreader. The beater on the axle means there are no clutches to give trouble, less than half the parts heretofore used on the simplest spreader, big drive wheels and a low down spreader without stub axles. Only hip high to the top.

Write for more facts. Also ask for "Farm Manures and Fertilizers", a valuable textbook you can get free.

John Deere Wheel Plows

With Quick Detachable Shares
Unscrew One Nut—That's All

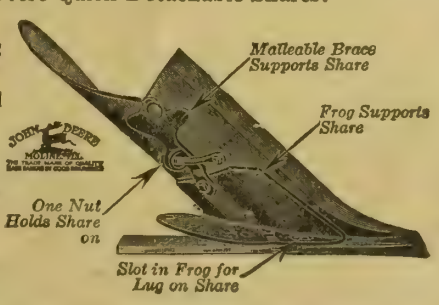
John Deere Wheel Plows, known the country over as "Quality Plows" are now fitted with John Deere Quick Detachable Shares—an exclusive John Deere feature.

Here are some advantages of these shares:

1. No trouble to change shares.
2. Eighty per cent of time saved.
3. No danger of damaging share.
4. Share is drawn up closer.
5. Share is stronger—not weakened by bolt holes.
6. Resharpened or sprung shares can be drawn into place—no drift punch necessary.
7. No unequal strain on share.
8. No danger of injury to hands in taking share off.

We have beautifully illustrated booklets on the following plows with John Deere Quick Detachable Shares:

New Deere Sulky and Gang (High Lift Frame Plows)
John Deere Stag Sulky and Gang (Low Lift Frameless Plows)
John Deere Two-Way Sulky (Side Hill or Irrigated Land)
John Deere Engine Gangs (For Traction Engines)



Mention the booklet above that you want and we will send it to you free.

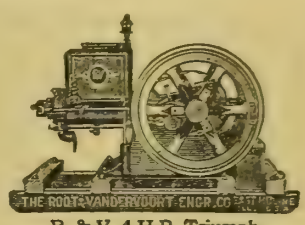
R. & V. Gasolene Engines

New Triumph One Horse Engine. Just the engine for light work about house and barn, such as running washing machine, pumping water and operating other small machines. Saves every member of the family work and worry.

A reliable, efficient, low priced but high grade engine. Easy to start, smooth running, requires no attention when in operation, economical in use of fuel and perfectly safe in and around buildings. All working parts are back of the fly wheel out of the way—a neat outfit in every respect.

R. & V. Triumph Engines for All Farm Machinery

The R. & V. Triumph line of engines is also made in 2, 4, 6, 8, 10, 12 and 16 H.P. sizes, stationary and portable. Every farm can use one or more of these engines to advantage.

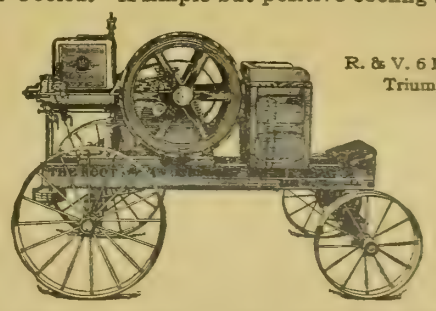


R. & V. 4 H.P. Triumph

They are dependable gasolene engines—always develop rated horse power.

An extra ring over the piston pin prevents scoring and ruining cylinder. This is an unusual precaution for lengthening the life of a gasolene engine. This careful attention to details is followed in constructing every part of the R. & V. Triumph.

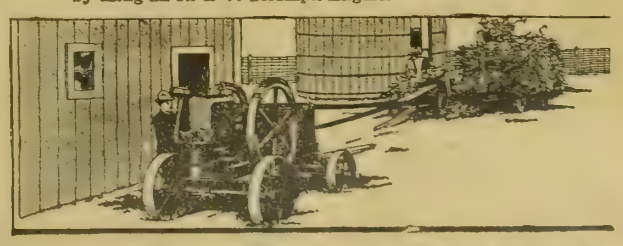
Hopper Cooled. A simple but positive cooling system.



R. & V. 6 H. P. Triumph

The gasolene tank for every R. & V. Triumph Engine is most conveniently and safely located—on practically all of the stationary engines it is in the sub-base.

Write for free booklet "Letting Gasolene Do It." This book tells how you can save time every day in the week by using an R. & V. Triumph Engine.



Better Farm Implements and How to Use Them

FREE BOOK Illustrates and describes the most complete line of farm implements. Tells how to adjust and use farm tools under varying conditions. It is a practical encyclopedia of farm implements worth dollars to you—a 168 page text book.

It tells about John Deere Implements: Steel plows, cultivators and harrows; corn planters, discs harrows and beet tools; farm and mountain wagons; manure spreaders; portable and stationary grain elevators and corn shellers; hay loaders, stackers, sweep rakes, mowers and side-delivery rakes, motor hay presses; grain drills and seeders; full line of chilled plows; grain binders and corn binders; hit-and-miss and volume-governing gasolene engines.

To get this book, free, state what special implements you are interested in and ask for the book as Package No. X-111.

John Deere, Publicity Department, Moline, Illinois

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MOLINE, ILL.
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Los Angeles, Cal.

Agents for

Los Angeles County

for

John Deere Farm Implements

Established 1888. Twenty-seventh Year.

The California Cultivator

Rural California Combined with the California Cultivator

A Journal of Horticulture and Agriculture

By
THE CULTIVATOR PUBLISHING CO., Inc.
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Thursday, April 15, 1915

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

FARM PICNIC

Saturday, April 24, will be the date of the annual university farm picnic at Davis. The management is urging the exhibition of live stock from all sections, and it is predicted that the live stock parade will make a great showing of pure bred animals. Of course there are to be track athletics, races, and, as usual, the tables under the willow trees loaded with lunch baskets.

SEPTIC TANKS

Farmers who are making disposal of the sewage in their septic tanks should write Agricultural Experiment Station, College of Agriculture, Berkeley, and ask for Bulletin 251, "Utilization of Nitrogenous and Organic Matter in Septic Tank Sludge." This bulletin is written by Profs. C. B. Lipman and P. S. Burgess, and while no information as to construction is given, enough appears in the bulletin to show how valuable such a tank may be and how the wastes may be utilized.

WATCH OUT

An Eastern farm paper calls attention to the fact that some designing politicians have their eyes on the farm bureau. The impression seems to obtain that it would be even better than a ward political meeting as a starter of things. The paper then calls attention to the fact that the farm bureau has too much opportunity for bettering farmers' interests to be destroyed by politicians. We believe there is no hint whatever that California bureaus will be used by any designing people. The farmer may well work in harmony with the politician, but the politician working in "harmony" with the farmer is not always so helpful.

REDUCING SQUIRREL PEST

In a publication of the national health service reference is made to the campaign against ground squirrels in California and to reports that in this state in a little over a year the campaign was conducted over an area of 3,373,146 acres. The average cost of squirrel control over this area was 17.4 cents per acre and the average number of squirrels killed per acre 6.5. The campaign resulted in the killing of about 90 per cent of the squirrels, or in other words, nearly 22,000,000 squirrels "have passed away."

From blanks which were sent to producers many returns were received, and from a mass of these we take some interesting points. For example, on one area of 150,840 acres 2,163 more cattle were pastured than when it was infested by ground squirrels. Reports from 21 irrigators showed a saving of $2,331 in repairs on irrigation canal banks. The greatest saving was reported by orchardists owning trees recently set; here the saving was beyond computation.

CROP REPORTS

The day will come when the state or cooperative marketing organizations will secure for the information of the growers more complete reports as to fruit products on hand at the beginning of a season and as to the promise for the coming crop. Of course the cooperative organizations are working along that line, and all to the advantage of the producers, but the information should be even more complete and we believe will be. Meantime we trust the columns of the Cultivator will be used to spread information regarding the apricot, peach and other fruit crops in every section of the state. We ask subscribers to aid us in this campaign and give us by next mail an idea as to the crop in the orchard or the section or the county in which the subscriber lives. It will be of value to fruit growers in other parts of the state.

In this connection it may be in order to refer to the fact that in Texas an estimated shortage of 80 per cent in peaches is predicted because of late frosts.

IMPORTED MEATS

It seems to be an everlasting fight for the consumer to secure the article for which he pays. On this page we have referred to homogenized or manufactured cream foisted upon the purchasing public. Along the same line it is said that the blocks of our meat shops are engaged in working off on the public a meat other than the public supposes it is purchasing. On this point we quote from the annual address made by former President Jastro of the American National Live Stock Association at its recent meeting in San Francisco:

"The foreign meat imported during 1914 was permitted to enter the regular meat houses and was sold in the various retail shops the same as our domestic meats, with nothing to indicate whether it was the foreign or the home grown product. The foreign meat is of an inferior quality and was consequently sold at wholesale at a lower price. Whether the consumer bought it cheaper is an open question. The probabilities are that the average consumer did not know the difference. If the general public is to derive any benefit whatever from the free importation of foreign meat, it must be sold in competition with the native product, and the only way to encourage and sustain that competition is to compel all those who handle imported meats to put up a placard notifying the public of that fact. Then both the foreign and our domestic meat will be sold on its own merits, and the consumer will have a fair chance of getting what he pays for. And to prevent any deception on the part of the retailer all foreign meats should be plainly marked, showing where they came from, when inspected, and by whom.

NINE YEARS AFTER

The management of the Panama-Pacific Exposition is planning for a great "Nine Years After" celebration on the ninth anniversary of the great fire in San Francisco. From the proclamation announcing the event we quote:

"The new city has arisen in its reconstructed greatness to the proud distinction of offering to the world its greatest international exposition at a time when the dreams and ambitions of those Argonaut fathers are being realized through the linking of the two great oceans; whereby the commerce of the world is brought to our doors. We therefore deem it fitting to celebrate appropriately the 17th day of April as planned under the auspices of the Panama-Pacific International Exposition, the crowning achievement of San Francisco's greatness.

"It is further fitting and proper that the succeeding day, April the 18th, be dedicated as an occasion for expressing to Almighty God thanks for the gifts that have been with such bounteous hand showered on the new and old city"

MANUFACTURING CREAM

Dairymen of Southern California are making a fight to give to the consumers of cream in Los Angeles what they are paying for. The statement has been made that Southern California is producing more cream and milk than the city can consume. The dairymen show that this is not true because of the fact that ice cream manufacturers and others in the city import from eastern sections low grade butter and low grade powdered skim milk and from this combination make a substance which they call cream. One large concern which manufactures from 2000 to 3000 gallons of ice cream daily buys less than 30 gallons of cream. In fact we believe the ice cream manufacturers admit that their ice "cream" is nothing more nor less than a manufactured cream from milk and melted butter. Of course on analysis this stuff shows the proper content of fat, which makes a situation somewhat embarrassing to the state dairy bureau and the local board of health. But if the public is entitled to pay taxes to support its proportion of the state dairy bureau and to maintain a local board of health, it is also entitled to protection by these bodies from having foisted upon it inferior stuff in the name of cream. It is time the public spoke in no uncertain terms.

This is written from the standpoints of both consumer and producer. We have many times referred to the use of cottonseed oil in the place of olive oil. It is dishonest, and the consumer is protected by the federal government, for even if cottonseed oil is a healthful food, it is not satisfactory to the consumer to pay olive oil prices for it. Unfortunately in the Southern California dairymen's case the federal government has no jurisdiction.

We hope there will be strength given to the arm of the new association and that it will see that the consumers are given the pure product for which they are paying, and that the dairy industry of Southern California will be encouraged.

Agricultural Notes

Several carload shipments of grapefruit were made in bulk this season from Florida to Philadelphia. The fruit arrived in good condition.

The government encouragement of sugar beet growing in England is widely advocated. Seventy-five per cent of her sugar imports came last year from Germany and Austria.

Congress has granted an appropriation to secure two new vessels for the use of the coast and geodetic survey in its work of survey to safeguard navigation on the Pacific coast, including Alaska.

Imports of fresh fruits into Colombia from the United States are steadily increasing. Apples in quantity are double all other fruits. Those preferred are Ben Davis and Winesaps packed in barrels.

To market the coming orange crop the Texas Fruit Growers' Association was organized last week at Houston at the meeting of the Citrus and Fig Growers' Association. It is to be a stock company. Operating plans will be made at an early meeting.

There is a demand in Russia for American seeds. Russia formerly received most of its seed supply from farms in France, Belgium, Germany and Austria. As many of these farms have been destroyed they cannot furnish seeds for sometime after the war is ended.

Vladivostok in Siberia will be made a port of call by the Great Northern Steamship Company. The first steamer sailing under the new schedule leaves Seattle on May 20. Large shipments of foodstuffs, cotton, steam shovels, automobiles, machinery, and other merchandise are being booked for the voyage.

Motion-picture theaters, or "cinematografos" as they are called in Paraguay, constitute the only form of amusement in Asuncion Though this form of entertainment has been but recently introduced, there are five motion-picture theaters now operating in Asuncion, and there is talk of opening others. American cowboy films are very popular.

The proposal has been made recently that tussah silk should be used in place of khaki for English soldiers' uniforms. A khaki cloth composed of tussah silk warp and worsted weft was made, and the war office approved samples submitted to it. An order was given for the clothing of a battalion of the Yorkshire regiment with the new cloth. The view was expressed that the material was of ideal quality for use by colonial troops. It is comparatively little dearer in price than woolen and worsted khaki, and its greater wearing qualities have been vouched for.

The Egyptian ministry of agriculture has just published a bulletin dealing with the prevention of the reinfection of fumigated citrus trees in that country. It is pointed out that reinfection comes to a very great extent from scale insects left on dead leaves and fruit lying on the ground near by the trees. Two important rules are deduced: Orange trees should have all their lower branches pruned off, and should have bared trunks for the first 50 or 60 centimetres above the ground; it is absolutely necessary to keep the ground near by the trees free from dead leaves and fallen fruit. The interlacing of branches should be prevented also by judicious pruning.

Agricultural News Notes of the Pacific Coast

Northern California

Pear orchards of Placer County are seriously infested with red spider.

The largest almond shelling plant in the world has been built in Sacramento.

Napa County dairymen met Saturday the 10th to form a permanent cow testing association.

Rice fed stock will be a feature at the Butte County exposition which will be held in Chico the last week in May.

Anti-alien labor bills are still being considered in the state legislature, with little probability of favorable action.

Many tractors have been operated in the grain fields of Yolo County this year to the entire satisfaction of their users.

The first solid car of asparagus out of the state went to New York. Prices range from $5 to $15 per dozen bunches.

The largest rice plantation in California is contemplated in Butte County, where one tract of 2,000 acres is to be planted.

The chamber of commerce of Oroville distributed calla lilies to passengers of the Western Pacific passenger trains on Easter Sunday.

Any owner of farm animals is invited to participate in the stock parade at the annual university farm picnic at Davis on April 24.

There will be a demonstration of best methods of immunizing swine against hog cholera at the farm picnic which will be held at Davis, April 24.

A series of six lectures is to be given by members of the university faculty at Sonoma. The first on April 16 is on landscape gardening by Prof. R. T. Stevens.

Corning, Tehama County, is to have a fruit festival Friday and Saturday, August 13 and 14. It is hoped to have special trains on the Southern Pacific from San Francisco.

A most successful cooperative creamery is in operation at Anderson, Shasta County. In its year and a half of operation it has made nearly 100,000 pounds of butter.

The Yolo County Swine Raisers' Association has perfected its organization. H. L. Huston has been elected president, J. L. Harlan, vice-president and Wm. Gould, secretary-treasurer.

Canneries of Yuba and Sutter Counties anticipate an exceptionally large run. It is now anticipated that 3,000 hands will be required on the payroll as against 2,000 in the same canneries last year.

Yolo County's cow testing association has just published its report for the month of March. It shows 13 cows testing over 55 pounds of butter fat. The cow holding the highest record was a Holstein who gave 80.07 pounds fat in the month.

Wool and mohair growers of Eldorado County expect good prices for their clips this year. Prices last year ranged from 12 to 15 cents a pound. This year the growers are anticipating 18 to 20. The shearing season will start within a few days.

Central California

A new creamery has just opened at Delano.

Tulare is shipping about 80 cases of eggs to Los Angeles weekly.

Turlock, Stanislaus County, is voting on a $16,000 park bond proposition.

Turlock, Stanislaus County, estimates a good fruit crop in that section.

An experimental farm is to be established with private capital in eastern Fresno County.

Kings County has 50,000 acres in alfalfa. It is said to yield the county $1,570,000 annually.

Raisin growers of Kingsburg, Fresno County, have generally signed contracts with the Associated.

The waters of Monterey Bay are yielding up thousands of crabs, which are finding a ready market.

Manager James Madison of the Associated Raisin Company anticipates a good season for all dried fruits.

Lands which were formerly at the bottom of Tulare Lake will yield this year in excess of $9,000,000 worth of grain.

Alpaugh, Tulare County, is planning for a receiving station for separating and cooling sweet cream for Los Angeles shipment.

McKittrick, Kern County, is making its first wool shipments of the season. The wool is going to San Francisco and Boston.

Raisin Day committees are still working for more funds and enthusiastic over a successful observation of Raisin Day, April 30.

Turlock merchants are joining with farmers in the organization of a marketing association which will cover much of Stanislaus County.

The California Ripe Olive Association was recently organized at the Panama-Pacific exposition. J. J. Avis of San Francisco is president.

The Kings County Hog Raisers' Association is pushing for the enactment of a county ordinance which will aid in the control of hog cholera.

Dos Palos, Merced County, on the west side of the San Joaquin Valley, is planting a quantity of Japanese rice on lands heretofore considered of no value.

At the annual meeting of the Alta District Cured Fruit Association near Dinuba, Tulare County, J. W. McPherson was elected president and W. E. Lindley, secretary.

An organization was perfected at Turlock last Saturday with a membership of 140 farmers, the object being to dispose of crops of the members to better advantage.

Owners of 11,000 cows have agreed to supply a cooperative creamery at Los Banos, Merced County. A committee is now at work drafting by-laws and a plan of organization.

James Madison, manager of the California Associated Raisin Company, predicts a successful season for dried fruit producers. He finds from information gathered during a recent trip over the East that financial conditions are generally much better.

Southern California

Southern California claims a registration of 63,300 autos.

About 40 per cent of the navel oranges are yet to be shipped.

Sheep men of the Imperial Valley are planning a material increase in stock.

One planter near Thermal, Riverside County, is planting 20 acres of tepary beans.

Southern California sugar beet planting will probably be fully up to that of former years.

The farm bureau at San Luis Rey, San Diego County, is moving for a cooperative creamery.

At a recent meeting of the Covina Valley Farmers' Club the marketing of oranges was discussed.

County Farm Adviser Weinland of San Diego is making the round of 26 locals of the farm bureau.

The farm bureau of Fallbrook, San Diego County, held an interesting session at the auditorium last Friday.

Garden Grove has shipped this season 24 carloads of string beans, celery, cabbage and chili peppers to Eastern markets.

Imperial Valley is already beginning the cutting of its barley. It will be the greatest crop of grain yet harvested in that valley.

At the recent meeting of the farmers' club at Hemet an address was made by County Horticultural Commissioner Sharpe.

The Winthrop Howland Goat Ranch at Redlands has loaned several fine specimens of milch goats to the state university for use on its farm at Davis.

The Southern California dairymen have organized and their association is endeavoring to secure fair treatment from the milk purchasers of Los Angeles.

A cannery and packing house handling chili, cabbage, and other products of Garden Grove, Orange County, will soon be built on the tracks of the Pacific Electric.

The annual meeting of the Growers' Drying and Canning Company of Hemet, Riverside County, was held recently and directors and officers were elected for the coming year.

Ice "cream" factories in the city of Los Angeles which manufacture from 3,000 to 4,000 gallons of ice cream daily purchase from nothing to as high as 30 gallons of cream from dairymen.

A general meeting of orange growers was recently held at Riverside to discuss ways and means of improving marketing methods. There will probably be no change during the coming season.

The planting of cotton in the Imperial Valley will be less than that of last year, though present prices on Egyptian are such as to encourage increased planting. Much of last year's crop has been sold.

Nearly all of Southern California was visited by rain, in some sections three-quarters of an inch being precipitated. This gives assurance of a big hay and grain crop and is valuable to orchardists as well.

The Coast

Deschutes Valley, Oregon, recently shipped 11 cars of live stock.

A cooperative creamery is soon to be constructed at Chandler, Arizona.

Lands adjacent to Roosevelt Reservoir, Arizona, have been set aside as a national bird preserve.

Arizona has a farm improvement association with delegates or representatives from all sections of the state.

Sheepmen of Montana are jubilant at prices which are prevailing and because of excellent condition of all stock.

The sale of 250,000 pounds of wool was recently made near North Yakima, Washington, at 22 cents per pound.

Native grasses in Northern Arizona are showing the heaviest growth for years. Livestock generally is in fine condition.

Chilliwack, British Columbia, poultrymen, have organized a large utility and marketing organization. The president is H. M. Rutledge.

A great series of celebrations is planned for the valley of the Columbia river to celebrate the opening of the Celilo Canal, May 3 to 8.

The manager of the Utah State Fruit Growers' Association reports shipping during the last year 1036 cars, which went to 32 states.

A farm adviser at Walla Walla, Washington, is planning to wage war on the army worm which has been one of the serious pests of that section.

The Southwestern Cattle Raisers' Association of New Mexico met recently in annual session. An address was made by Prof. Thornber of Arizona.

The farm adviser at Caldwell, Idaho, is urging farmers to make a persistent campaign on hog cholera which has been serious in many sections of the state.

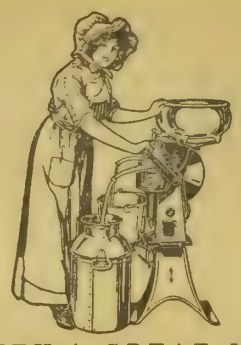
An effort is being made to unite four poultry associations of Polk, Marion, Yamhill and Linn Counties, Oregon, into one large marketing organization.

The Colorado board of live stock inspection has quarantined against live stock shipments into that state from Mexico, Canada and all states excepting coast and mountain.

Fruit growers of Chehalis, Washington, have organized a cooperative canning association. Twenty-five thousand dollars has already been subscribed to its capital stock.

Farmers of Linn and Benton Counties, Oregon, are organizing a cooperative marketing association. It is proposed to sell fruits and vegetables raised by the members, also to make purchases of supplies in large quantities.

At a meeting of live stock sanitary officers representing the states of Washington, Oregon, Idaho, Utah, Nevada and California, it was decided to permit importation of live stock and poultry from Wyoming, Colorado, Texas, Arizona and New Mexico, while maintaining quarantine on all other states.



Which will you buy

a "cream thief" or a "savings bank" Cream Separator

WITH A GREAT MANY machines or implements used on the farm it doesn't make much difference which of several makes you buy.

ONE MAY GIVE YOU A little better or longer service than another, but it's mostly a matter of individual preference and often it makes little difference which one you choose.

NOT SO WITH BUYING A cream separator, however.

THE MOST WASTEFUL MAchine on the farm is a cheap, inferior or half worn-out cream separator.

THE MOST FROFITABLE MAchine on the farm is a De Laval Cream Separator.

A CREAM SEPARATOR IS used twice a day, 730 times a year, and if it wastes a little cream every time you use it it's a "cream thief," and an expensive machine even if you got it as a gift.

BUT IF IT SKIMS CLEAN TO the one or two hundredths of one per cent, as thousands and thousands of tests with a Babcock Tester show the De Laval does, then it's a cream saver, and the most profitable machine or implement on the farm—a real "savings bank" for its fortunate owner.

AS TO HOW MUCH CLEANER the De Laval skims than any other separator, the best evidence of this is the well-known fact that all other makes were discarded by the creamerymen years ago, and that today 98% of the cream separators used in creameries the world over are exclusively De Lavals.

THEN THE DE LAVAL IS SO much better designed and so much more substantially built and runs at so much lower speed than other separators that its average life is from 15 to 20 years, as compared with an average life of from 2 to 5 years for other machanes.

THERE ARE OTHER ADvantages as well, such as easier turning, easier washing, less cost for repairs, and the better quality of De Laval cream, which, when considered in connection with its cleaner skimming and greater durability, make the De Laval the best as well as the most economical cream separator.

REMEMBER, THAT IF YOU want a De Laval right now there is no reason why you should let its first cost stand in the way, because it may be purchased on such liberal terms that it will actually pay for itself out of its own savings.

A De Laval catalog to be had for the asking tells more fully why the De Laval is a "savings bank" cream separator, or the local De Laval agent will be glad to explain the many points of De Laval superiority. If you don't know the nearest local agent, simply write the nearest De Laval main office as below.

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Live Stock and Dairy

THE SWILL PAIL CROSS

Written for California Cultivator
By Sacramento Valley Contributor

THERE is an old gentleman in the Sacramento Valley growing oranges who farmed in Iowa years ago. In those days hogs sold for two cents a pound or less and all farm produce was very low in price, making good farming practice even more essential to profit making than it is now.

In one lot that he had to market there were 10 hogs. A neighbor sold 30 at the same time. The neighbor's hogs were of the same age, but the 10 brought more money than the 30 head, not because they brought any more per pound but because they weighed more.

The neighbor was very much worried about it and thought there must be some difference in the breed and that his were inferior.

So when the next litter of pigs were big enough to wean the neighbor exchanged pigs to see if this notion of breed made any difference. Pigs that were just good average representatives from the two herds were taken, and at the time the trade was made there was no apparent difference in the individuals.

It was the custom on these two farms at that time to grow hogs until they were nearly two years old, and at about that time the two pigs were compared. The one that was raised and fed by the good hog feeder was the largest one in his lot, weighing over 600 pounds, while the one he had exchanged for it was not quite as good as the average of the other lot and weighed but a little over 200 pounds.

In commenting on the incident the old gentleman says "There is more in the "swill pail cross" with hogs than in breed, and no matter what breed a hog may be it must have good feed and plenty of it during all of its life, if it makes the gains it should."

There is much for the average Californian to think of in this connection. Feed is a big factor in pork making, and there are many hogs that do not weigh 200 pounds until they are 12 or 15 months old that could just as well make that weight four or five months earlier if they had all of the good feed they could consume from birth to slaughter time.

In the life of the hogs raised by the good hog man there were no "fat and lean" periods—they were all "fat." His hogs had all the feed they needed every day and a good place to sleep. The neighbor who was looking for a better breed was not as careful to plan his feed supply, and between harvests there were times when the hogs had to "get out and rustle on the prairie" for a living. At such times they lost a part of the flesh they had put on during the "fat" period of plenty of grain. The good feeder always had grain in the bin so as to avoid the "thin" periods in the life of his hogs, and there was always some good feed soaking in the "swill barrel."

GOATS IN THE ORCHARD

Written for the California Cultivator,
By B. A. R. Stocker

In the American Standard Milch Goat Keeper appears a description of a method of tethering goats in orchards—so simple, so effective, each of us might have thought of it but probably didn't. Rev. D. C. Mayers of Virginia thus describes it:

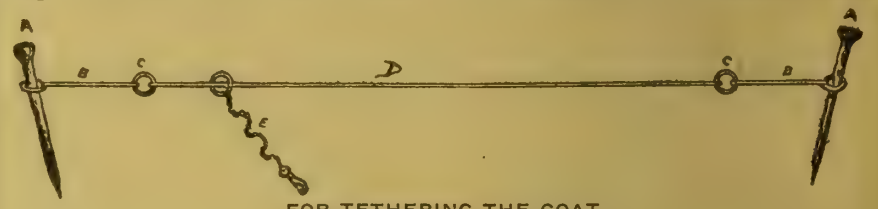
"Where free grazing is not possible I adopt a very practical method of tethering the goat as shown in the accompanying illustration.

"A-A, iron stakes four feet long to be driven two feet into the ground.

"B-B, pieces of No. 8 galvanized iron wire four feet long attached to the stakes firmly at one end to

"C-C, rings at the other end, rings to be about 1½ inches in diameter.

"D, length of No. 8 galvanized wire



FOR TETHERING THE GOAT

any number of feet desired, 20 feet is good, joining rings C-C.

"E, heavy chain, costing about 25 cents each with swivel to be fastened permanently on d,—and a small bar and ring to fasten around the goat's neck. I do not use a collar, and so I minimize the danger of the goat getting loose, for if she does she will work great havoc with shrubbery.

"This method prevents the goat from getting her tether entangled around a single stake, and she can be made to graze a strip three feet wide or 30 feet wide. I use this method in grazing between rows of an apple orchard, moving the stakes alternately down the rows running north and south and then east and west."

With this outfit every orchardist could keep a couple of milch does helping to make humus among his trees for a good many hours each fine day and providing his family with the best milk in the country. They would need little else but an enclosure and shelter where they could be turned loose the rest of the time and some hay and grain for wet weather. The ordinary picket pin is notoriously unsatisfactory to use with goats in or out of orchards.

TAIL RUBBING

Answering several inquiries as to "Tail Rubbing" we quote from a former Cultivator:

Tail Rubbing is sometimes caused by parasites lodged within the rectum. The grub of the red-tailed bot fly (Estrus hemon rhoidalis) hook themselves to the lining of the rectum and two kinds of round worms are known to infest this part. Externally the skin of the tail may be irritated by mange parasites, mites, or eczema. Oil the hand and insert it into the rectum

and search for bots or grubs. Remove the hand and look it over carefully for small round worms. Bots must be picked off with the fingers. For rectal worms inject a gallon of warm water in which a plug of tobacco has been steeped for some hours. Failing to find the cause within the rectum examine the skin of the tail by scratching several places, watching the lips of the horse at the time. When the spot which itches is reached the head will be turned and the lips worked, showing a desire to assist in the scratching. Treat by washing thoroughly with warm water and soap; dry; and apply a mixture of Eucamphol one part, water four parts.—F. G. M."

A GREAT SALE OF HOLSTEINS

Announcement is made in another column of the coming sale of pure bred Holsteins which will take place at Ascot Park, Los Angeles, May 12.

Referring to this sale J. W. McAlister writes us that it will be the greatest ever held on the Pacific Coast. In fact, we quote from his letter as follows:

"In connection with this sale I wish to say that I believe it is the greatest event of its kind ever held on the Pacific Coast. Certainly no such high record cows as White House Belle, with a record of 29 pounds of butter in seven days, as well as a dozen or so of her sisters, and Alba Sadie Cornucopia Creetia, with a record of 28.85 pounds butter in seven days, have ever been offered at public sale west of the Rockies. The cattle are bred in the highest lines and include daughters and granddaughters of many of the most famous bulls of the breed, including Sir Sadie Cornucopia, son of the first 30-pound cow; Rag Apple Korndyke 8th, the $25,000 bull; Pietertje Hengerveld Segis, son of the famous King Segis and the 33-pound cow, Blanche Lyons De Kol; Sir Fayne Concordia, and others of equal note.

"They are as good individually as they are bred and include the third prize three-year-old at the National Dairy Show at Chicago, 1910, and the first prize calf at the Colorado state fair, 1914. A noteworthy feature of the sale is the fact that about 20 cows and heifers are bred to Tilly Alcartra's son, the junior herd sire of McAlister & Son, and the greatest bred bull of the breed. Tilly Alcartra's son is out of the world's champion milch cow, Tilly Alcartra, the only cow to produce over 30,000 pounds of milk in one year on semi-official test, and is sired by the bull that combines the blood of the world's champion generation of cows from three to six generations.

"The bulls offered are, I am convinced, the best bred lot, as well as the best individuals ever sold at public sale in California. McAlister & Son, having recently purchased the famous Merci Ranch herd, are consigning their herd bulls, which include a three-year-old son of King Segis Pontiac Emperor, senior herd sire of A. W. Morris and Sons, out of a 20-pound four-year-old daughter of Juliana King of Riverside, the greatest A. R. O. sire ever produced in the West; a two-year-old son of King Pontiac Artis, son of the famous King of the Pontiacs who now has 126 A. R. O. daughters, from Pontiac Artis, the famous 31-pound prize winning daughter of Hengerveld De Kol and out of a good record daughter of Prince Hengerveld De Kol, who contains 75 per cent same breeding as Hengerveld De Kol—116 A. R. O. daughters; a two-year-old son of Pontiac Hengerveld Parthenia, best son of Hengerveld De Kol and sire of the former world's champion 30-pound four-year-old, and out of a daughter of Sir Korndyke Manor De Kol, sire of three 30-pound daughters. Among the younger bulls are a son of De Kol Hengerveld Burke, sire of two 30-pound daughters, a grandson of King of the Pontiacs—a son of the cow that sold for $625 at the Hanford sale—as well as two young sons of the 28 and 29-pound cows to be sold in this sale, and a few other splendidly bred bull calves.

"Mr. Schumacher has spared no expense in getting together one of the greatest herds of foundation cows ever brought into the state and has spared no expense in breeding and developing it, as is shown by the fact that so many are in calf to Tilly Alcartra's son. Only the unalterable decision of his partners to dispose of the ranch has decided him to sell this fine herd at auction. This is the first time a sale of registered cattle has ever been held south of Tehachapi, and while he does not expect to realize what he paid for them, it is to be hoped that the quality of the stock will be appreciated by lovers of fine dairy cattle. The outlook of foot and mouth disease in the East and Middle West will prevent any cattle being brought into the state for a long time. This sale will be the only opportunity for many months for those looking for better quality of registered Holsteins to buy them at their own price."

SALT LIVE STOCK REGULARLY

Written for California Cultivator
By Sacramento Valley Contributor

Stockmen have known for ages that animals require salt for their best health and development, and recently at an experiment station it has been shown that stock receiving salt regularly make larger and more profitable gains than do those from which it is withheld.

Through plain carelessness and neglect animals on many farms go without salt for weeks, sometimes for months. On others every Sunday is salt day, and such a small allowance is given that everything runs greedily for it and it is all licked up in a jiffy.

Others make this Sunday salting of sufficiently generous proportions to do the stock for the week if—as frequently happens—something does not happen to prevent it—and the job goes over for twice or three times the customary period and the stock become very salt hungry.

The best plan for salting is to provide either rock salt or salt in boxes that are easily accessible at all times. For horses and cattle this box can be fastened securely to a post or building so as to keep it free from dirt; for hogs and sheep it must be on the ground and should be a solid, substantial trough made of plank.

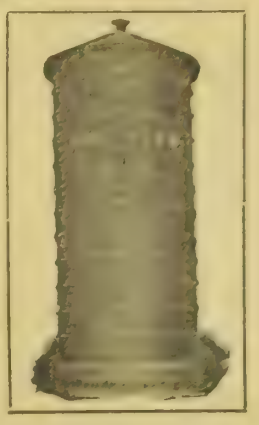
For hogs a good way to provide salt is in a mixture of lime, ashes and salt, and unless one has been feeding this the amount of it consumed from week to week will be a surprise.

There are some vegetable salts that have great health giving powers, both for human and other animals. The potato contains a high percentage of the salts of potash and phosphorus which probably have a good effect in counteracting acids in the alimentary canal. At any rate the potato is considered by medical authorities as being very beneficial to health because of this salt content.

And it is claimed that the spineless cactus contains a large per cent of vegetable salts of great value as a digestive agent and as a food.

Every offender who is guilty of "no salt" or "not enough salt" against his animals should try to live for a few days on unsalted food, then make permanent salting places and see that they are always kept filled.

THE IDEAL GREEN FEED SILO



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A CHEAPLY CONSTRUCTED or improperly designed silo is a waste of money. It is even worse than none at all, for it is usually a source of loss, in spoiled feed.

THE IDEAL GREEN FEED SILO is of proper design, material and workmanship, and will return as good ensilage every pound of good feed put into it.

YOUR SUCCESS in the use of an Ideal Green Feed Silo is highly important to us, for we sell everything a dairyman will need, and we want you to succeed.

THE IDEAL GREEN FEED SILO is a practical piece of dairy equipment.

REMEMBER a cheap silo is even worse than a cheap separator.

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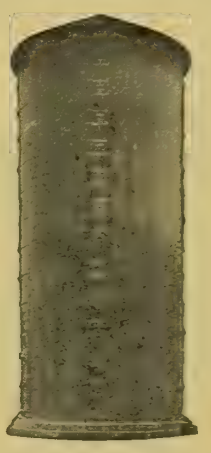

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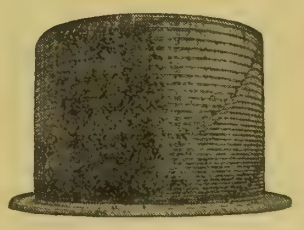

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Milk of the Holstein

Written for California Cultivator By J. W. McAlister, Secretary California Holstein-Friesian Association

QUALITY of the milk of the different dairy breeds has lately received a great deal of attention. It has been said by some of the highest dairy authorities that the low percentage of fat in Holstein milk was the breed's weakest point, while on the other hand the high percentage of fat in Jersey and Guernsey milk has been the most substantial "talking point" of those breeds. Granting that this may be true, yet Holstein milk has a much higher value than is usually credited to it.

Analysis of 2400 different samples of milk, as reported by the Vermont experiment station in its report for 1890, show that a high percentage of fat is not accompanied by a corresponding rise in the other milk solids as shown by the following figures:

Per cent Fat	Per Cent Total Solids	Per cent Casein	Per cent Milk Sugar and Casein
3.07	11	3.92	5.01
3.50	12	3.07	5.43
3.99	13	3.30	5.71
4.68	14	3.57	5.75
5.38	15	4.00	5.62
6.00	16	4.30	5.70

The official lactometer tests on 413 Holstein cows on yearly test show an average percentage of fat of 3.41 and an average percentage of total solids of 11.96. The average pertenage of fat of all the Holstein cows on yearly test is 3.45 so that the average percentage of total solids will probably be about 12.00. This agrees with the bureau of animal industry investigations in bulletin No. 156 in which the general average of all the experiment station tests is given:

	Average per cent fat	Avg. per cent total solids	Avg. per cent protein	Avg. per cent sugar
Jersey	5.14	14.70	3.80	5.04
Guernsey	4.98	14.49	3.84	4.98
Ayrshire	3.85	12.72	3.34	5.02
Holstein	3.45	12.00	3.15	4.62
Shorthorn	3.63	12.57	3.32	4.89

In this instance the average percentage of fat agrees so nearly with the average percentage of fat of all the cows in each breed tested for yearly production that the average percentage of total solids may be set down as approximately correct for each breed. The Jersey thus in average percentage of total solids, as well as average per cent fat, leads the list, but the quantity of milk yielded by Holstein cows is so great that when total production is taken into account the breeds are placed about in inverse ratio. It is interesting to note that while Jersey milk tests 1.69 per cent more than Holstein milk, there is only a difference of 2.70 per cent in the matter of total solids.

For feeding purposes to young stock low testing milk has probably an advantage over rich milk, as proven by the Connecticut station in an experiment on pigs. The pair receiving skim milk gained 72 pounds in 30 days; the pair receiving poor milk, 58 pounds, and the pair receiving rich milk 50 pounds. The pigs receiving skim milk required 1.48 pounds of total solids for 1 pound of gain; the pair receiving poor milk, 1.40; and the pair receiving rich milk, 1.56 pounds.

Probably the point of most dispute is the relative value of rich or poor milk for infant feeding. At first the adherents of rich milk were inclined to ignore the claims of superiority for poor milk, asserting that all milk had to be modified before it could be fed to infants, and as only a very small fraction of the milk is consumed as such, the matter was of no significance. Lately, however, the Jersey Association has issued several pamphlets trying to prove wherein Jersey milk is the best for infant feeding, and the subject has again assumed considerable importance. The researches of the different medical authorities however, together with the testimony of several of the different agricultural experiment stations has been to the effect that on the whole low testing milk is the most valuable for all those with weak digestion, and the use of rich milk on such cases is gradually passing into discard.

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INSECT PESTS DESTROYED BY SHEEP

That many insect pests are protected by useless vegetation along ditch banks and lanes, and that the insects may be destroyed and the undergrowth may be turned into valuable mutton and wool, are facts not generally realized by farmers. Pasturing of a flock of sheep in these places is a most valuable measure for destroying great numbers of insects that might later spread to and breed in adjoining fields of grain. Where weeds are outside a fence, or where no crop is growing in the field, pasturing sheep in summer will of course keep down the fall crop of insect-harboring vegetation.

The amount of land covered by useless matted vegetation growing along ditch banks, fences, and roads is of no small extent. This land as a rule can not be burned over because of the danger to fences. Besides much of the common grass thriving in such localities is always too green to burn and serves to protect the thick mulch of dead grass that accumulates beneath from year to year and forms an ideal refuge for all manner of pests. A small flock of sheep, given the range of fields and roads and where there are no growing crops, will dispose of nearly all useless vegetation. Only a little grain need be added to fatten them. If the farmer does not wish to keep the sheep permanently he may often purchase "feeders" in carload lots at the large stockyards when they are just in condition to be fattened and later dispose of them. By herding the sheep along the roadsides and properly shifting them about according to condition in the fields, all of this waste ground can be made to yield a return to the owner, and incidentally add to the value of the farm.

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Feeding Apricots

Are apricots harmful to pigs? I fed them to a pig last year and he did not do well. Don't know whether the apricots were the cause or not. I soaked the fruit, pit and all, about 12 hours before feeding.—Subscriber.

Apricots are so seldom used as feed for hogs that there are no records of their effect, but one would suppose that the pits might clog the bowels and might cause death. A few apricots mixed with other feed might be all right.

Bony Growth

Mare has hard lump, size of half walnut, on the inside of front foot, on the lower part of the pastern. It is not sore and does not make her lame. What can I do to remove it?—Subscriber, Del Rey.

Rub the enlargement hard with a round stick every day and apply an ointment made of iodine crystals, one dram; tincture of iodine, two ounces, and lard, two ounces.

To Remove Scar

My driving mare has a scar on her right hind foot which is quite bad, caused by a barb wire cut made nearly two years ago. There is one bad blemish just above the hoof, but none in the hoof, then a smaller one above this on the pastern joint, which makes her carry this leg somewhat stiffly, and she does not travel as well as she should. They are also on the outside of the foot and pastern and look very bad. Would you please tell me if there is anything I can do to reduce them. Would blistering or caustic potash do any good?—Subscriber, Del Rey.

Scars of so long standing are hard to remove. The enlargement must be cut out and the edges brought together with a bandage. Only a veterinarian of some experience can treat such a case successfully. Blisters will have no effect.

Pin Worms

I have three colts affected with worms. They are small, white worms and seem to start from the rectum alive. The colts rub their tails and mash the worm, which leave a white substance around the rectum. Colts have had green feed most all winter, but have been fed barley straw, kafir fodder and kafir corn.—Subscriber, Moreno.

The worms that you describe are pinworms and inhabit the rectum and large bowel. The eggs from which they hatch are taken in with the water or feed from low lands. They are best gotten rid of by injecting tobacco tea. Steep a paper of scrap tobacco in three parts of water. Strain the solution and inject it warm, but not hot. This should be repeated once a week until three or four treatments have been given. Worms are usually found in animals that are overfed. Reduce the feed and give the following powders to improve the digestion: Powdered gentian, eight ounces; powdered nux vomica, four ounces; sulphate of iron, four ounces; bicarbonate of soda, eight ounces, and enough farina to make three pounds. Mix and give a small tablespoon once a day. Also see that the colts get plenty of salt.

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The Selection and Care of the Herd Sire

By H. G. Armstrong, President California Swine Breeders' Association

A CLAIM that success in the hog business depends upon the proper selection of the boar may not be wholly correct, but many failures in the business are certainly due to the sire.

No matter how good the matrons of the herd may be, if the sire is poor and inferior, the resulting stock is very liable to be poor. But if the boar is what he should be, the pigs will be good, even though the sows are rather inferior in quality. Those familiar with the principles of breeding know that the male, if more prepotent than the sows, will sire pigs which resemble him very closely in outward appearance. If this then be true we can easily see how much depends on the proper selection of the sire. There is an old saying that the sire is half the herd. He is more than half. He is half the first generation, three-fourths of the second, seven-eighths of the third, and so on. If this is carried on indefinitely the character of the herd is fixed by the sire alone.

In selecting the sire always if possible take the older boar rather than the one three or four months old, even though he cost more, as he will, for oftentimes the young pig does not grow out as well as his appearance would lead us to believe. If possible when making your selection see the herd from which he comes. If the herd is uniform in type and quality and he is a good feeder, then the boar should be a good breeder. By all means he should be a good breeder. By all means he should be chosen with reference to the sows se is to be used on. If the sows are deficient in any one respect then select the boar that is strong there.

He should in all cases be pure bred of whatever breed you most prefer. Under no circumstances use a boar of mixed breeding, for this is a step backward rather than forward. If a Berkshire cross is preferred then use a Berkshire boar of known ancestry. The same thing applies to the Polands or any other breed that you might prefer.

Among some of the characteristics that he should have the following might be mentioned: A good head with round, heavy under jaw; a thick, short neck which indicates vitality; a large heart girth with plenty of room for large lungs, and width between the forelegs; ribs should be well sprung, with good stomach capacity. The skin should be soft and elastic, covered with soft hair. He should stand on good feet with small joints. Above all he should have plenty of masculinity so that if you should see his head through a fence you would not mistake him for a sow. Such a boar cannot help but put his stamp on his progeny and he will be cheap at almost any price. Prices of such stock will vary a little in different localities, also some according to breed, but buy him anyway.

Next to the selection of the sire is his care afterwards. The mere fact that you have bought a good individual at perhaps a good price does not mean that when you get him home you can secure desirable results from him if given indifferent treatment. If he was worth buying in the first place he is worth all the care and attention he should have afterward. As mentioned before success in the hog business depends a great deal on the sire, and the success you have with a good sire depends entirely on his care and feed.

Do not shut the boar up in close, cramped suarters where he can receive very little or perhaps no exercise. This will tend to fatten him, which, of course, may produce lowered vitality and prepotency. Give him instead a small lot, an acre or so will do, seeded if possible to alfalfa or some other pasture, with his sleeping quarters in one end and his feed trough in the other. This will give him his needed exercise. Do not turn him out to range at large with other stock where gilts and sows are running. He will fight the stock, maybe ruining himself as a breeder, and he will worry and fret until he will soon look little like the individual you first bought. He will also become breechy and hard to handle and in some cases almost dangerous. Close confinement is better than the above mentioned, for he can be taken out and exercised regularly.

Keep him in his own lot and when his services are needed bring the sow or gilt to him. Let him serve her once, for once is as good as a dozen times, then remove the sow to a quiet place away from other stock. One service a day is enough for a mature boar, though in the busy season he may be used twice a day, provided, of course, he is properly fed. This brings us to the feeding question.

The boar should always be in good, thrifty condition, neither too fat nor too lean. We, as a rule in our own herd, like to keep our herd sires in such condition that if they were barrows they would make good pork. Dry feed alone, usually in the form of grain, will not put or keep him in the best possible condition any more than will a weak slop. In general we feed our sires much the same as we do our sows, with a few minor exceptions. If the boar is young and growing he should be fed enough protein for this purpose. If he is mature only enough protein is needed for maintenance. The rest of his feed may be composed of cheaper feed with more bulk to it. When in active service, however, we like to feed more protein than the maintenance ration, as this tends to stimulate the glands. We also feed more carbohydrates, as this is needed, for more energy is expended by a boar in service. This method of feeding in our own case we believe responsible for our large litters, eight pigs or better being the average for young sows and gilts sired by a young boar just coming into active service, and in the condition we have mentioned above.

If the same person handles the boar all the time, and his quarters are isolated from other stock, you will find that he will usually be quiet and gentle. More depends on the treatment given him than on his natural disposition as to whether he is docile or not. Do not allow strangers to annoy him. We never bother our own sires, so that when we speak to them they usually know that we want to use them, and oftentimes they will follow us by calling. It is a good practice, however, to keep the tusks cut off, so that the chances of getting injured are materially reduced.

Another subject that we might mention at this time is the age at which a boar should be put into active service. Opinions vary some on this subject. We have known people who have bought boar pigs from us to start using them as early as six months. This is too young and will invariably stunt them and may even ruin them as breeders. Inmature sires generally do not get so large and healthy litters as do mature ones. In some exceptional cases a boar might be used at eight months, and then only sparingly. In our estimation a year old is soon enough. Then he should be used only moderately. A boar is most valuable as a breeder when from two to five years old. If handled as we have suggested he will be little if any harder to manage at five than he is at one year. Invariably the aged sire produces the best litters. Most sires, however, are not kept that long, being disposed of long before they have proven themselves good breeders.

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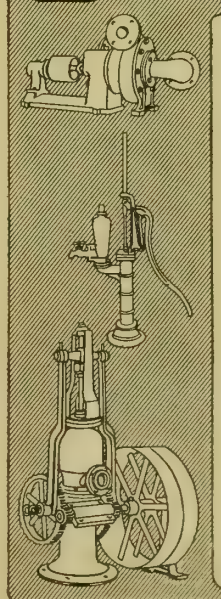

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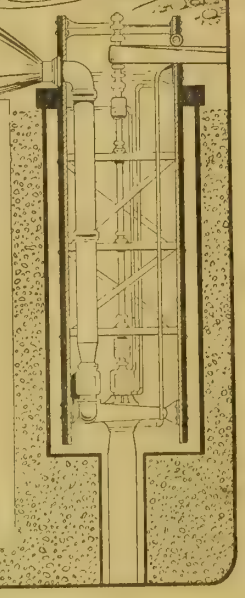

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Poultry for Profit

HINTS ON GOOSE CULTURE

By Helen Dow Whitaker, State College of Washington

THOSE to whom goose growing should appeal most at present are the many who might grow a few geese every year, either for home use or market, almost without expense. Under favorable conditions geese are the easiest of all domestic fowls to handle. They thrive most readily and are grown at least cost when given good pasture and provided plentifully with fresh water. Pools or running water for bathing are not necessary and if pasture fails, it can be supplemented by grain, preferably oats.

Housing and Yarding

Geese require no housing except in extreme cold or wet weather, when a low, rough shed open to the south and large enough to give the flock standing room under it, will provide all the shelter needed. They must have shade in summer as they suffer intensely with heat. Any low, woven wire fencing, pig-tight, will retain tame geese. Wild geese must be pinioned or enclosed in covered runs.

Mating

Geese do not come to full maturity until three years of age. They rarely give satisfactory results if mated under two years of age. Females will prove profitable breeders until ten years old and males to half that age. Geese do not often breed well if moved just prior to the breeding season. New stock should therefore be purchased in fall or early winter and a flock of breeders once established may be maintained without change for several years. Young geese generally pair. As the ganders grow older they will mate with from one to four or even five females. When once mated geese are generally faithful to their mates and if separated often refuse to mate again for a long time. After the fowls have been mated a large flock can be run together in one pasture but an unmated gander or goose can make no end of trouble in the flock. While access to a large bathing pool or running stream is an aid to fertility, good results may be obtained without it.

Care of Breeders

Geese breed best on pasture with water accessible. They make valuable scavengers if turned into an orchard after the crop has been harvested. They not only destroy the insects and worms that would infest the next crop, but they turn to profit the leavings of fruit. They require little grain if the pasture is abundant. If the pasture is short they should be fed mostly on cut clover, alfalfa, cabbages, raw beets, turnips, or potatoes, with some oats or barley and bran added. Corn is generally considered too fattening for breeding stock. Those breeders who recommend a mash use equal parts, by weight, of shorts and corn meal, wtih ten per cent of beef scrap added and mixed with cold water to the consistency of a stiff dough. Grit should be freely provided as well as fresh drinking water.

Hatching

Geese usually begin to lay in March and if not allowed to sit will lay from 20 to 30 eggs each. The first goslings should not be hatched until the grass begins to come in green. A hen will cover not more than five goose eggs, while the mother goose may hatch from 12 to 15. The period of incubation varies from 28 to 33 days, but averages 30 days.

In hatching under hens three points should be noted:

1. Since the time for hatching is once and a half as long as for hen's eggs, only hens that are in good condition and kept free from lice and properly fed will stay on the nest long enough to bring off a good hatch.

2. Since the first goslings may appear as early as the 28th day and the last one not until the 33rd or even the 35th day, it is a good plan to remove the goslings from the nest to a warm, flannel-lined basket as fast as they hatch or else the hen will become restless before the hatch is finished and leave the nest.

3. It is not wise to assist goslings from the shell. Let nature take her own time but see that the eggs are kept moist.

In hatching in an incubator these points should be noted:

1. All non-fertile eggs should be tested out on the sixth day.

2. Goose eggs need more cooling than hens' eggs.

3. After the 10th day the eggs should be sprinkled daily with lukewarm water, and from the 15th to the 20th day they should be dipped in lukewarm water for 30 seconds every other day and every day for the last ten days of the hatch.

4. Bring off the hatch at a temperature of from 105 to 106 degrees.

5. When cooling after the 15th day reduce the temperature to from 80 to 85 degrees.

Food and Care of Goslings

Do not feed the goslings until 48 hours old, but give them tender, finely-cut grass and water. If with a hen, give her a box large enough so that the goslings can get out from under her and move about, and yet not large enough for them to wander off and get chilled. Their first feed should be rolled oats or stale bread slightly moistened with water. Some breeders recommend bran, corn bread, or chick

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food. In any case, tender grass or green shoots from oats or rye or barley cut very fine should form at least three-fourths of their ration. Overfeeding or lack of grass will cause leg-weakness and probably death. After goslings are a week or ten days old they may be safely turned out to live on good pasture, while fresh drinking water should be supplied at all times. Under no circumstances should goslings be allowed in the water before their breasts are fully feathered. When quite young, they should be kept under cover on wet mornings and in case of rain, and green food should be liberally supplied. If rapid growth is desired for quick marketing, grain may be added to their ration. Goslings reach marketable age when 12 weeks old and if well-grown should average 11 pounds.

Plucking Geese

Goose feathers are an item worth considering. Pluck only once a year, after the breeding season is over and warm weather has come. Wait until the old feathers are thoroughly ripe and dry at the root so that they are just ready to fall. The new pin feathers should have appeared and there should be no bleeding when the old feathers are removed. Remove only the soft feathers on breast, back, and abdomen, leaving enough on the sides of the body to lend support to the wings, which should be carried well up after the plucking. Young geese under 18 months of age should never be live-plucked. Geese should not be live-plucked after the middle of August. In New England the practice of plucking of live geese is generally regarded as barbarous and is condemned. It certainly should only be done when the feathers are ripe and then with care and in moderation. In plucking dead geese reject all quill feathers. After plucking, place the feathers loosely in cheap muslin sacks and hang in a light, airy place. Sunlight and an occasional shaking up are helpful. Keep the feathers in such sacks from three to six months, when they will be thoroughly cured and free from animal odor. They bring about 60 cents a pound in market.

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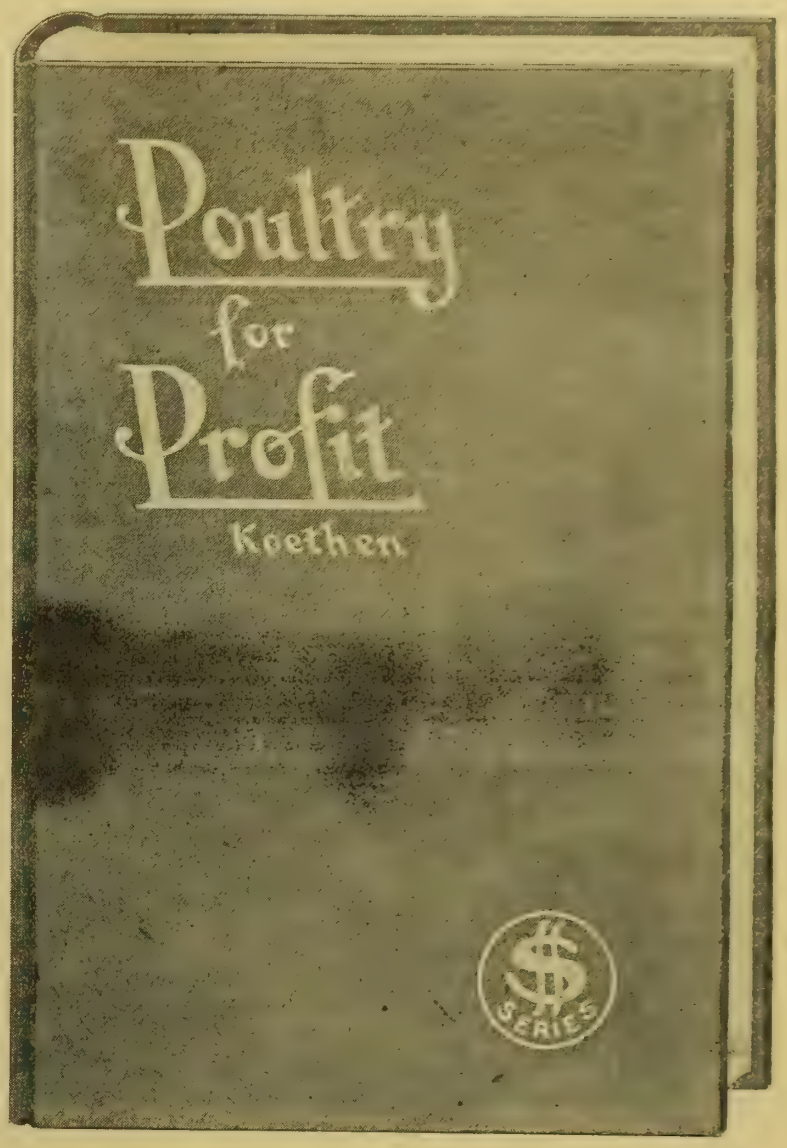

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Jean A. Koethen, Graduate of University of California

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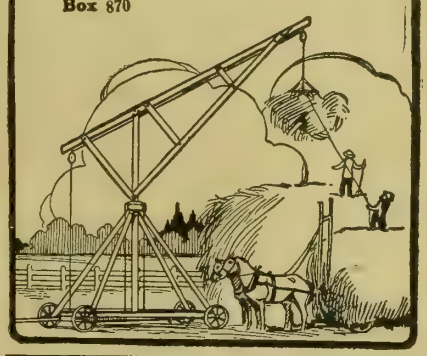

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For Sale—One of the choicest 20-acre walnut groves in the San Gabriel Valley, on Los Angeles-Covina electric line; 15 miles from the city, in the heart of the finest walnut growing district; 12-year-old trees in fine condition; half the place interset with fruit trees of all kinds in full bearing; good 6-room house and outbuildings; fine pumping plant, 125 inches water, supply water for 150 acres outside at good profit; place must be seen to be appreciated. Price, $20,000; terms. Address Box 144, El Monte, Cal.

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Special inducements; government land, railways, free schools; cheap irrigation; 31 years to pay for farms adapted to alfalfa, corn, grains, fruit, etc.; climate like California; ample markets; reduced passages; special excursion being arranged. Free particulars from F. T. A. Fricke, Government Representative from Victoria, 687 Market St., San Francisco, Cal., Box X.

For Sale—16-acre apricot orchard, trees mostly two years old. Soil a fertile, sandy loam, not steep, no frosts or winds; small house; good spring. Situated one and one-half miles from town on County road. Price $3500.00. Terms $1500.00 cash, balance long time and easy payments. No exchange. Direct communications to J. J. B., Rural Route No. 2, Watsonville, Cal.

For Sale—20 acres, Yolo County. Near State Farm at Davis. I will furnish alfalfa, beans and corn seed, also necessary farm implements. Plant now for the season's crop. See alfalfa and berries growing on the land. Dudley Moulton, 12th Floor First Nat'l Bank Bldg., San Francisco, Cal.

County Sectional Maps—Showing vacant government land, $2.50 any county. VERY PLAIN. Easy to see and select your choice. Booklet and circulars FREE. Write Joseph Clark, Searcher of State and U. S. Records, Sacramento.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

For Sale or Exchange—Ten acres planted to two year old Valencia orange trees, at North Whittier Heights. Will consider trade for vacant lots. Box 54, Glendora.

For Sale—Orange, olive, peach and rice land. Close in, on good terms. Fred Hart, Exeter.

BEES AND HONEY

Beekeeping—Instruction book free—explains honey productions, profits, prices, supplies, bees and management without stings. Spencer Apiaries, Iris Avenue, Nordoff, Cal.

Bees and Their Care

QUEEN-REARING POINTERS

By Frank F. France, in American Bee Journal

IS NOT the subject of beekeeping like a game of checkers? Are there not certain moves to make to get to the king row? I would say yes in both cases. The first and best move to make is to provide each colony with a good, young, laying queen. A queen that does good work is one that produces a hive of bees that work. I once had a queen, and of a high type of breeding, that produced a strong colony, but her bees did not secure more than enough honey—the whole summer long—to live on, while colonies all around her filled three and four supers. Such a queen should be killed at once even though she appeared good.

There is a great study before us when we work out and compare the lives of different queens. There is as much difference in the personality of bees as there is in people. It is wonderful to watch half a dozen colonies and observe their differences and likenesses.

One of the most important features is to have your queens as nearly alike as possible, both as to breed and age, by securing them from some reliable breeder. Breeding queens should be changed every year to secure the best results.

I have been asked by many beekeepers to explain some of the methods I use in queen-rearing, also to explain how I use a little device to do away with a large share of queen bookkeeping. This device is the invention of Mr. H. Perkins, or Artesia, California, and is the best device I have yet seen to do the work required.

To begin with I secured good breeding queens from excellent stock, and if they come up to my standards as good layers, with well-marked bees that work, such are used for breeders. By importing new stock and changing breeders every year, and also testing them for honey gathering, I have stock that is worth while.

As the temperature here in the North is generally cold, I do not begin my cell building until the latter part of May or the first of June, when drones are plenty and there is little dandelion honey coming in. From this time on until the middle of August I put out cells on the average every other day, but in the height of the flow I put out cells every day.

To produce the best, long-lived queens that bring results, larvae not more than 24 hours old must be used for starting cells. All cells are raised in full colonies under the swarming or supersedure impulse. These cell-builders are made extra strong with brood from other colonies, so that there is an over supply of nurse bees that will thus provide the proper amount of royal jelly for each cell. All colonies and nuclei are fed to imitate a good honey-flow (if there be none); about half a quart of feed in the evening of each day. The best results cannot be expected unless this is done.

The subject of the proper sized nucleus here in the North is of great importance. During the earliest and latest periods of the year I use a common 10-frame super with three tight division-boards and a super, thus making four (two-full-Langstroth) frame nuclei, each division having a separate entrance and cover. The entrances are so arranged as to have one on each side and end. Over all is placed a full cover.

As the season advances and the weather becomes warm and settled, I use a twin nucleus hive. This hive is made on the same principle as the Root twin hive, only the frames are made one-half a standard frame instead of one-third. I have a great many more bees to keep the brood warm, a larger space for the queen to lay in, and I have less swarming. The division-board is made of plate tin with an oilcloth fastened to the top to overlay each side. Over all is placed a telescope cover.

One of the most important features of queen-rearing is the bookkeeping, especially if a record is kept of each individual nucleus. A little device is used to do away with a part of this work. It is made of tin, with a small knob to turn each wing out as desired. Each wing of the signal is painted a different color, as red, white and blue. In connection with the signal I use a small piece of cardboard tacked on the side of the hive numbered in a half circle as this: 1, 3, 6, 9, 12, 15, 18, 21, 24, 27, 30 with a wire bent to point to any one figure or to any third day in the month. For instance, suppose the signal indicates that there is a virgin (the white wing) and the hand points to 15, it would mean look for a layer the 15th, when the signal can be turned to the red, meaning laying. The blue indicates a cell. After the queen has begun to lay the entrance queen-excluder is pushed down over the entrance, thus holding her in case of swarming.

TESTING THE QUEEN

A poor queen can not always be judged by the amount of bees in her colony. I have known this rule to be used, but it is not infallible. Recently I had a very small colony whose queen to all appearances was first-class. To test her I exchanged stands with a very strong colony. In six days she had increased her brood space more than ten times the original amount. I was so pleased with the outcome of this trial that I have tried it on others, saving several fine layers that I might otherwise have destroyed. A weak colony at the end of a long honey dearth is not necessarily a sign of a poor queen.—Chadwick, in Gleanings.

FOUL BROOD AND DAMP CLIMATE

It is suggested, in the Irish Bee Journal, that Ireland suffers so severely from foul brood because of its damp climate, and reference is made to dry climates where foul brood is unknown. But Colorado is noted for its dry climate, and foul brood rages there. Much the same may be said of California. Foul brood may be unknown in South Africa, but not because of its dry climate.

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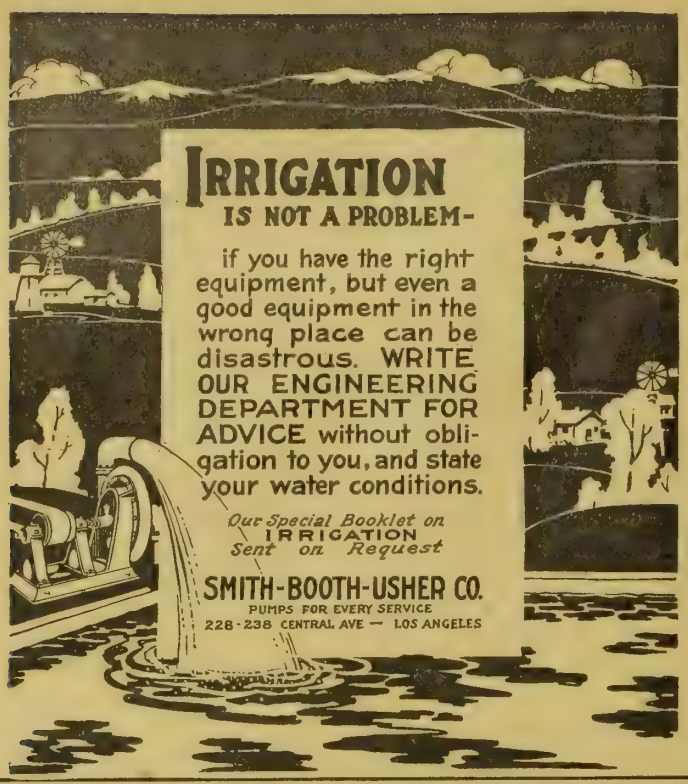

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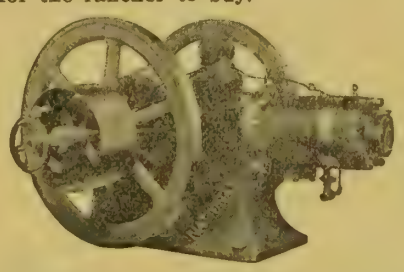

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Farm Bureaus

Ventura County, Wm. B. Parker, Adviser, Ventura

The "Farm Bureau Monthly" gives the following account of cover crop experiments:

A cover crop demonstration plot was seeded September 22, 1914, on the Hardison Ranch Company's place at Sespe. Black purple vetch, Black bitter vetch, common vetch, barley and rye were seeded.

When planted the ground was in good shape, and a good stand was obtained in all cases.

At a farm bureau field meeting held on the Hardison Ranch March 16, 1915, the following data was obtained: Comparing all plots with the best plot it was found that the black bitter vetch did not make a satisfactory growth, was smothered by the barley and was injured by aphids. The common vetch made a fair growth, but was badly injured by aphids, and partly smothered by the barley. The black vetch made an excellent growth, climbed well up on the barley, was only slightly injured by the aphids, and in all seemed the most satisfactory. The rye made only a slight growth, and did not compare with the barley as a crop to plant with the vetch.

It was decided that 40 pounds of barley was more than is desirable to plant with the vetch, and that 25 pounds would be better.

The black purple vetch did better at Nordhoff than the common vetch and from the demonstrations conducted so far this plan appears to be the superior vetch to use in the county.

The bureau has a squirrel control committee which has established seven stations in the county where squirrel poison will be sold.

The establishment of a county free library has been discussed in local meetings. Miss Eddy of the state library has been presenting the subject. As a result many petitions will be presented to the county supervisors asking for a county library.

Napa County, H. J. Baade, Adviser, Napa

The dairymen of Napa County organized a Cow Testing association at Napa, Saturday, April 3. The following directors were elected: Wiliam Mitchell, William Watt, Frank Peterson, Dr. Stetson, L. Crellin, R. Imrie and John Steward. President, William Mitchell; vice-president, William Watt; secretary-treasurer, Frank Peterson.

A tester was employed who will receive $80 per month, provide his own transportation and testing materials. Over 600 cows were entered and as many more are expected to enter within the next few weeks. We feel that the dairymen of this county have taken a very marked step in advance, by this movement. We are quite confident that results worthy of mention will be attained in a very short time.

San Diego County, H. A. Weinland, Adviser, San Diego

From the "Farm Bureau Monthly:"

The farm bureau is a place where the valuable knowledge of how to farm which has been gouged out by the taskmaster of experience can be spread about throughout the locality to the benefit of all parties interested. It brings together the best in each farming community and concentrates that effort upon such improvements or advanced methods as will bring greater returns to that section in general and the individuals in particular.

It is the medium through which the farm adviser can distribute valuable information gleaned from the best in other communities. It is the organization which takes up matters of local community improvement wherever no such organization exists and which in doing so concentrates local action on any progressive movement which will be for the general advancement.

One further phase of the subject must be mentioned, namely, the social side of the organization. No meeting of farmers discussing important and weighty problems connected with their business can be so good but what it can be made better by a little wholesome entertainment, whether it be musical, literary or otherwise. This factor cannot be disregarded and should be fostered.

The members of the San Luis Rey farm bureau are planning a picnic to be held sometime in May, at which time some University authority will be invited to speak. It is hoped that the Vista, Fallbrook and Bonsall locals will cooperate to make this meeting a large and important one.

Dr. Cady, of the veterinary science laboratory of the University of California, will be in the county during the last week in April. His trip will be an occasion for several meetings in sections interested in the raising of hogs, and his special topic will be "Hog Cholera, Its Detection, Prevention and Cure." Special meetings will be scheduled to take advantage of this opportunity in districts particularly interested in this question.

W. E. Ingelow, manager of the Bancroft Olive Ranch in Spring Valley, states that the orchard tractor has come to stay as far as they are concerned. When visited by the Farm Adviser on March 15, the machine was drawing 32 10-inch disks, double cutting a width of nine feet top-working their olive grove. He stated that they covered 15 acres in a day of eight hours at a cost of $1.25 for gas and oil.

At the annual meeting of the bureau on the exposition grounds at San Diego, March 20, 62 new members were added.

THE MAN WITH A PLAN

The passenger train makes best connections when it runs on a schedule time. If it fails to do so, there may be a collision. This is disastrous. The farm run by schedule will certainly make better connections than one run in a haphazard way. Instead of beginning a thing on a certain minute and second, as the railroad does, plan for that particular thing to be done on a certain day or week. True, new things are going to come up, but make allowances for the unforeseen. It may rain and keep you out of the field longer than you had expected; a team may run away necessitating repairing the harness and possibly making some new fence, all of which takes time, and if no allowance has been made for the unforeseen you get dreadfully behind your schedule.

Can you increase the value of your harness five dollars by oiling it? How much will it cost to do it? It is a waste of time to go to town three times a week when proper planning will make one trip answer the same purpose.

Certainly, things will come up unexpectedly, but just as certainly, a lot of definite things are going to happen. The farmer has to deal with the unknown as well as the known, and it is the fortunate farmer who knows enough about his business to plan, with a certain degree of accuracy, the work which is to come. He is the man with sufficient foresight to see and arrange to meet not only those things which are sure to come, but those which he may expect to come. —O. S. Rayner, Colorado Agricultural College.

Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Warts

Will you please give me through the Cultivator the cause and cure for warts on a young heifer. They are of the dry, scaly kind, from the size of a silver dime to a quarter.—Subscriber, San Diego.

If the warts are large and flat then it would not be advisable to cut them off. After each milking apply plenty of olive oil all over the teats.—W. J.

Shares

A owns 250 acres of land, tools and stock, but lacks money for help. A offers to put his labor against B's, each to share one-half of expenses (seed, feed, upkeep and sale of crops). Shares suggested are as follows: Land, stock and tools, one-third net profits; A, for his labor, one-third net profit; B, for his labor, one-third net profit. Is this a fair and just division? We raise barley, corn, potatoes, beans, some truck garden and a little fruit.—Subscriber, Ramona.

The arrangement seems to be very fair as we understand the agreement. The owner of the land, implements and animals needed for the cultivation values the use of these at one-third the net proceeds, and this is conceded by the others, one of whom in this case is the owner of the land. Then each partner agrees to furnish one-half the labor, or other expense, and receive one-half the net proceeds after paying for the use of land, teams, etc. The amount of rental received by the owner of the land will vary according to nearness to market, quality of soil and other advantages or disadvantages, together with other considerations such as teams, implements and seed.—J. B. N.

Peas in Milo Field

Am contemplating planting peas in my field of milo in the Imperial Valley. Which is the best variety?—Subscriber, Imperial.

We assume the subscriber wishes to know as to peas which will add to the pasturing value and in that case we doubt not the ordinary Canadian field pea will be the best.

Pruning Lemons

I have 242 acres two-year-old lemon trees. Some of the trees are growing long shoots. Would you advise me to prune them in order to shape up the trees or let them go as they are?—Subscriber, Alta Loma.

Prof. J. Eliot Coit answers:

"It is the best policy to prune back young lemon trees and force them to increase in size rather slowly, forming their main branches out of the somewhat slower-growing, fruiting type of growth rather than out of exuberant water sprouts or suckers. It is a good plan to have the main framework branches repeatedly cut back so as to make them many-angled."

Alfalfa Seed

The Cultivator has had several requests for information as to which cutting is the best for alfalfa seed production. The question was referred to Mr. Peterson of the V. A. Peterson Alfalfa Seed Company, at Arbuckle, and he writes: "This is a question that can be answered only by a knowledge of soil and weather conditions. Very little good seed is ever produced where irrigation is practiced. With the exception of two or three small districts the crop that is irrigated never seeds. Through the Sacramento Valley the third and fourth cuttings produce the bulk of the crops (about in equal proportions). A small per cent of the second crop is often left for seeding in the dryest areas. Usually this does not make good, as hot periods are more liable to occur at this time, causing seed to blast, or an over abundance of moisture makes too rank a foliage to make harvesting for seed profitable. The fifth crop in strong heavy soil will generally make good, but early rains and general weather conditions make it too risky for growers to take a chance. Throughout northern California the second and third crops make practically all the seed produced and in many events when the third crop is let go for seed much difficulty is experienced in harvesting owing to adverse weather conditions.

"In the vicinity of Modesto and south through the San Joaquin Valley, the custom prevails to leave the fourth and fifth crops. The land has of course been under intensive irrigation for the former crops, and there are varied results of success and failures. Even when an average yield has resulted the quality is hardly of a class to appeal to purchasers desiring reliable seed. Alfalfa seed is a crop which is somewhat uncertain. The farmer may have an immense crop of pods but when threshed find they contain practically nothing, and the field where he expected to get nothing brings home the bacon."

Late Blooming Pears

We recently had a request for information as to best pear to plant at a high altitude in the mountains where very late frosts are liable to occur. The question as to which is our latest blooming pear was submitted to Mr. Roeding and to Deputy State Horticultural Commissioner Weldon. Mr. Roeding writes: "The varieties I would recommend are Beurre Hardy and Doyenne du Comice." From Mr. Weldon's letter we quote: "About the only varieties of pear that bloom later than the Bartlett and Winter Nelis, according to records kept in Tulare County and published in Wickson's "Fruit Growing in California," are Beurre Hardy and Flemish Beauty. According to his table the latter variety is the latest blooming of all. The Bartlett showed the first bloom on March 14, Winter Nelis March 12, Beurre Hardy March 18 and Flemish Beauty March 20. The latter is a splendid variety and I see no reason why it should not do well at high altitudes. I have been trying to find out something in regard to the blooming habits of the Winter Bartlett, which is a seedling of the regular Bartlett but which ripens its fruit much later in the season. As the time of ripening does not indicate the time of blooming and as I have not been able to find anyone who could tell me just when it does bloom I do not know

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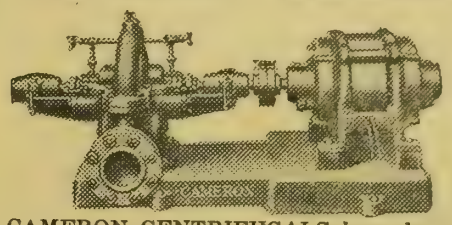

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that it would be of any use for conditions such as those mentioned. I would say that either the Beurre Hardy or the Flemish Beauty would be more apt to escape the late spring frosts than the Bartlett or Winter Nelis."

Pound and Mission Pears

Answering an inquiry as to Pound and Mission pears, Mr. Geo. P. Weldon, chief deputy state horticultural commissioner. writes:

"Neither of these, as far as I know, are grown commercially in California at the present time. The Pound pear is not supposed to be of any great market value, but has been prized by some for cooking purposes. It is what we might term an overgrown variety and has not the quality of some of the smaller kinds. I have not come across any of the Mission pears in the state. Wickson mentions them in his chapter on Mission fruits in California and tells about 600 trees that were on the property of the San Jose mission in Alameda County. These pears were no doubt highly prized in an early day before we had better varieties. At the present time I do not think they are of any commercial importance and would come in about the same class as the Mission grapes. I find that Lelong mentions three varieties of Mission pears, one of them the Pera de San Juan, another the Pera de Coche, and the Bergamota. These are certainly not commonly found today, and I do not think they are of any commercial importance."

Brown Spots on Chrysanthemum Leaves

Will you kindly tell me what the brown spots on the within chrysanthemum leaves are, and what is the remedy? The leaves curl up and die. —Subscriber, Pasadena.

This question was referred to H. S. Fawcett of the Southern California pathological laboratory and he writes:

"These specimens appear to be affected with fungus rust. So far as I know there is no practical treatment for the affected plants this year, but for another year if the affected leaves and dead parts of the plants are destroyed at the end of the season and care is used in watering the plants, irrigating them so as to keep the water off the leaves rather than sprinkling, I think the rust will be prevented."

Bloody Milk

What is the reason for bloody milk? Cow is well, has been fresh since November. Feed green alfalfa and hay. Is there any danger in using the milk? When we feed her plenty she gives more milk and then it is we notice the blood. Does not put on flesh, puts it in the pail instead.—A. Kingsburg.

One of the causes of bloody milk is stated by the best veterinary authorities to be "when the circulation of blood through the udder has been suddenly increased by richer and more abundant food." This is probably the trouble with the Kingsburg subscriber's cow, in which case too much food must not be given.

Other possible causes of milk being bloody are: When the udder has been injured by blows, when congested or inflamed for any reason, when the cow is eating acrid or irritating plants, like the ranunculaceae (crowfoot family), when tubercles or tumors are present in the udder. When milk becomes red after it is drawn this may be due to the presence of a bacteria, bacillus prodigiosus, the socalled "bleeding bread" bacillus.

It would seem best not to use the bloody milk, at least not until a bacterial examination has been made. This will doubtless be made free of charge by the veterinary department of the University of California. Write to Dr. C. M. Haring, College of Agriculture, Berkeley, asking whether such examination would be made and for instructions as to method of taking and mailing the sample.—L. A.

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.
Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Torrens Act

Please give me complete directions for placing the land now held by me under the Torrens act. Do I have to bring a lawyer into the matter or can I do it myself?—Subscriber.

The method for placing land under the Torrens act is really quite complicated.

The act was set forth in the pamphlet sent out to voters at the last general election, to which you may refer for particulars. In general, however, the first step is to file with the county clerk a verified petition to the superior court, which petition should state the full name of the applicant, his occupation, residence and postoffice address, whether married or not. If so, the full name of the husband and wife; if once married and the marriage terminated, when and how such termination was had.. Then the description of the land, the amount for which said land was last assessed by the county within which it is situated, whether or not the property is community property or is subject to homestead, any other liens or incumbrances which there may be upon said property, and the names and addresses of any holders of such liens as there may be upon said property. Also a statement as to whether or not the land is occupied and the name and title by which it is held by such occupant; also the names and addresses of all owners of adjoining lands. Where the land has been once platted, and a map thereof recorded, reference in the description may be made to such recorded map, or if not so recorded a survey must be made of said lands, a map of which survey must be filed with the petition.

If title has been brought down by any title insurance company, this title certificate may be made the base and start of a title search upon said property, otherwise there must be a full abstract of all transfers of said property from the original source of title, which must be verified by a competent title searcher or a certificate of an abstract company.

Upon presentation of the above to the court, if deemed sufficient by the court, an order is made directing notice of the filing of said petition to be addressed and served upon all persons appearing to have an interest in said land, which said notice should be personally served upon all parties if within the state of California and requiring them to appear and answer said petition within ten days after the service upon them in the county or 30 days elsewhere. The said notice must be published in a daily or weekly newspaper, published within said county, such publication to be for at least four successive weeks. Anyone claiming an interest in the land may within the time noticed appear and object in writing to the granting of the decree thereupon.

The case may be then tried either by court or jury. In case no answer is made to the petition by any of the parties upon whom it is ordered to be served, the case is then set down for hearing before the court, who shall then hear the evidence of the applicant, as well as of the surveyor and title searcher, and the court shall thereupon make a decree, which said decree becomes binding against the whole world and is an adjudication to the title of the property.

Appeals may be taken from this decree to the supreme court in the same way as in the case of any other civil case.

If at the time of the hearing or at any time prior thereto the court may deem it best to appoint its own examiner of the title it may so do and regulate the compensation to be paid to such searcher of titles.

After the decree is filed with the county clerk, the applicant shall procure a certified copy of said decree and file the same with the recorder of the county. The recorder for the purpose of this act is also made a register of titles. The fee for the filing of said decree with the recorder is $1.00, the recorder also receives a fee of one-tenth of one per cent of the assessed valuation of the said land. These fees go to the state to form what is known as an assurance fund for the purpose of insuring the titles made by this act. The register of title thereupon issues a certificate of title to the person or persons decreed to be the owner, which certificate describes the property, the character of the title and any liens or encumbrances which there may be. Thereafter transfers of the property may be made by the usual form of conveyance; provided that any conveyance of land, which has been brought under the effect of this title shall thereon bear a notation to the effect that the land has been registered under the act. It is also sufficient to convey the title to the land for the grantor to endorse upon the original certificate so issued by the register, that he has granted the within described land. Upon any lease for a period of more than one year, a mortgage or other incumbrance, the original certificate shall be brought to the register, who shall stamp thereon "leased" or "mortgaged" as the case may be, together with the date of such encumbrance.

The original certificate, so issued by the register, is conclusive evidence against the whole world of the title to the property. In case this original certificate is lost or in case the name of the party thereon is changed as by marriage or otherwise, it is necessary to file a petition in the superior court to have an order made upon the register for the issuance of a new certificate.

Land which has once been brought under this act is not subject to adverse possession even though it may be continued for any number of years. The state insurance fund is made to accumulate for the purpose of insuring parties obtaining title or bringing title down under this act against any error or mistake caused by fraud or negligence upon the part of the register.

From casually reading over the act itself, it would seem that it would be a rather difficult matter for an experienced attorney to properly take the steps necessary thereunder, and the main objection to the act is the high cost of originally bringing the property under the operation of such act. (It is impossible to state cost, but in an average case it is presumed the cost may reach $100.)

As before stated all further particulars may be found in that pamphlet issued to the voters of the state by the secretary of state at the last general election, a copy of which you can undoubtedly find somewhere in your locality.

The Household Department

GYPSIES

Oh, for the summer again and the bliss of it!
Back to the road, Love, and just you and me;
Night and its breath and the joy and the kiss of it—
Gypsies and lovers and dreamers are we!

All of the cares of the home and the fret of it
Left with the heat and the dust of the street;
Out on the road, and the joy that we get of it
Beckons and strengthens the wings of our feet!

Glow of the fire in the dusk and the gleam of it;
Scent of the pines and the runes of the night;
Musk of the bloom by the road and the dream of it
Tangles the sense with its witching delight.

Mansions are prisons! Oh, what do we care for them?
Night, with the whispering winds at our tent!
Never a day nor an hour can we spare for them
Under the stars and the broad firmament!

Chill of the autumn! Ah, then we'll return again—
Bees to the hive when the flowers are dead;
Bright in our home then the fires will burn again,
Watch fires of love till the winter be fled!
—Will Lisenbee in Ainslee's.

THE UNCHALLENGED LAW

Hannah Harding closed the door of the sod barn and braced it with a pole of scrub oak. The wind should not blow it open again and chill Old Jersey and her calf, she determined. Ugh! It was an ugly wind! It seemed as though it were always blowing in Roseau County. Hannah could not recollect a day that fall when it had no "blown pitchforks." Winter was "setting in" early too. She gathered her apron containing six eggs a little closer in one red, chapped hand, and taking the milk pail in the other, trudged wearily to the shack.

For a few minutes she worked hurriedly and put everything in order for the night. The milk was strained into two pans and put upon the shelf; the eggs were crated, and a half dozen chunks brought in for the heater. Then she put on the coffee pot, and while it boiled she laid aside her drabbled skirt and heavy shoes, and donned a neat gown and slippers.

"Now that the fall work is done I'm going to enjoy my evenings. I'll finish reading that story that I began last Sunday if it takes till midnight," and she settled herself beside the table and turned the lamp wick a little higher. She opened the magazine to the unfinished story, but instead of reading sat gazing at the pictures. She liked to look at the advertisements too, and turned to the cover pages.

"Oh, dear! how this lamp smokes! 'Pears like John D. takes special delight in pestering me with this sort of oil. Now if I were John D."—

What Hannah would have done had she been an oil magnate must be left for the imaginative to conjecture. Her hands folded tightly upon the magazine and her face seemed to harden. It was generally a severe face. Hanna thought life had dealt severely with her, and perhaps it had. It seemed that every year her eyes became a colder gray; that her lips set more firmly, and her hair was drawn back a little tighter (if that were possible), and that her whole form and nature became more firm and unyielding.

Suddenly she laid aside her book and gazed straight and hard into the open stove door. Hannah knew she was hard of heart. She ought to know—she had been told often enough, she thought. But what was the use of trying to be anything else? It was a hard world. Everything in it had been made hard for her. Even her name was Harding with but few softening vowels. To be sure John Knut Moe had once told her that he thought Hannah a pretty name. But what did that signify? Simply that John Knut Moe had poor taste in his choice of names. He had hard taste, she decided.

"Well, I filed on this quarter and I've stuck to it and proved up. I've seen hard times all along too; but I don't know as I'm sorry I did it. I've got my home and I'll keep it if I can pay taxes. But there's the ditch tax coming this year! Oh, what's the use! What am I doing it all for? Who'll have it when I'm dead? I have not a chick nor a child to leave it to, and I don't know as I want any. I say—life is hard—especially in Roseau County where one can't raise anything but milk thistles. Still, we did take the premium at the state fair. But what good would ten thousand premiums do me? I guess I lack what an author talked about in this magazine. He called it 'heart interest.'"

Again she picked up the magazine and turning to the unfinished story gazed at the illustration. It was the picture of a mother bidding her son goodby as he started for college. The lines in Hannah's face softened ever so little, and she turned the leaves till she came to a whole page of Mellin's Food babies. But soon the pictures were forgotten for listening to a

Are You Troubled With Ants?

Their Extermination Now a Simple Matter

One of the most exasperating afflictions the housewife has to contend with nowadays is a house overrun with ants. Many remedies have been devised, but none of them produced the desired results until a baker in Los Angeles, whose place was overrun with this pest, prepared a paste which seemed to have almost supernatural powers, as far as ants were concerned, ridding his entire place of them in one day.

So great a demand was immediately made upon him by his neighbors and friends that it was decided to put up the remedy for general use, under the name of Kellogg's Ant Paste. It can be obtained at all druggists, and thousands of testimonials from all over the country testify beyond question that a real exterminator of ants is now available.

Get a package from your druggist today and your ant troubles will be ended forever. But be sure it's Kellogg's.

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WEAR like iron, give twice the service of other school shoes and cost no more. Made with double leather toes, strong pliable uppers and toughest sole leather obtainable. Seams sewed with extra rows of stitching. Perfect in fit and style.

WARNING—Always look for the Mayer name and trade mark on the sole. If your dealer cannot supply you, write to us.

We make Mayer Honorbilt Shoes in all styles for men, women, children; *Drysox*, wet weather shoes; *Yerma Cushion Shoes, Martha Washington Comfort Shoes.*

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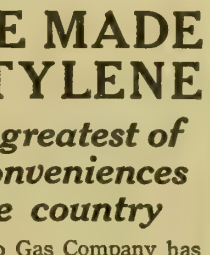

GAS SUPPLY FOR THE BIG CITY

City folks used to have this great convenience to themselves. But today *Home-Made Acetylene* is even a greater boon to country homes than city gas is to city homes.

Acetylene is ten times richer than city gas—the light is white, more brilliant, and far more beautiful. Acetylene is also like city gas, a perfect cooking fuel. With an acetylene range in her kitchen the country housewife can enjoy cooking in cool comfort without any of the drudgery of handling kindling, coal or ashes.

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GAS SUPPLY FOR THE COUNTRY HOME

The men folks on the place can have big white lights of their own in barns and outbuildings — and have all fixed to light with the pull of a chain—without matches.

A quarter of a million farmers now make this light and fuel right at home. Each one fills his acetylene generator once a month with the acetylene producing stone, *Union Carbide*. The generator does the rest.

The new models are inexpensive and are wonderful improvements over the early types.

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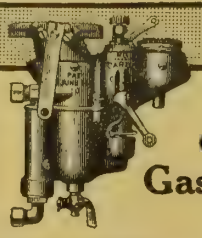

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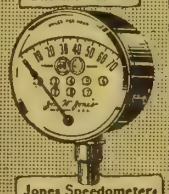
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The man with the good telephone in the house is in quick touch with the voice of the entire world. In a minute he knows the markets. In case of fire, tramps or illness, he can call the whole community. If he has an orchard and the fruit ripens quickly, he can scour the country for help in harvesting. The whole community becomes a living thing to him and that old dread of country life—isolation—is gone forever.

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They are made in the largest independent telephone factory in the world, and have to undergo the most rigid inspection for quality ever devised. 37 distinct tests given every instrument before it is O. K.'d for shipment.

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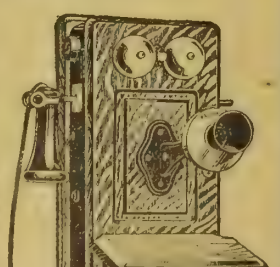
The instrument shown here is Kellogg Favorite. Less wall space, strong ring, reliable lightning standard, unbreakable receiver and mouthpiece, secret-service push button to ring "Central" without calling neighbors.

Send in your name and address and we will put you on our telephone bulletin list. Let our expert department help you in your telephone troubles. Get free the kind of information that will save you money. Write for Bulletin 24 a



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peculiar sound upon the doorstep. Then a voice—"Hannah! Hannah! Open the door!"

She obeyed instantly.

"Why John Knut Moe! What on earth have you got in your arms so big and heavy that you can't open the door yourself? Come in." And in walked the big Scandinavian and deposited his bundle upon Hannah's bed.

"I brought you a present, Hannah, but I don't know what you'll be a thinkin' of it," and he slowly unfastened and unrolled a quilt in which lay a child—a boy of perhaps five years.

"Why have you brought him, John, and who is he?" questioned the astonished woman.

"I brought him 'cause I knew you'd be much more handy with him than I could be. Who he is I don't know. When I was comin' from town today I overtook him. He was cryin' by the edge of the swamp this side of Skunk Creek. He couldn't talk—he was so cold, and had next to nothin' on. So I figured that the only humane thing fer me to do was to fetch him along. I rolled him up and hurried the team all I could. But you know an ox team's slow, an' 'fore I got home I thought we'd better do something for him."

"We!" exclaimed Hannah, and John Knut Moe reddened to the roots of his hair.

"W'y, er—yes," he stammered, "I counted on your help or I wouldn't ha' brought him over. He's a pretty sick child, I think."

"Yes, he has fever," she returned. "He'll have pneumonia most likely." And she took one little hot wrist and counted the pulse. A tear trembled upon the child's cheek and she wiped it way. "Poor little man! I'll do what I can for him."

"I knew you would, Hannah. Somehow a child gets hold of a fellow's heart if he is old and—grizzled like me."

"Camphor and lard would be good to put on his chest, wouldn't it, John Knut?"

"I reckon so, Hannah. You know best," he returned.

And so the story remained unread for that night and for many nights following, for the little patient was ill many days. And what with this unexpected charge and the care of the home Hannah Harding found no time for the magazine. But John Knut Moe did all that he could to lighten her burdens. Regularly he came and cared for Old Jersey and her calf. fed the speckled hens, brought in the popple chunks and filled the water pail.

Gradually the little stranger returned to life and began to take a child's interest in the affairs around him. One day he raised his emaciated arms and clasped them tightly around Hannah's neck, exclaiming, "I feels this a-way!" And then it was that the almost middle-aged woman discovered, with a pang of fear, that she had developed "heart interest." The fear came with it because of the possibility of its being taken away.

The winter days wore away, and spring had melted the last drift of snow. They sat in the doorway of the homestead shack—Hannah Harding and John Knut Moe—and little Roseau played with Old Jersey and her calf very near.

"I thought some one would be calling for the lad sure, long 'fore this. We've advertised him 'bout long enough. But now I'm not particular whether he's called for or not," the man remarked guardedly.

Hannah was silent. The hard lines had disappeared from her fact, bright spots burned in her cheeks, and her eyes were shining.

"I couldn't let him go if anybody did call," she cried. "He's mine! I saved him!"

"No, he's minue, Hannah. It was me who saved him. I brought him to you."

"Then he very properly belongs to both of us," she laughed. How good it sounded to hear Hannah laugh.

"Very properly," he returned.

"Suppose we adopt him, John Knut." The suggestion came almost shyly and she glanced cautiously in his direction.

"I suppose there would be no law against it," he admitted quickly. "But seeing as our farms join, Hannah, let's adopt each other first. Couldn't we join hands over the quarter line with the child for a link? Eh, Hannah?"

Then the last vestige of hardness went out of Hannah's heart as she answered, "I suppose, John Knut, there would be no law against that arrangement either."—Farm, Stock and Home.

BELGIAN HARE RECIPES

The following excellent recipes have been received from readers in response to request in these columns:

How to Cook Belgian Hare

Rabbits are very fine fried or stewed with dumpling like chicken, or stewed, picked from the bones, the broth thickened and made into a pie with thin top and bottom crust.—Mrs. R. V. Kerfoot, Lemon Grove.

Hasenpfeffer

This is a tasty dish made of rabbit, although beef may be used. Put the meat in a stone jar and cover with equal parts of vinegar and water, to which one small sliced onion, salt and cloves have been added. Let the meat remain in this for two days, then remove and brown in a frying pan in butter or lard, turning it often, and add gradually some of the liquid in which it was pickled and cook until the meat is brown. When done add a cup of rich sour cream to the gravy.—M. C., Orange.

Baked Belgian Hare

Salt, pepper and flour as for frying, then put in dripping pan containing enough boiling water, slightly salted, to nearly cover. Add one cup cream

Improve Your Cooking

By a Knowledge of the Many Uses of Cornstarch

Most housewives could improve their cooking immensely, and provide a much wider range of delectable dishes for their families, by a little study of the possibilities contained in that delicious food product—Cornstarch.

Not only should cornstarch be used for thickening gravies and sauces, in place of flour; but it should be added to bread flour when making pastry, in order to secure the soft, fine texture so much desired. Care should always be taken, however, to see that the cornstarch is well cooked, when used for gravies and sauces.

The tasty desserts that can be prepared through the use of cornstarch are almost numberless. It is unnecessary to state, of course, that in order to assure the best results, the cornstarch must be right. Housekeepers all over the country recommend Kingsford's Cornstarch as thoroughly dependable and of superior quality. The manufacturers of this famous brand have issued a little book of recipes, explaining the many uses of cornstarch, which will prove invaluable to every woman.

These booklets can be obtained free upon request at all modern grocers. Try a package of Kingsford's the next time you are ordering, and ask for one of the little booklets.

or rich milk and bake until tender, then thicken gravy. Chicken is nice cooked this way.

We speak of farmers' wives having to cook without much meat, but do we always use what we have? I know I did not think of "fixing up" rabbits until the meat wagon stopped.—Subscriber, Bowles.

Rabbit Loaf

For this I use large wild rabbits which on account of the long fibre of meat are unpalatable. I use meal fires of one day to cook them tender, in very little water. I then grind meat in food chopper, add same quantity of toasted bread crumbs, and cold chopped potatoes. Add salt, pepper and sage and a little fat of some kind. Put in baking dish and pour over enough milk to dampen well. Top with greased bread crumbs and bake until brown. Rabbits make good hash.—Subscriber, Bowles.

Rabbit Stew (German Style)

Clean and joint a young rabbit. Place in deep dish and cover with vinegar. Let stand 36 hours; drain off vinegar, dip pieces in flour and brown in butter; place in saucepan. Cover well with boiling water and cook until tender; add one large onion minced, four slices of fried bacon cut in small strips; salt to taste. Season with two bay leaves, six cloves, six pepper-corns, two tablespoons sugar; add one-half glass vinegar, thicken gravy with browned flour, diluted with water. Serve on a large platter surrounded with potato dumplings.—Mrs. H. R. Franck.

Belgian Hare a la Maryland

Cut the hare in pieces for serving, after wiping with clean, damp cloth. Dip each piece in flour, then in beaten egg, seasoned with salt and pepper, then dip in sifted bread crumbs. Butter a roasting pan and bake the hare 45 minutes in good oven. After first 15 minutes baste very often with one-half cup butter melted in one-half cup hot water. Serve with cream sauce and toasted bread.—Mrs. H. R. Franck.

Rabbit Roasted

Clean, lay in salt water while preparing the following dressing: Mince a slice of salt pork and mix with sufficient moistened bread-crumbs to fill the cavity, seasoning it with pepper, salt, thyme, and onion. Stuff the rabbit and sew up closely. Cover with thin slices of salt pork, bound on with cord. Pour a cup of water in the pan and bake until done, basting often. Add a little lemon juice to the drippings. Dredge with flour, brown and remove from oven. Remove the slices of pork to garnish the platter. Thicken the strained gravy and season with butter and two tablespoons lemon juice, salt and pepper. Garnish platter with sliced lemons, greens and the salt port.—Mrs. H. R. Franck.

Rabbit Fricasseed (Brown)

Disjoint, roll in flour and fry brown in hot butter, then put rabbit in stewpan; pour boiling water in the frying pan, then pour it over the rabbit and cook until done. Season with salt, pepper, parsley and a little cayenne. The gravy seldom needs more thickening than the flour the rabbit has been rolled in. Chicken is also very nice fixed this way, omitting the parsley and cayenne.—Mrs. H. R. Franck.

DESTROYING INSECTS

Written for the California Cultivator
By A. M. H.

If you are troubled by moths in the house, try putting bits of soft cloth soaked in spirits of turpentine among the furs, woolens, blankets and carpets if they are to be rolled and stored away. Nothing is so effective in destroying these pests as turpentine. If any garment needs sponging before putting away, do so with water to which spirits of turpentine has been added.

With proper care the bed bug may be eliminated more easily than many insects by cleaning the beds thoroughly in the spring and then using a little care in inspecting them each day. Filling the cracks in wooden beds is a great help, and in the absence of a good paste, common laundry soap may be used, then varnished or painted over thickly. If any traces of bugs are found, mix well together one ounce of corrosive sublimate with one pint of wood alcohol, and apply to all cracks and crevices. This is a deadly poison and must be kept out of reach of children.

Roaches, water bugs and so on only stay where they are well fed. A pan of garbage is an invitation to the roach to make her home in your kitchen. To keep the room free from roaches, large black acts, etc., wash the shelves and any places where they are found with strong hot borax water and let it dry. Mix well together equal parts of ground red pepper and powdered borax and sprinkle in places where they run, then put some of the powder in an insect powder can and blow it into all cracks in the walls and behind shelves. It is well to put all small groceries into tin boxes or glass jars; this preserves their strength in addition to keeping out insects.

If a room is infested with fleas, the carpet, or floor covering of any kind, should be well beaten, and while the carpet is up the floor should be scalded with hot borax water. When it is put down again, go over it with a brush dipped in gasoline, but this must never be used in a room where there is a fire or artificial light. The gasoline will not only destroy the larvae of fleas, but it will brighten the colors in carpets and mattings.

Plenty of hot borax water used about the house will help to kill all kinds of small insects, then if you want to keep them out, keep the house and surroundings clean, dry, and fill cracks in floors that give shelter to small insects.

A Healthful Food for Little Tots

Something to Eat Between Meals

It seems to be the nature of all young children to crave an occasional "bite" between meals. This is generally satisfied by mothers with a piece of bread and butter, in preference to cakes and cookies. The child's natural craving for something sweet, however, causes it to tire in time of the bread and butter lunch. A most admirable substitute is to be found in spreading the bread with delicious Karo Syrup. This particular syrup is as clear and sweet as honey, and richer in consistency, while it is without the cloying quality that makes honey distasteful to some. Children can eat Karo freely, and will thrive on it. If you have not done so, order some Karo Syrup from your grocer today and give the little ones a treat.

Karo is good for many other things as well. As an accompaniment to waffles and griddle cakes it is unsurpassed, while it can be used in puddings and gingerbread with excellent results. All these things will be more palatable for both children and grown-ups if prepared with Karo.

From the Cocoa Bean to Chocolate

The entire process is shown in the Ghirardelli Building at the Exposition. The machinery used and the care necessary to produce the famous Ghirardelli Chocolate and Cocoa are fully explained.

Don't fail to drink a cup of Ghirardelli's Ground Chocolate—made as it should be made. This delightful food beverage is served day and evening.

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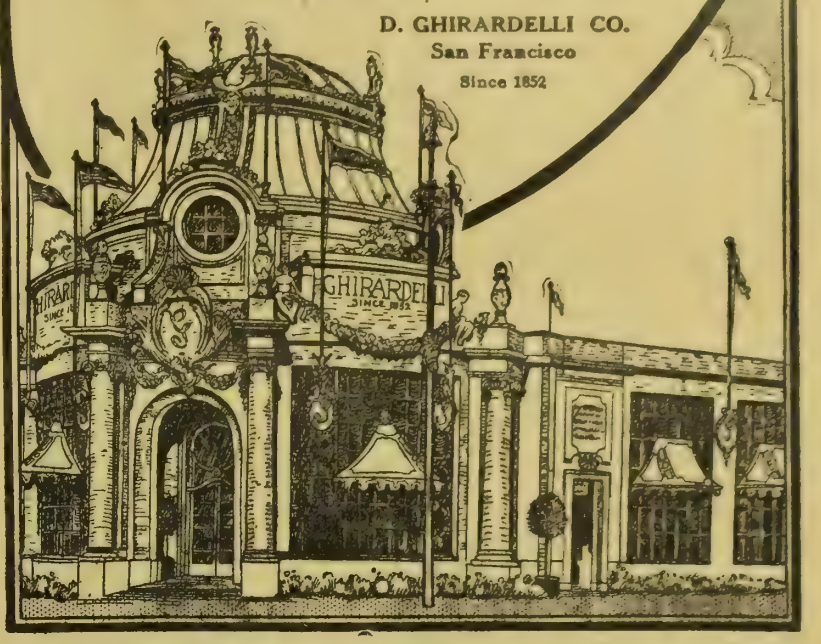

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When writing advertisers, mention The Cultivator.

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, April 14, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade 3 to 4 cents above following quotations:

Creamery Extras ... .22
Firsts ... .20
Country ... .19
Ladle ... .18

CHEESE

Prices to trade, 1 and 2 cents higher:

California Fresh ... .13@13½
Cheddar ... .19@20
Domestic Swiss ... .20@21
Eastern Daisy ... .18½@19
Oregon Triplets ... .17@17½
Longhorn ... .18½@19
Imported Swiss ... .32-@34

EGGS AND POULTRY

Prices to trade, 3 cents higher than following quotations:

Fresh Ranch, case counts ... .23
Candled ... .25@27
Northern, case counts ... .22
Petaluma-Santa Rosa ... .23

Prices to producers:

Hens, lb. ... .16@18
Roosters, old 9
Broilers, lb. ... .28
Fryers ... .23
Roasters, lb. ... .20
Turkeys ... .17@20
Ducks ... .19
Geese ... .16
Squabs, doz. ... 3.00

LIVE STOCK

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs., per cwt ... 8.00
Prime Steers ... 7¼@7½
Heifers ... 6¼@6½
Calves, lb. ... .8½@9
Sheep—
Ewes, head ... 4.50
Wethers ... 5.00
Lambs, head ... 4.50@4.75

POTATOES

Wholesale selling prices:

Idaho Russet ... 1.90@2.00
Idaho Rurals ... 1.50@1.60
White Rose ... 1.85@2.00
Sweets, lug ... .70@75
New Early Rose, lug ... 1.25@1.50
Northern Burbanks, cwt ... 1.80@1.90
Salinas ... 2.00@2.10
Lompocs ... 2.25@2.35

ONIONS

Wholesale selling price:

Australian Brown, cwt ... .90@1.10
Oregon Globes ... 1.35@1.50
Yellow Danvers ... 1.00@1.25
Sets—
Yellow ... .10
White ... .12
Garlic ... .22@25

VEGETABLES

Wholesale selling price:

Asparagus—
White ... .5@7
Green ... .6@8
Artichokes, Northern, doz ... .30@65
Brussels Sprouts, lb ... .15@20
Beets, doz. ... .30@35
Beans, Green, lb. ... .9@20
Cabbage, sack ... .80@90
Carrots, doz. ... .30@35
Cauliflower, doz. ... 1.00@1.10
Celery—
Local ... 3.75@4.00
Northern, crate ... 4.25@4.50
Chicory ... .30@35
Cucumbers, Hothouse ... .75@2.50
Egg Plant, lb. ... .23@25
Escarole, doz. ... .35@40
Horseradish, lb. ... .10@12
Leeks, doz. ... .35@40
Lettuce, crate ... .90@1.00
Mint, doz. ... .35@40
Mushrooms, Outdoors, lb ... .35@40
Onions, Green, doz. bunches ... .15@20
Oyster Plant, doz. ... .35@40
Parsnips, doz. ... .35@40
Peas—
Telephone ... .6@7
Small ... .5@6
Peppers—
Bell, lb. ... .25@30
Chili, lb. ... .25@30
Pumpkins, lb. ... 1¼@1½
Rhubarb—
Crimson Winter ... .65@75
Strawberry ... .90@1.25
Spinach, doz. ... .20
Squash—
Hubbard, lb. ... 2¼@2½
Summer, crate ... 1.50
Tomatoes, Mexican ... 2.75@3.00
Turnips ... .25@30

FRESH FRUIT

Wholesale selling price:

Apples—
Bellflowers ... .75@1.00
Rome Beauties ... 1.35@1.75
Pearmains ... 1.50@1.65
Spitzenbergs ... 2.00@2.25
Avocados, doz. ... 6.00@12.00
Bananas ... .4@4½
Berries—
Strawberries, basket ... .4@6
Blackberries ... .9@12
Cherimoyas, lb. ... .20@25
Loquats, lb. ... .4@6
Pears, Winter Nelis, lug ... 1.50
Pineapples, lb. ... .7@9

CITRUS FRUIT

Wholesale selling price:

Lemons ... 1.00@2.00
Grapefruit, Seedless ... 1.75@2.25
Navels ... 1.00@1.75
Tangerines, half box ... 1.25@1.50
Limes, basket ... 1.00

DRIED FRUITS

Wholesale prices to retailers are:

Evaporated Apples, Fancy, lb. boxes ... .7¾@11
Apricots ... .9½@11
Nectarines ... .12½
Peaches ... .5¾@6¾
Pears ... .10@11
Prunes ... .5½@15
Plums ... .10

HONEY

Wholesale selling price:

Comb, Fancy, Water White ... .14
White ... .12
Light Amber ... .11
Extr. Water White 7
White 6½
Light Amber 5½
Beeswax ... .32

NUTS

Prices named by California Walnut Growers' Association are:

No. 1 ... .16½
Budded Walnuts ... .20
Jumbos ... .19
No. 2 ... .12
Culls 9

Prices fixed by California Almond Growers' Exchange, f. o. b. California.

Almonds—
Nonpareil ... .21@22
I X L ... .20@21
N P U ... .19@20
Drake's Thinshell ... .17@18
Pecans ... .17
Peanuts—
California, Raw 6
Japan 7½
Eastern 7½
Rice Corn ... 5.00@5.25

RICE

Wholesale selling price:

California ... 4.75@5.00
Broken ... 3.75@4.00

BEANS

Wholesale selling price:

Producer's price not far from one dollar under these quotations:

Limas ... 6.35@6.50
Bayous ... 6.00@7.00
Lady Washington ... 6.00@6.10
Pinks ... 5.00@5.10
Black Eyes ... 6.75@7.00
Lentils ... 10.00@12.00
Small White ... 6.00@6.10
Garbanzos ... 7.25@7.50

HAY

Prices to producer f. o. b. Los Angeles:

Barley Hay ... 9.00@13.00
Wheat Hay ... 8.00@11.00
Tame Oat ... 9.00@14.00
Alfalfa ... 8.00@10.00
Volunteer ... 5.00@7.00
Straw ... 5.00@6.00

GRAIN

Wholesale selling prices f. o. b. Los Angeles:

Corn, Yellow ... 2.10
Corn, White ... 2.20
Wheat ... 2.50@2.55
California Red Oats ... 1.85
Oats, White ... 2.15
Oats, Hulled ... 2.55
Egyptian Corn ... 2.10
Barley Seed ... 1.60
Barley, Hulled ... 2.00
Milo ... 1.90
Rye ... 2.30
Sunflower Seed ... 7.50

FEED STUFF

Wholesale selling prices f. o. b. Los Angeles:

Bran, Heavy ... 1.65
Alfalfa Meal ... 1.15
Alfalfa Molasses. per cwt ... 1.20
Beef Scraps ... 3.00
Beet Pulp ... 1.25
Cracked Corn, cwt. ... 2.15
Cracked Wheat. cwt ... 2.65
Cotton Seed Meal ... 1.80
Bone Meal ... 1.95
Meat Meal ... 3.00
Bone, Green ... 1.65
Charcoal ... 2.00
Oil Cake Meal ... 2.50
Fish Meal ... 3.15@3.25
Rolled Oats ... 2.20
Middlings ... 1.95
Rolled Barley ... 1.55
Feed Meal ... 2.20
Scratch Feed ... 2.20@2.40

San Francisco Market

SAN FRANCISCO, April 13, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade, 4 cents above following quotations:

Extras ... .23
Prime Firsts ... .22½
Firsts ... .22

CHEESE

Wholesaler to retailer.

Oregon Y. Am. ... .14
Young America ... .12@13
California Flats ... .8@12
Cheddar ... .20
Oregon Twins ... .14

EGGS AND POULTRY

Prices to trade 3 cents higher than following quotations:

Extras ... .22
Firsts ... .17½
Select Pullets ... .18½

Price to producer:

Hens. lb. ... .16@18
Fryers ... .24@28
Broilers ... .28@30
Roosters, Young ... .22@25
Broilers ... .32@36
Squabs ... 2.50@3.50
Ducks ... .15@17
Geese ... 2.50@3.00
Belgian Hares, lb. ... .7@9
Turkeys, live ... .16@18

LIVE STOCK

San Francisco prices. gross weight:

Steers ... .4@7
Cows and Heifers ... .3@6¼
Calves, lb., live weight ... .6@9
Hogs ... .5@7½
Wethers ... .6½@7
Ewes ... .6@6½
Yearling Lambs ... .7½@8
Milk Lambs ... .8@8½

POTATOES

Wholesale selling price:

Idaho Rose ... 1.15@1.30
Idaho Russet ... 1.40@1.60
Delta Burbanks ... 1.40@1.70
Salinas Burbanks ... 1.50@1.75
Oregons ... 1.40@1.75
Shimas ... 1.00@1.40
New Potatoes, lb. ... .4@6
Sweets, cwt. ... 2.25@2.50

ONIONS

Wholesale selling price:

Onions, cwt. ... .75@1.00
Australian ... 3.75@4.00
Oregon ... .90@1.10
Garlic, new ... .17@22½

VEGETABLES

Wholesale selling price:

Asparagus, box ... 1.25@1.50
Canners' offer ... .85@95
Beans—
String ... .17½@20
Wax ... .15@17½
Brussels Sprouts, lb. ... .3@5
Celery, crate ... 1.50@2.50
Cucumbers, Hothouse, box ... 2.00@2.50
Lettuce ... .75@1.00
Egg Plant, lb. ... .7@10
Peas, lb. ... .2@4½
Peppers—
Bell, lb. ... .2@15
Chili, Mexican ... .3@5
Rhubarb—
Alameda ... .45@75
Squash, Summer, crate ... 1.25@1.50

FRESH FRUIT

Wholesale selling price:

Apples—
Newton Pippins ... .50@90
Bellflowers ... .25@50
Berries—
Strawberries—
Southern, cr. ... 1.50@1.75
Fresno, crate ... 2.00@2.25
Watsonville, Drawer ... .65@80
Bananas, Hawaiian, bunch ... 1.25@2.00
Pineapple. doz. ... 2.00@3.50

CITRUS FRUIT

Wholesale selling price:

Grapefruit, Seedless, new crop ... 1.25@3.25
Lemons ... 1.50@2.50
Lemonettes ... 1.00@1.50
Navels ... 1.00@2.00
Limes, case ... 4.00@5.00
Tangerines, halves ... .75@1.75

DRIED FRUITS

Wholesale prices are:

PRUNES—1914 crop, bulk basis: 30-40s, 7c; 40-90s, 6½c; 90-100s, 6c. The above are for both Santa Clara prunes and stock from outside sections.

Other Fruits. 50-lb. boxes—	Standard	Choice	Extra Choice	Fncy
Ev'p'd Apples.	....	7¼c	7½c	8 c
Peaches	4 c	4¼c	4½c	5¾c
Apricots	9 c	9½c	10 c	11 c
Pears	7 c	8 c	9 c	10 c

RAISINS

California Associated Raisin Company's f. o. b. prices, 1914 crop, guaranteed against decline to August 1: Seeded fancy, 16 oz., 7¼c; 12-oz., 5⅞c; bulk, 6c; choice, 16-oz., 6⅞c; 12-oz.. 5⅞c; bulk, 5¾c two-thirds fancy, one-third choice, 16-oz., 5c; per case, 48 pkgs., $3.40. Loose Muscatels, 4-crown. 50-lb. cases. per lb., 6c; 3-crown, 50-lb. cases, per lb., 5⅞c; 2-crown, 50-lb. cases, per lb., 5½c; 1-crown, 50-lb. cases. per lb., 5½c. Seedless Thompsons, 50-lb. cases, 6½c; 16-oz. pkgs., 7⅝c; 12-oz. pkgs., 6⅛c. Sultanas, 50-lb. cases. 6c; 16-oz. pkgs., 6¾c; 12-oz. pkgs., 5½c. Layers, bulk layers, 50-lb. boxes. $2.75; 6-crown, 20-lb. boxes, $2.75; 5-crown, 20-lb. boxes, $2.25; 4-crown, 20-lb. boxes, $1.60; 3-crown, 20-lb. boxes, $1.30; 5-lb. boxes, add 50c; 10-lb. boxes, 25c. Cartons, No. 1 clusters, 20 to case. $1.70; No. 2 clusters, 12 to case, $2.10; No. 5 culsters, 4 to case, $2.25.

NUTS

ALMONDS—Prices fixed by Almond Growers' Exchange to the trade, f. o. b. California:

Nonpareil ... .21
I X L ... .20
Ne Plus Ultra ... .19
Drakes ... .16

Wholesale selling price:

Peanuts—
Unpolished ... .5@8
Polished ... .6@6½
Shelled, Jap ... .6¼@6¾
Italian Chestnuts ... .6½@7

BEANS

Wholesale selling price:

Limas ... 5.40@5.50
Pink ... 4.30@4.40
Black Eyes ... 6.00@6.25
Cranberry ... 5.00@5.25
Small White ... 5..5.30@4.50
Garbanzos ... 6.50@6.75
Large White ... 5.25@5.35
Bayou ... 5.30@5.50
Manchurian Speckled Bayous ... 4.00@4.15
Manchurian Butters ... 4.50@4.75
Red Mexican ... 5.50@5.60
Red Kidney ... 6.00@6.25
Horse Beans ... 3.50@4.00

HONEY

Wholesale selling price:

Comb, Water White ... .14@16
Amber ... .10@12
Dark ... .7@10
Extracted White ... .7@9
Light Amber 5½
Dark ... .4@5½
Beeswax ... .27@32

HOPS
1914

Wholesale selling price:

Sacramento Valley ... .12½@14
Sonoma-Mendocino ... .12½@15
Oregon Clusters ... .12@15

HAY

Under date of April 10 Scott, Magner & Miller say:

Receipts of hay for the past week were 2606 tons, the preceding week 2150 tons. There is nothing of interest to be noted in the market other than the scarcity of fancy wheat or fancy red oat varieties.

Receipts of alfalfa have been heavier of late and according to reports from interior valleys they will soon be cutting their first crop. In Southern California the first cars of new alfalfa hay have already arrived in the market. There is no demand for straw.

We quote the average wholesale price of hay in carload lots on today's market as follows:

Fancy Wheat Hay (light bales) ... 11.50@12.50
No. 1 Wheat or Wheat and Oat ... 9.00@10.50
No. 2 Wheat or Wheat and Oat ... 6.00@8.50
Choice Tame Oat ... 11.00@12.00
Other Tame Oat ... 6.00@9.00
Barley ... 5.00@8.00
Wild Oat ... 6.00@8.00
Alfalfa ... 6.00@9.00
Stock Hay ... 4.50@5.00
Straw, per bale ... .30@45

GRAIN

Alfalfa Seed ... .16½
Wheat. Cal. Club ... 2.32½@2.35
Corn, Egyptian White ... 1.80@1.85
Corn, Eastern Yellow ... 1.75@1.77½
Barley, Feed ... 1.25@1.32½
Oats, Red, Feed ... 1.45@1.55
Oats, White Feed ... 1.80@1.85
Millet ... 2½@3¼
Flaxseed ... .5@5½
Rye ... 2.00@2.25
Sunflower ... .5@5½

FEED STUFF

Wholesale prices.

Alfalfa Meal, car lots ... 14.50@15.50

WEATHER CONDITIONS

April 10, 1915.

Report from the various stations of the United States Weather Bureau, by George H. Wilson, director, San Francisco.

	Rainfall Data: Past Week	Seasonal to Date	Normal to Date	Temperature Data —Past Week—: Maximum	Minimum
Eureka	.14	39.47	40.20	62	42
Red Bluff	T	31.68	22.09	78	46
Sacramento	.10	14.06	17.70	76	48
San Francisco	.25	23.87	20.25	74	50
San Jose	.14	19.09	15.21	76	42
Fresno	.02	9.14	8.43	84	46
Independence	.00	2.93	8.35	74	....
San Luis Obispo	.05	23.83	18.37	78	42
Los Angeles	T	15.35	14.39	86	52
San Diego	.01	12.99	·9.08	74	54

T means trace.

Bran, ton	27.50@28.50
Feed Cornmeal	39.50@40.00
Cracked Corn	39.50@40.00
Rolled Barley, ton	28.00@29.00
Rolled Oats, ton	37.00@37.50
Middlings	32.00@34.00
Shorts	29.00@30.00
Oilcake Meal	38.00@39.50
Cocoanut Oilcake Meal	24.00@25.00

Citrus Fruit Market

LOS ANGELES, April 14, 1915.

General conditions in the Eastern citrus markets are somewhat better. Decay is somewhat less and the outlook for the immediate future is better than for some weeks. Probably ten cents higher general average is being secured than one week ago.

There are probably 2,000 carloads of lemons in storage ready for shipment, but at the present moment prices are so low that there is but little encouragement to send forward. The principal stock now going forward is "tree ripes" and unfortunately these are not keeping well, which causes the trade to buy only from hand to mouth and pay only indifferent prices. Good stock shipped to Middle West points is selling so as to bring from $2.40 to $2.90 f. o. b. California. Eastern coast markets are shot to pieces by large receipts of foreigns. Some Mediterranean fruit has been selling in New York around $1.65.

Shipments

Shipments of oranges from Southern California to date since November 1, 1914, 16,721 cars; lemons, 2,127; total, 18,848. To same date last season: Oranges, 18,493; lemons, 1,023; total, 19,516. From Tulare County this year, oranges, 5,199; lemons, 187; total, 5,376; to same date last season, oranges, 4,647; lemons, 30; total, 4,677. From Northern California, oranges, 627; lemons, 1. To same late last season, oranges, 398; lemons, 5.

NEW YORK, April 12.—Thirty-two cars navels, one car navelencias, two cars budded, one car navels and navelencias, five cars navels and bloods, one car navels, bloods and tangerines, four cars lemons sold. Navels about fifteen to twenty cents higher. Lemons unchanged. Weather fair.

	Avge.
NAVELS—	
Pinnacle, O. K. Ex.	$2.70
Kenilworth, imp. A. H. Ex.	2.90
Peasant, imp. A. H. Ex.	2.55
Evolution, A. C. G. Ex.	2.30
Swastika, L. V. W. Brown	2.50
Native, Sutherland F. Co.	2.40
Q. Louise, fy. Louise Villa Rch.	2.45
BLOODS—	
Camel, Q. C. Ex.	$2.15
Native Sons of America	2.35
BUDDED—	
Mission Bells, A. B. Chapman	$2.35
Mission Memories, A. B. Chapman	2.25
King River	1.60
VALENCIAS—	
Squirrel, A. H. Ex.	$2.00
BLOODS—HALVES—	
Homer	$1.10
Glendora Alps	1.10
Girl	1.05
Bear	1.35
TANGERINES—HALVES—	
Geyser	$1.45
Bear	1.55
Foothill	1.45
Orchard	1.35
LEMONS—	
Limoneira Co. Selected	$2.85
Limoneira Loma	2.40
Mt. Lowe	2.10
Sunside	2.00

CLEVELAND, April 12.—Eight cars sold. Market is strong.

	Avge.
NAVELS—	
Pine Cone, R. H. Ex.	$2.30
Arrowhead, R. H. Ex.	2.05
Golden Circle, R. H. Ex.	2.00
Green Top, Mtn. Slope Groves	1.80
Gabriella	1.50
Totem	1.30
LEMONS—	
Cycle, F. C. A.	$2.25
Alamo	2.25
Touchdown	1.75
Conqueror	1.35

ST. LOUIS, April 12.—Market is strong on oranges, easier on lemons. Nine cars sold.

	Avge.
NAVELS—	
Volunteer, S. A. Ex.	$2.50
Greyhound, S. A. Ex.	2.35
Garibaldi, R. H. Ex.	2.20
Lochinvar, R. H. Ex.	2.40
LEMONS—	
La Puente, S. T. Ex.	$1.75
Arrowhead	2.00
BLOODS—HALVES—	
Volunteer	$1.30
Greyhound	1.20
SEEDLINGS—	
Kings River	$2.10

CINCINNATI, April 12.—Five cars sold. Market is doing better.

	Avge.
NAVELS—	
Orchid, Dalrymple F. Co.	$2.20
Defender, Dalrymple F. Co.	2.05
Camel, Q. C., Corona	2.10
Hunter, A. C. G. Ex.	2.05
LEMONS—	
Cycle, F. C. A.	$1.80
Oriole	1.55
BLOODS—HALVES—	
Homer	$1.15
BOXES—	
Camel	$2.20

BOSTON, April 12.—Twenty-seven cars sold. Market is firm.

	Avge.
NAVELS—	
Rose, Redlands, O. G. A.	$2.40
Green Banner, Sutherland F. Co.	2.35
Native, Sutherland F. Co.	2.15
Rialto Boy, Rialto F. Co.	1.85
Box	1.70
Volunteer, S. A. Ex.	2.25
John Alden, R. H. Ex.	2.05
LEMONS—	
Arcadia, Baldwin Estate	$2.15
Rialto Boy, Rialto F. Co.	1.55
Quail, O. K. Ex.	2.70
Victor, O. K. Ex.	2.15
Blue Jay	1.60

PHILADELPHIA, April 12.—Fourteen cars sold. Market slightly lower on oranges, unchanged lemons.

	Avge.
NAVELS—	
Champion, Denman Sons, imp.	$2.20
Seal Rock, Denman Sons, imp.	2.00
Gabriella	1.60— 1.85
Totem	1.40— 1.60
Oriole, F. C. Ex.	1.80
Golden Cross, O. K. Ex.	2.50
LEMONS—	
Asyoulikeit, L. G. Assn.	$1.55
Growers	1.25

PITTSBURGH, April 12.—Market is steady. Fifteen cars sold.

	Avge.
NAVELS—	
Orchard, National O. Co.	$2.45
Standard, National O. Co.	2.30
Brownie, Rialto F. Co.	1.60
Hawk, S. A. Ex.	1.95
Gabriella, Covina Ex.	2.05

KANSAS CITY, April 12.—Two cars sold. Weather clear, warm. Market strong on navels, steady lemons. Attendance at sale good.

Royal Pack, Randolph F. Co.	$2.00
LEMONS—	
Canary	$1.87

RURAL CREDITS

(Continued from Page 461)

by the capital of the company. The debentures are issued in even amounts of $100 and upward and for varying periods, affording the investor some of the usual conveniences of bonds. However, inasmuch as the purchaser of a debenture does not know the particular mortgages used as security he must rely on the integrity and solvency of the company to protect his investment.

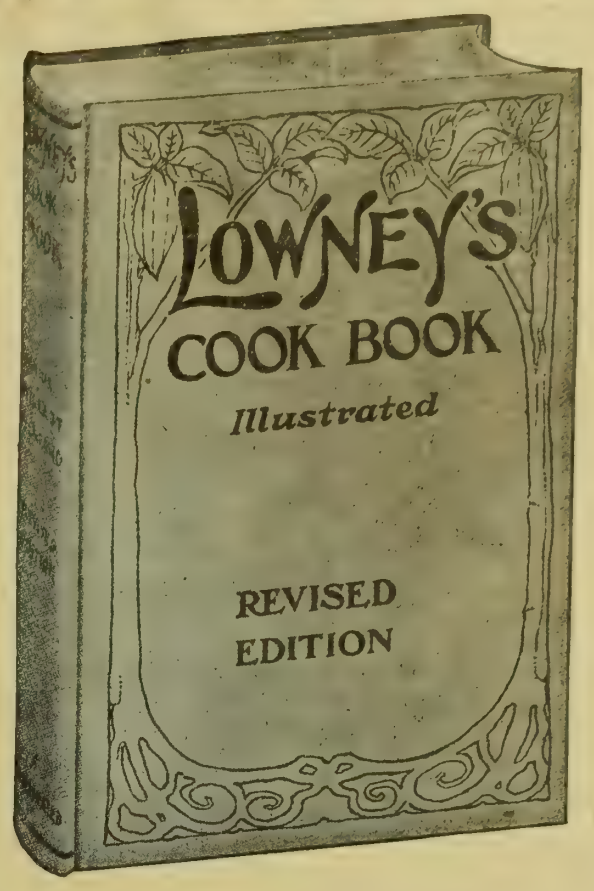
Rural Credit Cooperative Associations

The students of rural credit recognize the desirability of another piece of legislation which may probably be had at the hands of the several states or of the federal government, namely, legislation authorizing and encouraging local personal cooperative credit assocations. Some states have already taken steps in this direction and others are contemplating taking them. The department of agriculture has made earnest investigations in this field and is in position to offer suggestions as to legislation and as to the form and operations of rural credit cooperative associations. Such associations as these will perhaps render the country where there are many small farmers whose individual resources may not be sufficient to enable them to secure the requisite credit. Their largest field for operation would probably be the South. Characteristics of such associations of small farmers are: Unlimited liability of members, the pledging of the faith of each to the other and of the whole to the lender; the use of funds for clearly defined productive purposes; and the supervision by the association of the use made of the funds. It has been objected that the feature of unlimited liability will prevent the organization of such associations in this country, but in certain sections of the nation the liablity of small farmers is already unlimited, and this could not be said to be an insurmountable obstacle.

In reference to such proposed associations, as well as to land-mortgage banks, it is of the utmost importance that attention be centered on the use which may be made of borrowed money. It is of high importance that there should be guaranties of the use of funds secured for productive purposes on the farms covered by mortgages or other obligations; otherwise the field for speculation will be opened and more harm may result than good. The investigations of the department indicate that a relatively small number of the banks of the country pay any attention whatever to the purposes for which loans are made, and in replies to inquiries many of the banks reporting did not even attempt to give data bearing on this important point.

The office of markets and rural organization has continued its investigation into the field of personal credits. From data gathered it appears that the state, private, and savings banks and trust companies supply approximately $1,000,000,000 for short-time loans to farmers and that national banks furnish $750,000,000. As may be expected because of the differences in the relative importance of agriculture in various states, these short-time loans are very unevenly distributed. The funds are used chiefly in the financing of cattle raising, feeding, and marketing, of dairying, of hog and sheep raising, and of grain and cotton growing and marketing.

Lowney's Cook Book, The Housewife, and The Cultivator, One Year — **$1.65**



This Now Famous Cook Book

covers the bill-of-fare from relishes to after-dinner coffee. There are 65 different salads; 15 salad dressings; 73 soups; 50 recipes for vegetables; 91 entrees, from Aspic Jelly to Chicken Supreme; 51 sauces for meats and vegetables; 41 rules for the chafing dish. There are over 400 desserts; 84 cake recipes, not counting the fillings and frostings; over 60 recipes for invalid cookery, besides recipes for fish, meats, hot and cold desserts, bread, cake, beverages, etc.

The recipes are the latest word in scientific cooking, refined, wholesome and appetizing. There are chapters on the properties of foods; on how to market; on the theory of baking and boiling, etc., on the butler's duties and how dinners and lunches, formal and informal, should be arranged, set and served; and the woman who does her own cooking will find hundreds of simple, practical, economical dishes, which will be worth many times to her the cost of the book.

The Housewife

The Housewife is a fine, large monthly magazine edited for the woman whose first interest is the welfare of her home. Its short and serial stories are of superior merit, and are invariably cheerful and sunny. No morbid, melancholy or unwholesome stories are ever printed in The Housewife.

The Cooking Department and the Fashion Department combine luxury with economy, and are under the supervision of well-known experts. The Fancywork and Home Decoration Departments are of especially high standard, and the pages on Entertainment contain valuable and novel suggestions.

The corner devoted to "Mother's Realm" is of practical interest to those interested in the care of children and is composed of entirely common sense advice and suggestion with no untried theories.

The Housewife is finely illustrated and has excellent colored covers by well-known artists. The near-million women who read The Housewife during 1915 will find the stories of unusual interest—the kind which are sure to make a worried housekeeper forget her troubles, and to chase fatigue from the tired home manager. They will be exciting, uplifting, wholesome, and altogether human, and will be illustrated by men and women who know their business perfectly.

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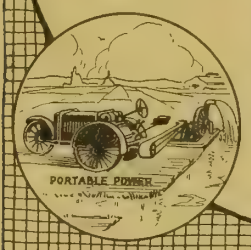

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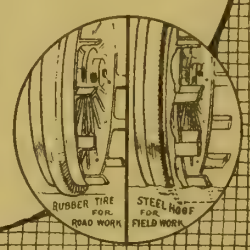

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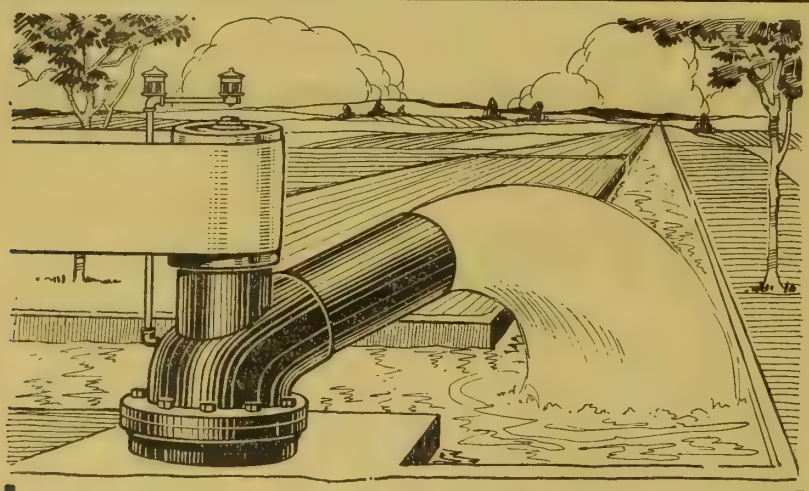

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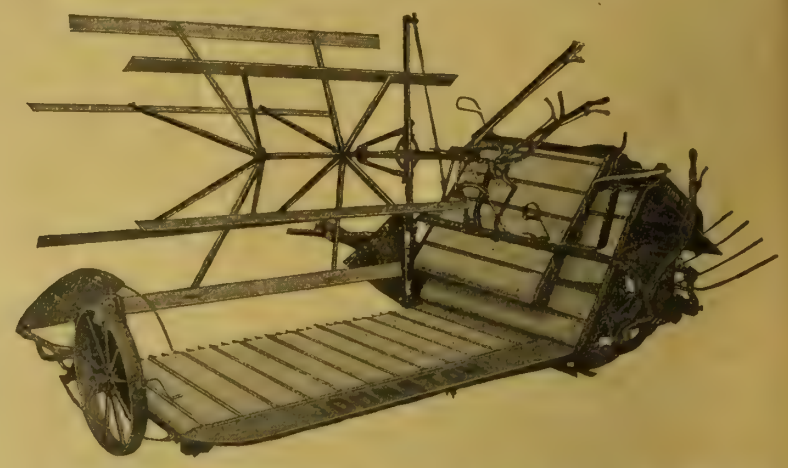

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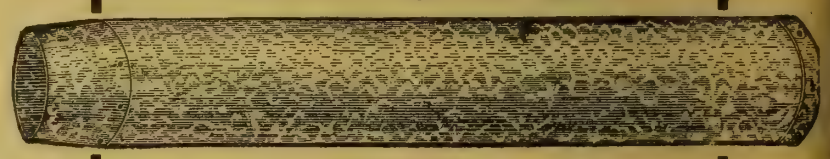

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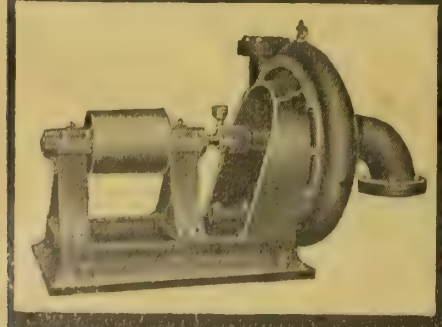

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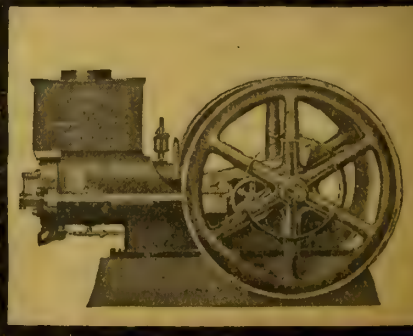

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An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES April 22, 1915 SAN FRANCISCO

Glen Alpine Falls, Lake Tahoe Region El Dorado County

The Lincoln Highway in its entrance to California will traverse through El Dorado County many scenes like the one on this page. The state highway commission has built from Folsom through Placerville and to the Nevada state line the Lake Tahoe wagon road, one of the finest grades and most traveled highways in California. It follows the route of the original Emigrant Trail from Salt Lake by way of Carson Valley over the mountains to Sacramento.

This highway follows the canyon of the South Fork of the American river from a point about 15 miles east of Placerville to the western summit of the Sierra Nevada mountains, passing through the lowest gap in the range in this county at an elevation of 7300 feet above sea level, and thence descending precipitously into Lake Valley.

The ride from Placerville to Lake Tahoe points is one of the real pleasure trips of California, every one of its 60 miles affording a new and enjoyable experience. Along the entire route rugged mountain scenery appears at its best on every hand. The engraving on this page is used by courtesy the Mountain Democrat, Placerville.

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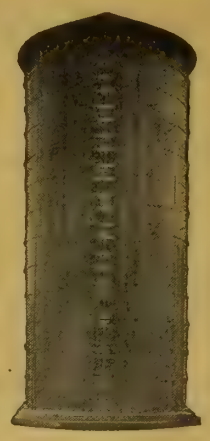
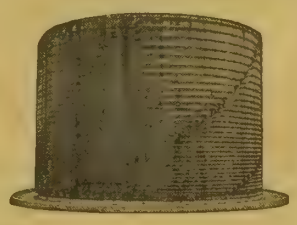


16 x 36 Redwood Stave Silo manufactured by us for the Panama-Pacific International Exposition, San Francisco, 1915

TANKS



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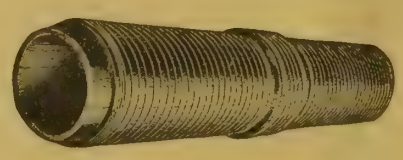

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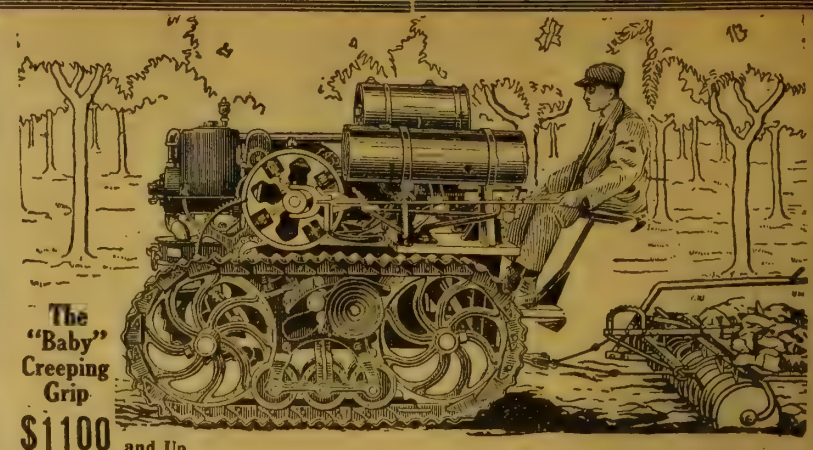

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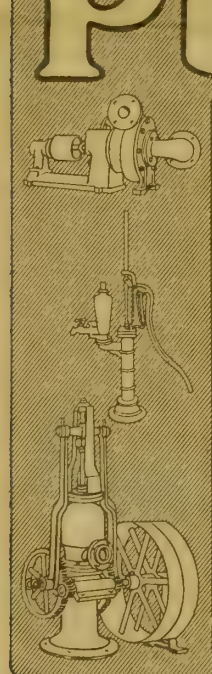

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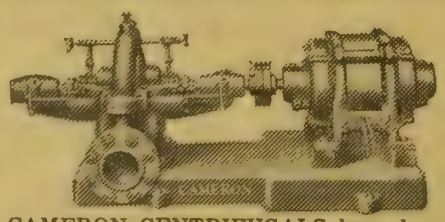

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California Cultivator

Rural Californian combined with California Cultivator

Vol. XLIV No. 16 LOS ANGELES: THURSDAY, APRIL 22, 1915 One Dollar Yearly

Is "Plugging" Trees Injurious?

An Old Time Method Reviewed and Criticized. It Also Finds Some Who Commend It. Cultivator Advises Caution in Using This Process.

IN the Cultivator of October 29, 1914, we quoted from Science regarding an experiment by Fernando Sanford of Stanford University "on killing tree scale by poisoning the sap of the tree." This experiment consisted in the boring of a three-eighths inch hole in the trunk of the tree to a depth of about three inches and filling nearly full of crystals of potassic cyanide. This hole was then plugged and "in two days the scale began to fall from the tree and in a few days all appeared dead. Others hatched and attacked the tree, but lasted only a short time, and the tree has since been free from scale and vigorous."

"It would seem from this experiment that it is possible in some kinds of trees, at least, to poison scale and sap-eating insects without injury to the tree. The method would seem to be especially adapted to killing various kinds of borers and insects which, like the pine beetles, burrow beneath the bark."

This item called for some comment, and in connection with the article the editor of the Cultivator referred to the fact that some years ago the Los Angeles County horticultural commissioner investigated and cut down an apple tree which had been plugged and filled with a so-called insect killer and that the commissioner at Los Angeles declared the experiment a complete failure. Because of the comment which the former article caused we have looked up the report made by Frederick Maskew, at that time connected with the county horticultural commission, and given in full in the Cultivator of December 30, 1904. From that report we make quotations below.

First we refer to the engraving on this page, which is copied from one appearing in the issue of December 30, 1904. The plug of wood from which this engraving was made was on exhibition by County Horticultural Commissioner Jeffrey for some time and was considered at that time proof conclusive that that particular insecticide was not absorbed by the tissues and remained inert as placed in the tree some months before. From Mr. Maskew's report we quote:

"Owens Process a Failure

"At the regular meeting of the apple growers of Los Angeles County, held on January 16, 1904, appeared a Mr. Stewart, representing himself to be the authorized agent of the 'Owens Process' for the treatment and cure of all diseases and insect pests affecting fruit trees. Being given the privilege of addressing the meeting he set forth in no uncertain terms the claim that the remedy he was offering to the long-suffering fruit growers, at the low price of 25 cents per tree, was a well tried and proved panacea for all troubles of the orchard; acting with equal dispatch and efficiency upon the bacillus of the blight and the spores of the fungous diseases as upon the biting and sucking insects that infest the wood, fruit and foliage of the tree, including in this category even the larvae of the codling moth."

Mr. Maskew then called attention to arrangements made to test out the process, and "an orchard in Downey, one in Compton and one in Cerritos were selected for the experiments. Trees in these orchards were treated according to the formula during the month of January by Mr. Stewart in person. At the annual meeting held on December 17, 1904, the owners of these orchards reported that they had positively been unable to detect any benefit or improvement whatever in the trees treated by Mr. Stewart. The foregoing were free experiments voluntarily made by Mr. Stewart for the purpose of demonstration. To provide against any possible claim that the failure of the 'Process' to accomplish its wonderful results in these free trails was due to the omission of any details in the methods of application another test was made in an orchard at Florence. This was no experiment, on the contrary it was a strictly business transaction for which the sum of $25 was charged and paid for the treatment of 100 trees. The owner of these trees stated at the meeting on December 16, 1904, I cut down the Pearmain tree and sawed out a section containing the part that had been treated by Mr. Stewart. The cross section showed the tree to have been seriously affected by the act of boring into it. To the extent to which the hole had been bored the body of the tree was apparently dying, the line of demarcation between the healthy and affected tissue being very distinct. Immediately above and below the auger hole the wood was dead and dry. On December 17 at the meeting of the apple growers and in the presence of the members, this section was carefully split open and the dark-colored powder was found in the auger hole in apparently the same quantity and condition as when put there by Mr. Stewart in January, 1904." (See engraving on this page.)

"In so far as the apple trees of Los Angeles County are concerned the

Section from a Plugged Tree
Reprint from the California Cultivator of December 30, 1904, showing hole and material in apple tree. Material unabsorbed and tree injured.

17 that while he had watched these trees carefully all summer he had been unable to detect any change or benefit to any of them."

Mr. Maskew also calls attention to experiments on his own place in which "A White Winter Permain tree 12 years old was selected. This tree had borne many large crops of fine fruit in the past." Also "A Yellow Bellefleur tree eight years old was selected as a second test. This tree was normal in health so far as I could judge but was infested with a few San Jose scale. The test in this instance was to prove the effect of the 'Process' upon scale insects. The method of treatment was very simple. Mr. Stewart bored a one inch hole into the body of the tree about one foot above the surface of the ground. Taking a metal cylinder he partly filled it with a dark colored powder and inserted the cylinder into the hole, then with a wooden rammer he forced the powder into the hole as he withdrew the cylinder. A wooden plug was then produced neatly turned to fit the hole. This was driven in, and the end of the plug and the bark surrounding it painted."

"These trees were so situated that I passed them every day. In the case of the Bellefleur tree the San Jose scale developed and increased at such an alarming rate that I destroyed the tree the first of June. On December Owens Process has proven a failure. —Fred R. Maskew." * * *

* * *

The above is ancient history. However, now come new investigators and maintain that with cyanide of potassium there is possibility of reducing tree borers and perhaps some other pests. Regarding the success there is still diversity for we note in Science of December 11. 1914, the following which was, we assume, reference to the article we formerly quoted in the Cultivator. This article nearly entire is as follows:

"Cyanide of Potassium in Trees

I note an interesting contribution to Science in the issue of October 9, on the subject of cyanide of potassium taken up by trees when put into holes in the same. I wish to report that this chemical is the chief basis of treatment by a firm in Pennsylvania doing an extensive business in some of the eastern states, claiming to render trees immune from attacks by all insects and diseases and also to fertilize them. The process was originated by a man named Kleckner and is now continued by a company called the Fertilizing Scale Company. Their theory is that a tree can be given medicine as well as food by placing the same in capsules and fastening these in incisions under the bark. While the chief insect poison is cyanide of potassium, yet they use chlorate of potash and sulphate of iron 'to give the trees chlorine, sulphur, iron and potash.' They make wonderful claims for the destruction of the scale and invigoration of trees, and commenced by charging 50 cents per tree for the so-called 'vaccination.' The price is now reduced to 15 cents, but they are taking thousands of dollars from the confiding public.

"The important scientific point is that I have examined hundreds of trees treated by them and have in some instances found no evidence that scale insects were ever present, while in others I have found San Jose scale alive on the trees some time after treatment. What is much worse is that I have found it true that some one or more of these chemicals is evidently taken up in the sap of the tree, and that to a considerable extent. While the material was placed under the bark about 3 feet from the ground. it blackened the cambium layer as high as I could reach and remove the bark and started blight or death of tissue at the place where inserted. I have the names of scores of persons whose trees or orchards were finally killed by this treatment. One man, whose name and address I can give, thought that it benefited his trees and had it applied the second year, and the trees then died quickly. He is now disgusted with the treatment.

"In company with Professor I. C. Williams, Deputy Forestry Commissioner of Pennsylvania, I visited an orchard in Lebanon County that had been treated a few weeks previously. The San Jose scale was found alive on the trees, but blight or death of tissue had commenced at the place of treatment and had worked downward slightly and upward considerably, and in fact, as high as one could reach. During the present week I have learned of another orchard. in Cumberland County, Pennsylvania, that was blighted and destroyed by the cyanide treatment. Therefore, while it is evident that some chemicals may be taken up in the trees and may even destroy some insects, it is further evident that they may be injurious to the trees and should be applied with great care and only after considerable experimentation and should be recommended by scientists only after great deliberation. I shall send to interested persons printed articles on this subject from the office of the state zoologist, Harrisburg, giving names and addresses of persons whose trees have been killed by the cyanide 'vaccination,' as the fakirs call it. These may be published.—H. A. Surface, State Zoologist, Department of Agriculture, Harrisburg, Pennsylvania."

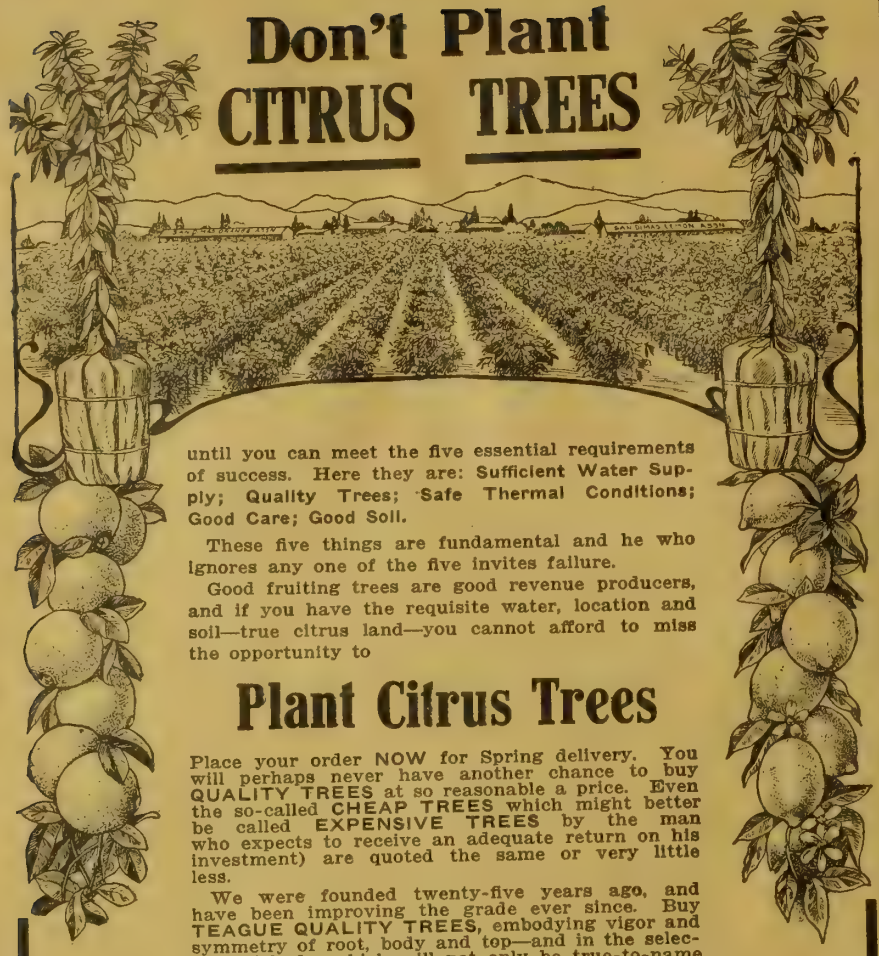
Commenting on the above another correspondent in Science of February 26, 1915, gives the following:

Effect of Cyanide of Potassium on Trees

"My attention has been attracted to an article in your columns by Professor H. A. Surface relative to the use of cyanide of potassium for elminating insect attacks on trees. While I have not investigated the claim of the firm referred to in his article, and know nothing about their process, however, from my own results with cyanide of

(Continued on Page 487)

Don't Plant CITRUS TREES



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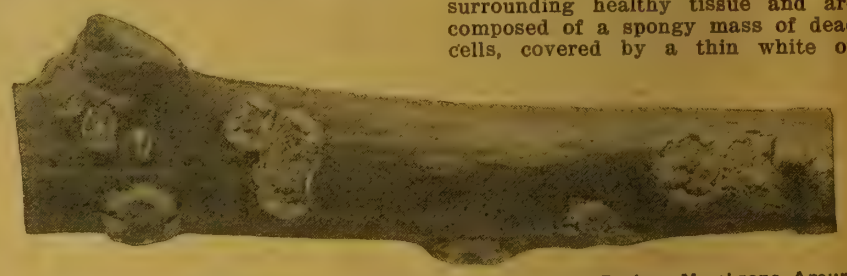
Citrus and Tropical Fruits

CITRUS CANKER

FLORIDA citrus growers, especially those with grapefruit orchards, are greatly concerned over the scourge of citrus canker which is visiting the state. To give California orchardists an idea of what citrus canker means we quote from Bulletin 124 of the University of Florida agricultural experiment station, and by their courtesy give illustrations showing some of the heroic methods of control which are being used. Sprays are shown to have some value in preventing infection of an orchard, but, once infected, sprays are of no value. The torch seems to be the only salvation for trees, totally destroying those which are affected.



Canker on Young Twig of Citrus Trifoliata, Showing the Broken Membrane Around the Spots. (Magnified about three times.)

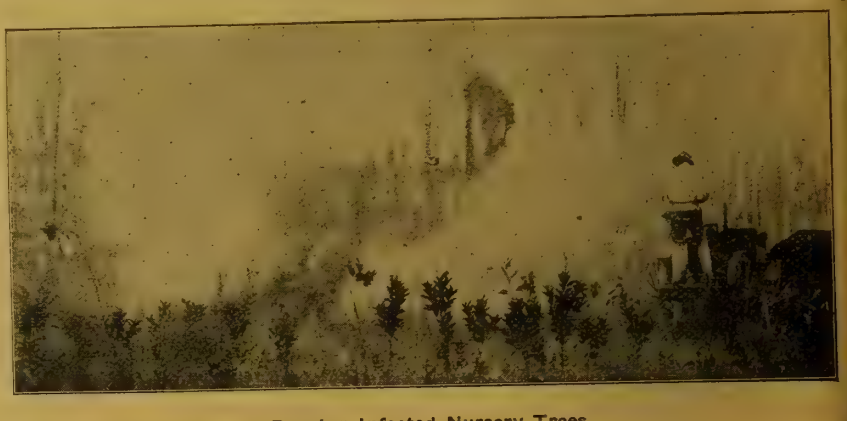
Appearance of Citrus Canker

"Citrus canker attacks the leaves, young shoots, branches and fruit, forming a characteristic spot which is similar in general appearance on whatever portion of the tree it occurs. The disease has been found on all varieties of citrus except the kumquat. Grapefruit is apparently most severely attacked, the infection occurring on leaves, twigs, branches and fruits. Citrus trifoliata is probably next in susceptibility, followed by some of the sweet orange varieties. Infections have been found on the stems, twigs and petioles of Citrus trifoliata, but not on the leaves. The disease has been observed on leaves, twigs and fruit of the navel and some other sweet orange varieties. Scattered infections have been found on the leaves and twigs of the Satsuma, Tangerine, lime and rough lemon.

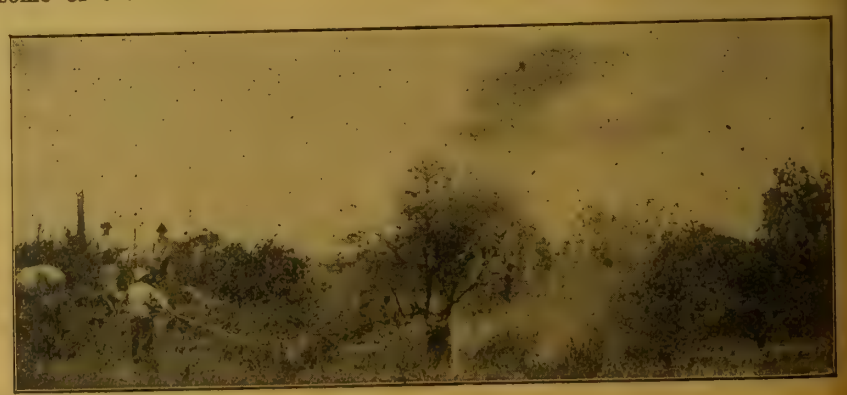
"The distinguishing feature of citrus canker as observed in the field is the characteristic spotting produced on the fruit and foliage. As usually seen, the infection appears as small light-brown spots, from less than one-sixteenth to one quarter of an inch in diameter. The spots are usually round and may occur singly or several may run together, forming an irregular area. This last usually occurs on fruits. The spots project above the surrounding healthy tissue and are composed of a spongy mass of dead cells, covered by a thin white or grayish membrane. The membrane finally ruptures and turns outward, forming a lacerated or ragged margin around the spot.

"On the leaves infections first appear as small, watery dots with raised convex surfaces. These dots are usually of a darker green than the surrounding tissue. Sometimes, however, the surface of the spots is broken as soon as they appear. Spots may appear on either surface of the leaf, but they do not at first penetrate through the leaf tissue. They gradually increase in size, change to a light brown and become visible on both sides of the leaf. In the older spots one or both surfaces may be bulged or raised, and such spots are commonly surrounded by a narrow yellowish band or zone. In the more advanced stages the surface of the spot becomes white or grayish and finally ruptures, exposing a light brown spongy central mass. Old spots soon become overgrown by saprophytic fungi, and may appear pink or black on account of these fungus growths.

"On the fruits the spots are very similar to those formed on the leaves. They project and retain a circular outline. They do not penetrate far into the rind. They may be scattered over the surface, or several may oc-



Burning Infected Nursery Trees



Burning an Infected Grapefruit Tree

cur together, forming an irregular mass.

Control

"The problem of controlling citrus canker is going to be a difficult one, and a greater undertaking than the average grower can attempt. What I mean by to control is to thoroughly eradicate the disease from infected trees and still be able to save the trees. With the present distribution of the disease, confined as it is to a comparatively small area in Florida, I would advise the complete destruction of all infected trees just as soon as the infection appears, whether such trees are in nurseries or groves.

"The next important step is to prevent the introduction of any more of the disease into the state. Citrus canker has been found in all of the states bordering Florida and has been found abundantly in parts of Texas; and while the disease may not prove so serious in those states, it is undoubtedly a menace to the citrus industry of Florida.

"I am not certain just how effective the use of fungicides will be in controlling this disease. So far I have carried on no spraying experiments in regard to this, but the results obtained by some who have used Bordeaux mixture are not encouraging. The disease may be kept from the foilage and fruit by keeping them thoroughly covered with some fungicide throughout the season, but this would require a number of sprayings at intervals of ten days or two weeks and a continual fight against scale-insects. Cankers formed on the twigs and larger branches would probably not be affected by the fungicide and would remain as centers from which the infection would spread again as soon as the spraying was discontinued.

"It would be almost impossible to eliminate all infections from a badly infected tree of any size by defoliating and pruning, for on the larger branches minute cankers, hardly distinguishable without the aid of a lens, would be almost certainly overlooked. I should say that only an expert would be capable of eradicating the disease from an infected tree, and then it would require continual vigilance on his part. Uninfected trees or groves in infected districts may be protected by spraying with some fungicide, but the sprayings must be thorough and often repeated. It would be better, however, to remove and destroy the infected trees."

CYANIDE OF SODIUM—POTASSIUM

In the article by Horticultural Commissioner Collins of Tulare County in the Cultivator of April 1 appeared the statement, "In all our work nothing but 96 to 98 per cent sodium cyanide has been used, which is equivalent to 128 to 130 per cent potassium cyanide."

A subscriber rang us calling attention to this statement as an error and as it may apear to others that it is the reverse of the ordinary way of referring to the strength of these compounds and in any case confusing, the matter was referred to Mr. F. W. Braun for fuller explanation, and he says that Mr. Collins' expression is correct. He writes as follows:

"Regarding Mr. Collins' statement I will say that he is right in stating 96 to 98 per cent sodium cyanide. That is correct in strict chemical nomenclature, as the sodium cyanide which is used for fumigation purposes is about 98+ per cent pure. The manufacturers, however, guarantee it as being 96-98 per cent pure. This material is commercially designated as cyanide 128-130 per cent, because of commercial practices which have followed the evolution of the manufacture of cyanide from first. rather impure, mixed cyanide salts to the pure potassium cyanide, and then to the mixed or double salts of cyanide of sodium and potassium, to at last the practically pure sodium cyanide. All along the cyanogen content, or chemical value of the cyanides, was designated by the percentage of cyanogen contained, based on pure potassium cyanide. It is perfectly proper, when speaking of sodium cyanide, to say 96-98 per cent pure, and it is my firm conviction that the interests of all parties—manufacturer, seller and consumer—will be served by getting away as quickly as possible from the rather misleading (to the layman) designations that have so long obtained in the

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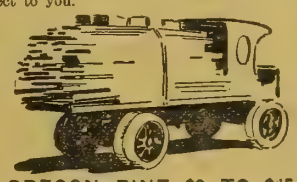
Send for free sample. Remember we ship direct to you.



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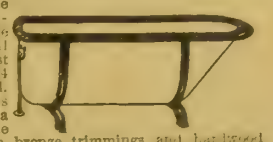

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Low Down Enamel Steel Toilet Combination.... $11.50
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Special value—worth $22.50.
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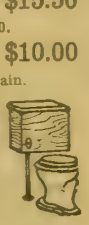

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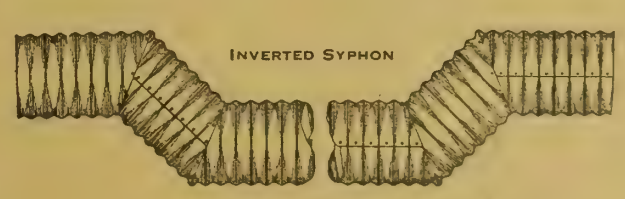
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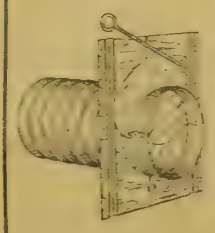
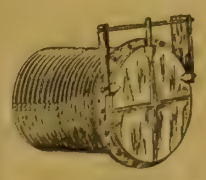

4-C GATE

SIMPLEX STOCK TROUGH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We also have a good stock of all the leading budded varieties of

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commercial handling of cyanides. I have, for a long time, endeavored to secure the cooperation of the manufacturers and last season they prepared and used a new label, a copy of which follows:

SODIUM CYANIDE
(Technical)
51.0 to 52.0% Cyanogen
Equivalent to 128-130% Potassium Cyanide.
Sodium Cyanide 96.0 to 98.0%
Inert Substances 4.0 to 22.0%
Less than 0.05% Chlorine 45.0 to 48.0% Sodium

"I have also had the matter up, on numerous occasions, with the insecticide laboratory of the University of California, as well as with the proper departments at Washington, and no doubt in the course of time, at least so far as concerns the material that will be used in fumigation operations, the commercial pure sodium cyanide will be sold as 96-98 per cent, and in all probablity (the material now coming out of the factory being of greater purity than ever) as 98-100 per cent.

The confusion of terms has come about naturally through the advance in methods. First potassium cyanide was used. A grade designated as 98 per cent pure was one which had 2 per cent of impurities, matter other than potassium cyanide. Then sodium cyanide was manufactured. It contained a much greater content of cyanogen, which gas is the actual killing agent. But fumigators had been used to handling potassium cyanide, so to explain the greater efficiency of the sodium cyanide, its killing power was expressed as so many times that of potassium cyanide. So one ounce of cyanide of sodium was said to be equivalent to 1.28 ounces of potassium cyanide, or was 128 per cent pure.

Now to get back to a reasonable basis for expressing the strength of a cyanide, it is proposed to use its actual content of cyanogen gas. Then when we refer to sodium cyanide 51 per cent to 52 per cent cyanogen that means a cyanide containing 51 to 52 per cent of cyanogen gas, and we are not bothered by any comparative standards.

Deciduous Fruits

CROP ESTIMATES

MANY more of the apricot growing sections have been heard from, also a few of the peach growing sections. Some of these estimates are given below; more are coming which will be used in next week's paper. Nothwithstanding some sections are showing exceedingly light crop others claim a bumper cone. We believe in general, however, the state will show a much lighter output than usual. We note from reports of the department of agriculture that peach crops of the Southeast and also of the Southwest—the Texas section especially—suffered severe damage from the frosts of late March. The department estimates that in the three states of Carolina, Georgia and Alabama at least 60 per cent of the crop has been destroyed.

California sections reporting are as follows:

J. W. Mills, Farm Adviser Solano County

The apricot and peach crop appear to be far above normal at this time, just how much is hard to state. This is the indication in Solano County. Shot hole fungus is worse than usual, due to the rain and warm weather just after blooming.

Pears got a hard lick in the Vacaville district from thrips. The ground was so wet and soft just when spraying for thrips should have been done that many failed to get the spray on at that time.

Apricots are not through dropping yet, but even if a heavy drop comes there will be a big crop. If no more drop comes nearly every grower will have to thin.

J. H. Ballantyne, Acampo, San Joaquin County

To the best of my knowledge the prospects for cots in this district are good in the different orchards. My trees are well set so far as I have looked.

My Foster and Muir peaches are setting all right but I have been told the Lovells are a little light.

J. C. Metzgar, Secretary Chamber of Commerce, Santa Ana, Orange County

According to the best information I can obtain at this time the apricot crop will not exceed 70 per cent. We grow so few peaches that they are not a factor in any respect.

C. G. Marchus, San Pasqual, San Diego County

As I said in my earlier report, the apricots in this valley are almost a total failure. My neighbor, who usually dries from 20 to 30 tons, said to me the other day that he did not expect to dry any. A few trees are well loaded but most of them are almost barren of fruit.

I have just been through my orchard again and it looks to me as if I will have less fruit this year than the year we received 20 cents a pound. There will not be over one-fifth of a crop in this valley. We should get 15 cents this year.

Wm. B. Jackson, Ontario, San Bernardino County

The apricot crop will be short this year, about the same as last year. A northeast wind hit this valley when the trees were in bloom and that blighted the fruit.

Peaches will be about the same as last year but we cannot tell much about them as yet as they are not far enough along. All other crops are looking fine.

Lester C. Reed, Simi, Ventura County

From my observations for the past 10 years we have about 50 per cent of a normal crop. There was a good bloom but a very poor setting, due some say to rain, others say the hot weather.

After a drive through the Moorpark Valley the crop there looks even less than in the Simi Valley.

A. S. Westmoreland, Valley Center, San Diego County

As to the apricot crop for this year, judging from my own orchard, there will be a bumper crop. Trees are heavily loaded.

Fair crop of peaches, with prunes in full bloom. Too early to determine results as to prunes, but prospect good.

AMERICAN FRUIT TRADE

The foreign trade of the United States in fruits and nuts, $92,840,172 in the calendar year 1914, has doubled in the last decade. Imports were $59,231,394 and exports $33,608,778, including in each case trade with Hawaii, Porto Rico, Alaska, and the Philippine Islands.

Bananas, with a total of 16 million dollars; lemons, 5¼ million; olives, 2½ million; grapes, 1½ million; pineapples, 1 1-3 million; currants, 1¼ million; preserved fruits, 1 million; and figs, nearly 1 million dollars, are the leading classes of fruits imported. Cocoanuts, copra, etc., 5¼ million dollars; walnuts, 3½ million; almonds, 3½ million; peanuts, about 2 million, and filberts, 1 million dollars' value, are the principal nuts imported.

According to official figures compiled by the bureau of foreign and domestic commerce, department of commerce, imports of lemons have increased about 50 per cent, figs about 60 per cent, cocoanuts have quintupled, and bananas, walnuts, and almonds have doubled in import value during the period under review. Meantime Hawaiian pineapples, mainly canned, of which the imports were not sufficiently large in 1904 to justify a separate enumeration, are now being shipped

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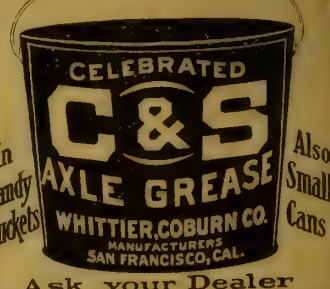

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Get a "BIG CATCH" and BIG YIELD of Clover, Alfalfa, Peas, Beans, Vetch and other Legumes—
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NITRO-GERM ONLY 50c PER ACRE
Cheapest in the world—Guaranteed Perfect.
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The California Cultivator
Subscription, $1.00 a year

into the United States at the rate of 6 million dollars' worth per annum, last year's total being 2½ times as much as in 1911, while imports from Singapore, which at one time reached several hundred thousand dollars annually, have now nearly ceased. Porto Rican pineapples, mainly fresh, are coming in at the rate of 1½ million dollars' worth a year, as against a little more than half that amount in 1911. While Cuba is the leading source of our fresh pineapples from foreign countries, the amounts received therefrom remain practically stationary and the rapidly growing consumption is being supplied chiefly by canned Hawaiian and fresh Porto Rican pineapples.

About half of our imported bananas, aggregating 47 million bunches last year, were from the Central American states, about one-third were from the British West Indies and the remainder chiefly from Cuba and South America. In normal years France supplies about three-fourths of our imported walnuts, but in 1914 her share was only 13 million pounds out of 30 million pounds imported. Italy, Turkey in Asia, Chile and China rank next as sources of imported walnuts. Greece continues to be the great source of our currants imported from foreign countries, having sent to our ports practically 32 million pounds last year, as against 300 thousand pounds from the rest of the world. Asiatic Turkey furnished American markets with nearly 30 million pounds of dates, while 2¼ million pounds came direct from other Asiatic countries and 2½ million via English ports. Turkey in Asia also is the leading source for our imported figs, imports therefrom in 1914 being 13 million pounds, as against 3 1-3 million from Greece, 1 million from Italy and smaller amounts from Egypt, French Africa, and Hongkong. Our imports of grapes range between 1 million and 1 1-3 million cubic feet annually and all of them, except negligible amounts, are from Spain. Italy occupies a similar position with respect to our imported lemons, having supplied between 140 million and 150 million pounds annually during the last few years. Spain sends us between three million and four million gallons and Greece about one million gallons of olives annually, while Italy, also an important producer of olives, sends us less than a quarter million gallons of olives annually, but ships to our shores large quantities of olive oil.

Foreign-grown oranges are gradually being excluded from the domestic market, the diminished imports of that class ($52,860 worth in 1914, against $756,224 in 1900) coming now chiefly from Jamaica. Turkey ranks first and Spain second in supplying our imports of raisins and other dried grapes, while European countries send us most of our imported preserves.

In certain lines the growth of exports of American fruits has been remarkable. Oranges have quintupled in ten years ($831,260 in 1904; $4,225,991 in 1914) largely as a result of the expansion of the California and Florida citrus fruit industry. Prunes have also scored a big gain over the average for earlier years, though when 1914 is compared with 1904 a decrease is apparent, since both those years were abnormal—the figures for 1904 ($3,634,942) being twice the annual average for the four next succeeding years and those for 1914 ($2,582,560) but half as much as those for 1913. Apricots ($1,598,405 in 1914) and preserved fruits ($5,777,991) have doubled in export sales in the decade.

PLUGGING TREES

(Continued from Page 483)

potassium, especially on elms and black locusts, I am convinced it is a valuable remedy.

"The article above referred to gives the general impression that cyanide of potassium is the cause of tree death as well as various staining effects found in the bark, cambium, etc. My opinion is that the staining comes from the reaction between the tannic acid found in all trees and the iron found in this so-called "tree food" in the form of iron sulphate. It is well known that when solutions of tannic acid are brought into contact with iron or any iron salt, dark colored compounds resembling ink are formed. These are very permanent dyes and no doubt account for the dark color observed.

"The cyanide of potassium as I have used it for years in eliminating borers from various trees has never caused any staining, nor have I ever known of its killing or in any way injuring a tree. I have been using it and prescribing it for the use of others for about 12 years in connection with my forestry work, and we have saved the lives of thousands of trees by means of it.

"Large groves of thrifty elms and black locusts in Kansas and other parts of the West have been completely rescued from the attacks of boring and girdling insects by means of cyanide of potassium, and this article is the first intimation I have ever had to the effect that it is deleterious to tree growth. I am strongly inclined to feel that the blame is not properly placed and that a highly useful chemical for insect eradication is being condemned because of damages produced by other substances.—C. H. Shattuck, University of Idaho."

For much of the information given above we are indebted to Prof. J. Eliot Coit, who has forwarded clippings to us.

Firestone

Producing the Proof in Quality and Price

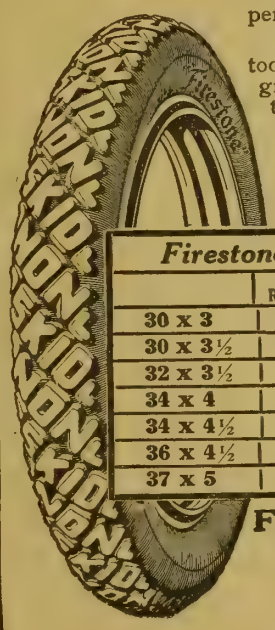
HERE they are—plain as day—the "extras" in Firestone Tires that cost you nothing extra!

Examine the section—note the piled-in values you get at average price; you need the extra fabric; you need that cushion stock—there isn't any in the average tire; why do without it when the cost is the same for Firestones?

The reason why Firestone Tires deliver so much more Mileage is in the "extras" you see here. And the reason for these "extras" is in the Firestone production—a simple business question of making and selling. Nobody can equal Firestone in Economy of Manufacture and Distribution.

Firestone Tires are made in the Largest Exclusive Tire Plant in America; they are made by experts whom "practice makes perfect"—this saves you money.

Firestone methods of marketing are so managed that you get the tires, tubes, accessories—whatever you need in tire service—with least handling and expense—this saves you money.



Examine the section—remember, too, that you get the same relative degree of Mileage no matter what size of tire you buy. The values are there—beyond question or dispute.

Your dealer has Firestones—for motorcycle as well as automobile. If not, he can get them easily.

Firestone Net Prices to Car-Owners

	Case Round Tread	Case Non-Skid	Grey Tube	Red Tube
30 x 3	$ 9.40	$10.55	$2.20	$2.50
30 x 3½	11.90	13.35	2.60	2.90
32 x 3½	13.75	15.40	2.70	3.05
34 x 4	19.90	22.30	3.90	4.40
34 x 4½	27.30	30.55	4.80	5.40
36 x 4½	28.70	32.15	5.00	5.65
37 x 5	35.55	39.80	5.95	6.70

Firestone Tire & Rubber Company, Akron, O.

"America's Largest Exclusive Tire and Rim Makers"

Branches and Dealers Everywhere

Actual Size 5-inch "Non-Skid" FIRESTONE

Fig. 1. 7 plies of Sea-Island fabric in Firestone —some are satisfied with 6.

Fig. 2. Extra coating of finest rubber between fabric layers in Firestone —not in the ordinary.

Fig. 3. ⅛ inch Pure Para Rubber cushion layer in Firestone —none in the ordinary.

Fig. 4. 3-32 inch Breaker Strip of Sea-Island fabric and high-grade rubber in Firestone —less in the ordinary.

Fig. 5. ½ inch Tread, tough, resilient, gripping in Firestone —less in the ordinary.

Fig. 6. ⅛ inch side wall of strongest rubber in Firestone —less in the ordinary.

Fig. 7. Firestone Bead, built into tire specially for clincher rims in Firestone.

In the ordinary tire the clincher part of bead is only a patch applied to straight side type to fill "clincher" space.

Yet you pay only $39.80 for this 37 x 5 inch Firestone NON-SKID—20% below the average of four widely advertised makes.

Firestone Tube Bag Free

Send us your dealer's name and the make of your tires and we will send you, free, a fine rubberized Tube Bag. Will keep tubes in prime condition. Write today. Get also, the Book on Care and Repair of Tires. Ask for Book No. 36

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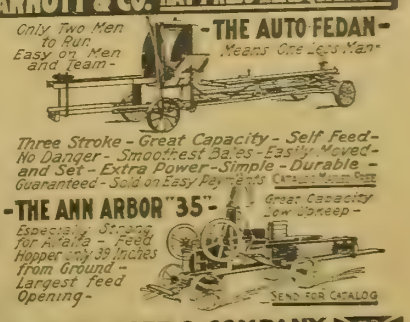

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But all its value isn't hidden—its beautiful lines, its extra equipment, its great comfort speak for themselves. Women folks all like the CASE car. Then let us tell you fairly just what it will do. Nothing could satisfy you more.

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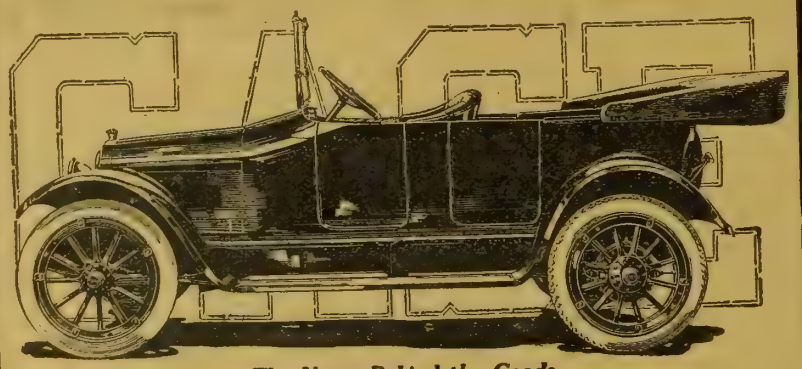
Of popular priced cars the CASE car costs you least, we maintain, because we include extra accessories to the value of $110.25. These you'd have to buy later. If we left them out—as others do—the price would be $1,239.75. Including them our price is $1350, with 5 per cent off for cash. The CASE car has all the equipment other cars have—but also an Extra Tire and Tube on Rim with Tire Cover, Weed Non-Skid Tire Chains and 8-Day Clock.

Remember, too, that we *save thousands*—where others must *spend*—in selling, because our cars are sold by our own organization.

Where we spend these savings to make better cars is shown in our new illustrated catalog describing the CASE car. Send for this book—know the CASE car. Write today to Department 523.



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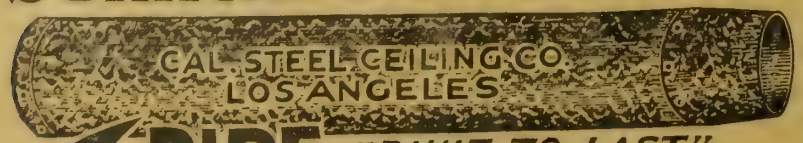

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Body made from single sheet of Galvanized Open Hearth Steel 10 feet long, with extra heavy taper collar on one end and band of heavy steel on the other—making each section 10½ feet. Made with lock seam (four thicknesses of steel), which gives unusual strength and durability, besides—ABSOLUTE PROOF AGAINST LEAKAGE.
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General Agriculture

THE SMALL TRACTOR IN FARM PRACTICE

TO attempt to define the status of a machine which is undergoing so rapid a process of development as the farm tractor is difficult, as its status changes with each improvement or modification. Eighteen months ago the farm tractor was a comparatively large and expensive outfit and might truthfully have been said to have no place in the operation of the medium sized farm of the general type. Now, however, the type of tractor most prominent and apparently most in demand by the farmer is a small, low-priced outfit, capable of pulling from two to four plow bottoms, and with belt capacity sufficient to operate any of the machines commonly used on the average farm.

These small tractors are of simpler construction than the large ones. Most of them have only one drive wheel and usually only one speed forward and one reverse, thus eliminating considerable gearing, including the differential gears. At the same time they permit the hitching of a two-bottom gang plow directly behind the center of draft of the machine, something which was impossible to accomplish with a wide tractor having two drive wheels without causing side draft or running the tractor partly on the plowed land.

The mechanical features are not so important from the farmer's viewpoint, however, as its low price. The average farm already has as large an investment per acre for power as conditions will justify, and the purchase of a tractor which would not displace its money equivalent in other power would be unwise. As a tractor's working life in years is usually only about half that of a horse, it is evident that it should displace practically double its value in horses, if it displaces no other source of power. As a rule, however, the small tractor will take the place of a stationary engine for operating the various farm machines, and the difference in the cost of such a stationary engine and a small tractor is slight; so it will not always have to displace horses to any great extent to justify its purchase.

Judging by data already obtained in a study of the small, low priced farm tractor, it is safe to predict that it will soon command, on the ground of economy, a permanent place on the average farm. The degree of success which will be attained with a tractor depends very largely on its operation and the general management of the farm work so as to utilize it to the greatest advantage. Like every machine, its value is increased by being worn out as rapidly as possible in profitable work, as the interest charges are thereby reduced, and depreciation, through rust, etc., reduced to a minimum. The work of the farm should, therefore, be planned so as to use the tractor wherever practicable and to dispense with as many horses as possible. As the tractor will be capable of doing practically all the plowing on the average farm, the number of horses which must be kept will depend upon the amount of cultivation, etc., to be done, for which the tractor is not adapted. Where the tractor is used the cropping system should be planned to reduce this kind of work to a minimum.—A. P. Yerkes, Farm Management Service.

A WISE INVESTMENT

Paint pays good interest on the investment when well done and with good material. It pays, first in preserving the wood, keeping it from shrinking and warping, and second, it makes all buildings more sightly, therefore answering a double purpose.

This is especially true in our present day because much of our building timber is defective. Our grandfathers when building could go to the forest and cut the choicest black walnut for siding and for the rest the best of oak. The lumber shipped in has not the lasting qualities of our native trees mentioned. Do not understand that paint will make bad lumber good, but it will preserve it and keep it from deteriorating as it would without.

Paint should be applied when weather conditions are favorable, when the atmosphere and the surface to be painted is as free from moisture as possible. The paint should be evenly applied and the oils well rubbed in.

Twenty years ago we built a modern 12-room country residence on a 30-acre farm. We had this house painted as it went up, on the outside. We paid a lump sum of $115.00—painter furnished al material—and this also included the glazier work. The glass was laid on putty and then puttied in. The inside work was finished with yarnish and had stood some 10 years and still looked fairly well when we had it done over again with the same kind of material, but by what proved inferior workmanship. The mantels the painter declined to attempt, said he could not better them.

How often to paint depends on climatic and other conditions. A house in a city where all soft coal is used for fuel, or one near a depot will need painting two or three times as often as a house situated in the country where mostly wood is used for fuel.

SMUT

The state experiment station at Pullman, Washington, has for several years been investigating the troublesome smut problem of the wheat growers. This question is one of the most important agricultural problems of the state. The farmers of the wheat belt lose millions annually from this pest.

The station has just published a popular bulletin, setting forth some of the results obtained in the investigations of the last two years. Many of the results, from the very nature of the problem, cannot be conclusive. All are very suggestive and some of them will be found very helpful to the farmers at the present time, especially some of those with reference to seed treatment.

Recommendations are:

First, that the seed be treated with copper sulphate (bluestone) one pound plus sodium chloride (common salt) one pound to five gallons of water. Treat in this solution 10 minutes.

Second, it is recommended that this treated seed be tested for germination in order to ascertain the amount to be sown, as seed which has been machine threshed is likely to show a large percentage of injury.

Third that, if formaldehyde is used, it be used in proportion of one pound to 40 gallons of water, for 30 minutes.

Fourth, that in case of either treatment the grain should be immersed in an open tank and thoroughly stirred in the water until all smut balls float to the surface to be skimmed off.

It must be borne in mind that the results given in this bulletin are not final. The investigation is being prosecuted with renewed vigor from every angle; from the standpoint of seed treatment, soil treatment, breeding, general biology of the smut plant and methods of infection.

The station for the past two months has been carrying on a searching investigation in regard to the relation of smut to the explosions occurring in threshing separators. A report of this work is in press and may be had for the asking.—Ira D. Cardiff, Director.

WHAT ONE GALLON OF GASOLINE WILL DO

It is difficult to realize the amount of stored energy in a gallon of gasoline, says H. L. Thomson of the department of agronomy at Oklahoma agricultural and mechanical college. In a gallon pail it looks very small, but when burned in a small two or three-horse-power engine the amount of work accomplished is surprising. Even though so much work

HERCULES POWDERS

Better, Bigger Crops with the Help of Dynamite

ON the modern farm dynamite has become recognized as an important factor in producing bigger and better crops. In every field of agricultural labor this comparatively new-found power is proving its great worth. By its aid the progressive farmer is planting trees, draining land, digging ditches, removing rocks, subsoiling land, excavating cellars, cisterns, etc. These things can be done more quickly, more thoroughly, and with less expense than by any other method when you use

HERCULES DYNAMITE

In tree planting and sub-soiling especially, it has proved itself of remarkable value. Farms that were thought "played-out" are now producing better crops than ever because of Hercules Dynamite. Sub-soiling has brought them renewed fertility. When you depend upon the plow alone to prepare the land, you merely scratch the surface. Herclues Dynamite by means of sub-soiling loosens the earth to a depth never reached by a plow. It breaks up the hard lower strata, thereby improving the drainage and giving the crops the fresh, rich subsoil upon which to thrive.

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"Progressive Cultivation" written in a plain understandable style, tells how to increase your crops greatly by this simple and inexpensive method. Also tells of the other money-saving uses for Hercules Dynamite on the farm. Whether your farm is large or small, you need this book—and it's yours for the asking. Write today.

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The lazy woman never makes a very successful flower grower.

is accomplished, four-fifths of the energy in the gasoline is wasted in the best engines—in friction cooling and the exhaust gasses. Yet in a good engine it should give 10-horse-power hours or run a one-horse-power engine for a 10-hour day.

Tests have shown, says Mr. Thomson, that one gallon of gasoline used in an engine can do the following work:

Shell 264 bushels of corn.
Grind 486 bushels of corn.
Separate the milk from 300 cows.
Do 20 weekly washings without wringing.
Grind 20 sickles.
Pump 2,454 gallons of water from a 43-foot well.
Pump 1,720 gallons of water from a 159-foot well.
Cut four acres of grain if harvester is drawn by horses.
Bale four tons of hay.
Mix 35 cubic yards of cement.
Carry one ton 14 miles on a small truck.
Carry two passengers in a light car 30 miles.
Plow two-fifths of an acre of average land.
Make electricity for eight lights (15-candle-power tungsten) for 30 hours.
Cut and lift 30 feet four tons of silage with a blow cutter.—Farm and Ranch.

USE AND CARE OF FILES

The choice of a file for any particular piece of work will be determined by the form of surface to be worked, the amount of material to be removed, the nature of the material, and the finish to be left on the surface.

From the 20 different standard forms and cross-sections in which files are manufactured, the user must choose the proper form of file to best fit the work in hand. Next the amount of material to be removed will determine the size and coarseness of the file. The size being the length in inches of the file body without the tang, and the coarseness depending upon the six grades of cuts—rough, coarse, bastard, second-cut, smooth and dead-smooth. The bastard and second-cut are the grades must used for general work and the smooth or dead smooth for smooth finish work. All of these forms may be had as either single or double cut in any grade of cut, excepting that the rough cut is usually single and the dead smooth double cut. The double cut file will bite more freely and leave a more broken surface than a single cut file of the same size.

The nature of the material worked determines in a large measure the "life" of the file. A new file should never be used on very hard material such as scale of castings and forgings or on hardened steel. Nor should it be used on soft tough metals or on thin edges where it bites too freely. Files should not be thrown into drawers together with other tools. They should be kept clean by brushing and should never be placed where they will rust, as that will ruin any file.

A good file handle is necessary for good work. In filing, the pressure is applied to the file on the forward stroke and entirely removed on the back stroke, though the file need not be lifted from the work. As with all metal cutting tools, the pressure should be sufficient to cause it to bite freely as this is easier on the cutting edge than just scraping over the surface.—A. Cammack, Colorado Agricultural College.

WINTER RHUBARB

"Winter Rhubarb, Culture and Marketing," by Reginald Bland, published by the author at San Luis Rey, California.

This is a little book of seventy pages, of convenient pocket size. There are eight chapters touching upon botanical description of various rhubarbs, selection of location for planting, preparation of field, planting, culture, picking and packing, marketing, and propagation and development. It is along a line on which there is but little literature, and to one interested in rhubarb culture it will have particular interest.

My twenty years experience in the roofing business has convinced me that you take no chances with roofing backed up by J-M Responsibility.

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Fire- and weather-proof, last forever. Highly artistic.

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You may have a guarantee if you want one; but what value is a guarantee without responsibility behind it?

Every foot of roofing we ever made was made not merely to sell but to serve. J-M Responsibility is not a policy. It is a principle.

J-M Responsibility gives this roofing service because our branches cover the country and our representatives are everywhere.

J-M Asbestos Roofings never need painting and last for years. Not only weather-proof but also fire-retardant. Sparks and flying brands will not ignite them.

J-M Asbestos Roofings are examined by Underwriters' Laboratories under the direction of the National Board of Fire Underwriters.

If every J-M roof owner will register his J-M Roof with us, we will see that that roof gives him full roofing service. Tell us what kind of building you have to roof and we will give you our experience with roofs of that kind.

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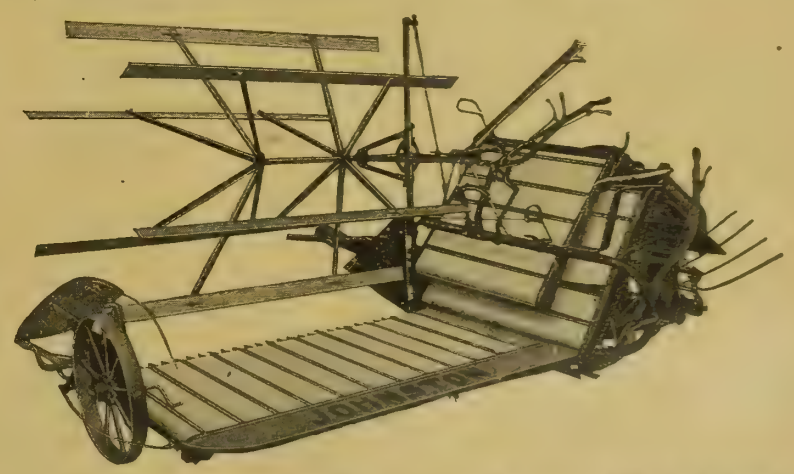

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Nothing better in the market — Clean and Thrifty
Genuine Florida Sour Stock. Sweet Stock grown from carefully selected California seed. Before buying see us. Prices right.

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PLANNING THE GARDEN

Written for the California Cultivator
By Ernest Braunton

IN our last talk the reader was instructed in some of the fundamentals governing garden planning. In the present article we will finish the task, setting forth all that prompts the professional when he faces the problem of making a plan for your place or mine.

Plant in masses and not in isolated specimens dotted about here and there; group instead of scattering. Orchards are systematically planted for economic reasons, giving each tree a like amount of space. This insures uniformity of growth and bearing and ease and economy in cultivation, irrigation, and harvesting. No such considerations govern the planting of ornamentals. On the contrary, art, with a due regard for utility, is the inspiration of the landscape designer. Therefore, have tree and shrubbery masses irregular in outline, in gently-flowing curves, not abrupt, nor yet in straight lines.

Trees, shrubs and lowly plants should be grouped, each kind by itself, for nature so disposes them, and we should aim to copy nature. In this way you will not only get artistic and natural effects, but also decided character, for planted in this manner every part of the garden stands for one thing, and one only, and there are no duplications in plan or planting. Therefore, every step forward marks an advance into something new, and from one end to the other "no scene is twice seen," nor anything, either in material or effect met with a second time. It would neither be proper, nor pleasing to find roses and carnations, or pines and acacias scattered throughout the garden, for all parts would then contain similar effects and character. There would be no incentive or stimulus for a walk about a garden where one glance at any part would suffice to show the plants and their disposition obtaining in all parts. Some of the finest examples of beauty in arrangement may be observed in the shrubbery masses on shaded hillsides in the wilds.

Nature makes no straight lines; for whether it be the canopy above, the horizon about us, the shore of ocean or lake, the course of streams, the lines of a horse, bird, or other animal, beautiful curves, in variety, everywhere abound. Without some specific guide, such as a taut cord or a straightedge, man cannot make a straight line. It must then be apparent that nature never expected he should try.

Those who have trampled over freshly fallen snow, though intent upon going in a straight line from one point to another, may easily descry, by looking backward upon their course, the most beautiful and smoothly-flowing curves traced upon earth's otherwise spotless mantle. Even the paths of wild or domestic animals are of most artistic and gentle departure from the monotonous straight line.

Nevertheless, we should not violate the dictates of common sense by instituting a curve or curves in a walk but a few paces long. Curves should not be made that would subject the maker to ridicule, yet they are always permissable and advisable, if it is possible to have them without showing a strained effect or too great abruptness. If it is found to be advisable or almost necessary to make a short or sharp curve, plant in the "bay" a large shrub or tree, or a group or object of a large and permanent nature, made to appear as though present before the path and therefore making the curve a necessity in order to get around this previously occupied point.

Summer Care of Lawns

During even the hottest weather the average lawn is injudiciously watered. Few home owners begin the care of lawns properly or methodically. From the time the young grass appears the inch or two of top soil is given light sprinklings daily, with the result that all roots remain near the surface. If such a lawn goes unsprinkled for even one day during hot weather, it shows distress. After a lawn is well established, water only when the grass needs it and then do it most thoroughly. Then, when the surface supply is exhausted, the roots will go down into the moist sub-soil in search of water. With such treatment the grass will finally reach a condition that if left unwatered for a few days, or even a week, it will not suffer permanent harm.

Lawns should be cut frequently during hot weather, about once a week, for the reason that it is advisable to make the least possible change in general exposure. If left until very long and then closely cut it will suffer from sunburn in both blade and root. Do not needlessly expose the roots to the summer's sun; therefore, during the hottest weather keep the cutter high, leaving the grass rather long throughout the season, but mow frequently, allowing the short clippings to fall down among the standing blades to form a mulch for the roots. If the cut grass mildews or moulds, as it may during cool or cloudy weather, it may be raked off and subsequent cuttings caught in a hopper, but with the return of sunshine remove the hopper and allow the mulch to re-form.

Bridal Wreaths

The spireas, known as Bridal Wreath, are now in bloom and are the most attractive of all deciduous shrubs at this time. In my own garden there are a half dozen; three each of Spirea Reevesiana (properly S. Chinensis) and S. Van Houttei. Both are profuse bloomers and differ but little in any way. At five years of age their good points are so nearly equal that no choice can be made as to which is the better of the two. Either is worthy of a place in the best gardens. Do not plant singly; if you have room enough put in a group of several plants.

A Rare Acacia

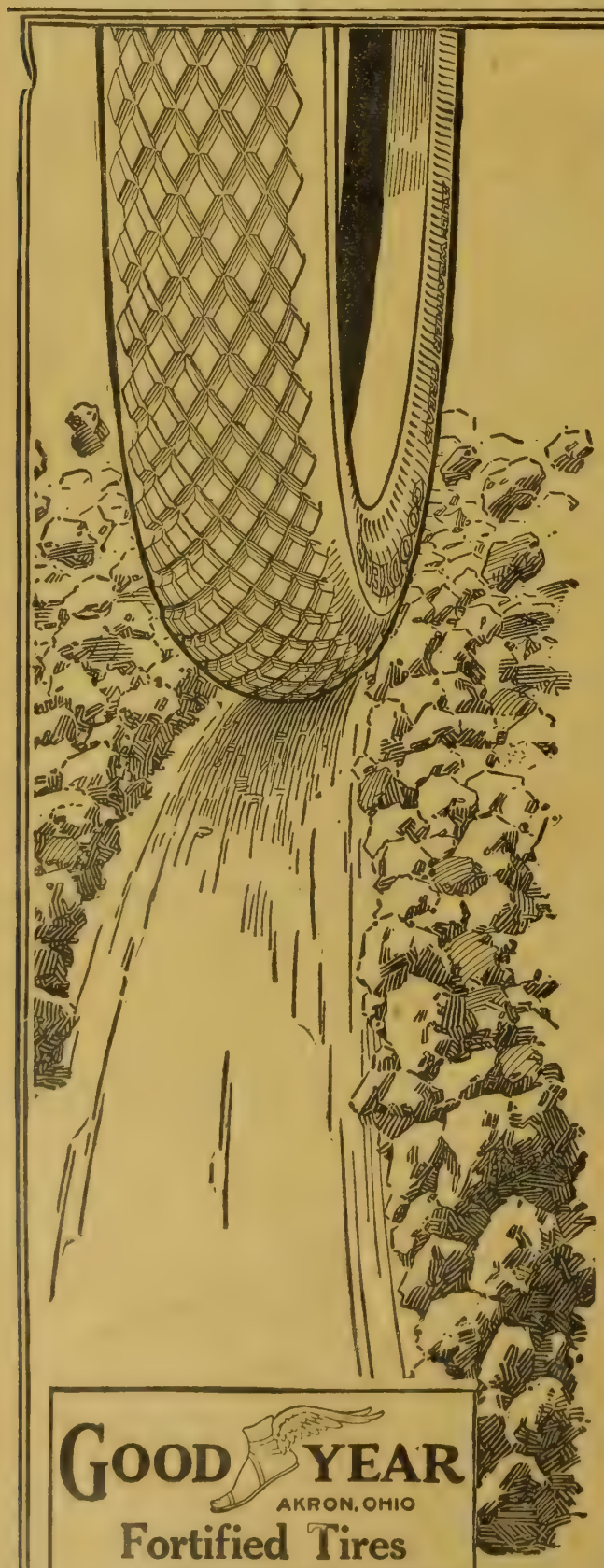
Acacia podalyriaefolia is now passing out of bloom but it was a "blaze of glory" while it lasted. In foliage it differs so widely from any other acacia grown in California and blooms so splendidly that it is a desirable shrub for any garden. Unfortunately it is not so robust in constitution as the average acacia.

While harping on acacias I cannot refrain from saying another good word for A. Cultriformis. This shrub has been particularly beautiful this season. Its small triangular leaves are among the bluest of the blue, so that at all times the plant is attractive. No acacia blooms more profusely and few produce such a deep golden yellow. This latter point is a strong one for some acacias bear flowers of a sickly, faded yellow.

We often starve our flowers—giving them neither plant food nor enough water—and then wonder why they do not bloom.

Ten cents' worth of seeds will cover that ugly outhouse with beautiful vines.

Violets must be given time. They are delicate and do not thrive under forcing.



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Small Fruits Vegetables

NEMATODE WORMS—EELWORMS

By State Horticultural Commissioner A. J. Cook

THESE little animals are of peculiar interest at present not only to California ranchers but also to farmers in every state of the country. They seem to be present everywhere and attack the roots of hundreds of the common plants, including many cultivated fruit trees, grains and vegetables. These eelworms often cause galls on the roots of weeds and trees and tubercles or projections on potatoes and various other vegetables which roughen the surface and make vegetables unsalable. Prof. E. A. Bessey of the department of botany, Michigan agricultural college, one of the best authorities on this subject, published in the fall of 1911 Bulletin No. 217, Bureau of Plant Industry, department of Agriculture, United States Government. In this publication he gives something like two hundred and eighty species of plants which have been discovered to be infested with these nematodes. There are probably many more yet to be discovered.

Classification

These animals are not insects nor are they true worms. True worms, like seaworms, angleworms and leeches, have a true circulatory system with a pulsating tube or heart, which is frequently double. These nematoid worms have no heart and no circulatory apparatus. They should not be called worms but may be designated as eelworms, nematoid worms or nematodes. They may also be called roundworms in contradistinction from flatworms, or trematodes, which include the liver fluke, a deadly enemy of sheep. They differ from flatworms in having a complete alimentary canal and in being bisexual. Trematodes have no vent to the digestive cavity and are hermaphrodites, each individual being at the same time both male and female. Nematodes include many parasitic entozoa, like pinworms, the common roundworms of man and most of the higher animals, gordii, and even the Trichina spiralis. Many like the potato eelworm are nearly or quite microscopic.

A Bit of History

In January, 1911 Mr. O. E. Bremner, then secretary of the state commission of horticulture, discovered eelworms in a carload of potatoes shipped from Nevada into California. These Mr. Bremner ordered shipped out of the state. In the order he stated that the potatoes came from Canty, Nevada, and were badly infested with a nematoid worm, "a parasitic worm destructive to potatoes which does not exist in this state." In the autumn of the same year several carloads of similarly affected potatoes were shipped from Nevada into California, coming from four different counties of that state. At that time we knew of no such affection of California grown potatoes, though without doubt such existed in this state then. An absolute quarantine was declared against potatoes entering California from these four counties. A committee of experts was at once sent into the potato fields of Nevada to make a thorough investigation of the potatoes of the several sections, as there was no desire to do any wrong to the potato growers in these districts. Moreover potatoes were scarce and prices high. In the interest of consumers I wished to admit Nevada potatoes into California if it were safe to do so. After a thorough inspection the committee reported that the potatoes on many farms were entirely free from infection; others were more or less diseased, but that county or township lines did not separate good from bad.

Infested potatoes are uneven, covered with tubercles, or mammallated, so it is not difficult to detect tubers which harbor eelworms.

The quarantine order was then modified and permitted any potatoes to be shipped into California from Nevada, but in case a single potato harboring the pest was detected the entire shipment must be returned. This worked well, and very few infested potatoes were brought to our markets from Nevada, and these last were promptly returned.

Soon shipments of potatoes attacked with eelworms were received from many districts in California, generally from localities where no Nevada potatoes had been introduced. These reports of infested potatoes continued to increase and the localities to multiply. We now know that the infestation is general throughout the state. Nevada grown potatoes are no more likely to harbor eelworms than are those produced in California.

As the potato eelworm infests 500 different species of plants, it can easily be seen that potatoes may become infested, though no potatoes have ever been grown before in the section and those planted may be uterly free from attack. Almond roots from the eastern part of Sacramento County have been received by this commission badly affected with eelworms, and diseased rutabagas from the gardens of the city of Sacramento have also been discovered. It is easy to see how potatoes almost anywhere may become infested and that any quarantine against eelworm affected tubers will be futile.

For sometime I had felt to question the justness of this conditional quarantine against Nevada potatoes, and this doubt focused December 12, 1914, in Quarantine Order No. 25, which absolutely revokes every vestige of quarantine against potatoes from the neighboring state of Nevada. Two facts made this action imperative: Justice to the citizens of Nevada and self protection. An inconsiderate quarantine, or one declared for purpose of retaliation, would not only dishonor the one declaring it but would also almost surely result in retaliatory action. We cannot call such infestation a menace when products of California are so seriously affected and where weeds and scores of other plants are ever ready to sow the seeds of infection. We regret to say that the same argument holds regarding Fusarium and Rhizoctonia fungi. These are more serious pests in the potato fields by far than are eelworms. In all such cases education is the potent cure. We must use this to the very limit. I am sure we can and will make this succor us in this time of need. With it as partner we may raise the potato production of the state to the old standard of three or four times the yield of the present time.

BOOK FOR YOUNG GARDENERS

"Harper's Book for Young Gardeners, How to Make the Best Use of a Little Land," by A. Hyatt Verrill, published by Harper Brothers, New York, at $1.50 net. Almost 400 pages of valuable information for the young or the inexperienced gardener. Its first appeal seems to be to the youngster or the gardener on the city lot but its information is so general that for the gardener on the back end of a city lot or in the larger garden of the farm it has a fund of valuable information. It treats immediately the practical side, touching lightly the botanical or scientific end. In fact, in its introduction we note:

"A thorough knowledge of botany and of scientific terms is not essential in this form of simple gardening. It is far more important to know what to raise, how to raise it, what soils are best adapted to certain plants, and exactly what returns one may expect from the land and means at command.

"The kitchen garden is today more economical and profitable than ever. The superior quality of home grown vegetables and the satisfaction of growing them more than repay all the trouble and expense even if no real profit is made. For this reason detailed directions for home vegetable

(Continued on Page 503.)

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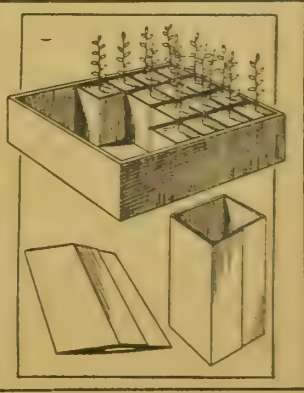

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Thursday, April 22, 1915

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STRAWBERRY DAY

Gardena, near Los Angeles, invites the world to come and accept her hospitality and eat strawberries—that "fruit which God could have made finer but didn't"—on Saturday, April 24. Besides strawberries there will be parades, games, oratory, etc.

ORGANIZING

There never was a period in the agriculture of this state when there was such general interest in cooperation. Whether this comes about from choice or necessity is of little moment, though we recall that G. Harold Powell, in his book, Cooperation in Agriculture, makes the point that cooperation to be successful must come from necessity. So long as we get cooperation we will be satisfied, or at least we think that we will, for the reason that cooperation is reasonably certain to bring success to agricultural practice. We would not, however, for a moment carry the idea that all cooperative effort has succeeded, but from cooperating fruit growers in Happy Valley in Shasta County, and cooperating dairymen in Humboldt, Napa and other counties, on to the southern line, there are organizations being perfected in nearly every county in the state. On our live stock page reference is made to the work of the Yolo County Swine Breeders' Association. In Southern California the dairymen are organizing to secure a living price for their product.

SWEET PEA DAY

School children of California have been invited to enter into a contest at a sweet pea show to be held in the educational building of the Panama-Pacific Exposition, May 22. Many sections of San Francisco in particular will enter into this contest. Messrs. C. C. Morse and Company of San Francisco, who are encouraging this exhibition, write; "From present indications the exhibition is likely to be a very good one and a most interesting one."

RAISIN DAY

Friday, April 30, is the day on which we will all eat raisins. A look at our household page will show that our request for recipes has been noted by many subscribers, but unfortunately the small number we are able to publish this week gives but a taste of the feast which would be spread before our readers if space permitted us to use all that were sent. In fact, less than one-third of the recipes which were placed in type have been used in this week's paper. Another week will see the remainder. And be sure many tasty dishes will be cooked because of these formulas which have been tested by Cultivator readers.

CITRUS CANKER

We trust California will never have occasion to treat its orchards as Florida has been compelled to, as is shown on citrus page of this issue. Florida is fully awake to the fact that she must have more rigid quarantine measures, and we presume it will be a long time before another pest as serious as the citrus canker will be introduced within her boundaries, but her energies at present are almost entirely given over to the matter of eliminating, or at least reducing, the awful ravages of the canker pest. The present session of the legislature has been asked to appropriate $125,000 for this purpose. The Florida State Horticultural Society has already spent about $75,000 in the work. The federal department of agriculture has contributed something like $25,000, and the cry is coming from all sections of the state: "Give us experts to visit the groves and search for the infected trees that they may be destroyed," and still the pest is spreading with lightning-like rapidity.

Harold Hume, one of the authorities on citrus culture in Florida, has stated that "Unless something is done at once to stamp out this citrus canker, the orange and grapefruit business in this state will be wiped out in five years and possibly within three years."

Californians may be restive under some of our quarantine regulations. Certainly some outside of our state have been, but our very existence as a fruit producing section stands upon even more rigid enforcement of quarantine regulations.

FAKER OR SCIENTIST?

We call attention to a bit of history and present day comment, which appear on leader page of this issue of the Cultivator, as to methods of insect control. In addition to a quotation from an article in the Cultivator of a dozen years ago we quote from the organ of many scientists in this country regarding the same old method once declared a fake. Now we note in a recent issue of The Farmers Guide, published in Indiana, a column and a half editorial entitled, "Another Fake Exposed." This calls attention to the fact that many orchardists are being caught by claims which are absurd. One investigator says: "I have yet to see the first case of San Jose scale, pear blight or, for that matter, any other disease attacking trees, cured by any material of this kind, applied in this way. All we have tried have been fakes, pure and simple, and so the people were simply paying out good money without getting any returns."

Authorities of the Ohio state agricultural commission are after the so-called fakers who claim that———positively kills San Jose scale, worms, lice, borers, and every insect that feeds upon the leaf, branch, bark, roots or fruit, without injury to either." Another investigator reports:

"I examined quite a number of trees in and around Hicksville that had been treated last spring and summer (1914) and in every case where the treatment was applied to an otherwise healthy tree infested with San Jose scale, I found live scale (Feb. 1 and 2, 1915). In the case of pear blight the diseased portions of the trees had been pruned away at the time of treatment and the outward traces of the disease removed. But even where this had been done most of the trees showed traces of the disease, and there is no conclusive evidence to prove that the blight has been permanently checked.

The Farmer's Guide adds: "Surely, this is evidence enough to convince our readers that not only this particular material is useless but such methods of treatment are unreliable and absolutely worthless. Spraying with the proper solutions and at the proper time is the only reliable way to control orchard insects and fungous diseases. So far, a short cut has not been discovered."

ORANGE PRICES

Because of the present agitation as to prices which consumers are paying for their fruit in various markets the Cultivator has started a little investigation of its own and makes suggestion to each orange grower that he do the same. The feeling is prevalent that the retailers generally over the country are selling at extremely wide margin of profit. This is perhaps true, but we think the profit is not as big as is generally supposed. We have written to Cleveland, Ohio, and other near-by points as to prices which consumers are paying at their grocers for oranges. As yet we have received only one answer—this from G. W. Runyan of New London, Ohio. New London is a place of perhaps 2500 people, 45 miles out of Cleveland, and a market which would secure all of its supply in small lots from Cleveland wholesalers. From Mr. Runyan's letter we quote:

"I have made inquiry of one of our grocerymen regarding oranges. The schedule he gave me is as follows:

Retail prices April 14:
Size 324 retail at 12c per dozen.
Size 216 retail at 10c per dozen.
Size 150 retail at 25c per dozen.
Size 126 retail at 30c per dozen.
Size 80 retail at 40c per dozen.

"California lemons, size 300, extra fancy, retail at 20c per dozen. Florida oranges are not very popular in New London and but few have been sold this year. This dealer states that oranges are sold on a close margin of profit, the dealer getting an average profit around 6, 6½ and 7 cents per dozen."

The above is but one of hundreds of towns within a radius of 50 or 60 miles of Cleveland and all supplied by small express and freight shipments from that distributing center. Can California orange growers enter this great field of distribution and sell at lower prices and still make expenses? Tulare County growers and many in Southern California are planning for an organization which shall reach the consumer. It's a great project which will require thousands of competent men and great capital. We would be glad to see it succeed but urge growers to consider carefully.

Agricultural Notes

The exportation of live stock is Ireland's foremost industry next to that of textiles. Sporadic outbreaks of foot and mouth disease in July of 1914 curtailed the business, but the stock thus compulsorily retained are now bringing much better prices owing to war demand.

Illustrating the difficulties in trade between the United States and Mexico under present conditions: Nearly two years ago a firm in Mazatlan ordered from an American plow company three carloads of plows and other agricultural implements. These articles are still at Nogales, Arizona, no safe opportunity being offered during the two years for forwarding.

During the year ended December 31, 1914, the shipments of soya bean oil from Dairen (Dalny), Manchuria, to the United States totaled in value $397,800, against $334,690 the year previous. This is a comparatively new trade, as the soya bean crushing industry was established at Dalny only seven years ago. Soya bean oil is used here mainly for lard compounds and butterine.

The agricultural department announces that the foot and mouth disease has been brought under control in all places throughout the country, except in New York and Pennsylvania. Illinois has been the greatest sufferer from the epidemic, 57,388 animals having been killed in that state; while the number killed in Pennsylvania was 22,958; in New York, 5,727; in Michigan, 7,799; Indiana, 6,643; Wisconsin, 4,704, and Iowa, 3,896.

Exports of human hair from Hong Kong are a large factor in the trade of that port. Direct importations to the United States are not very heavy because the requirements of the quarantine service on hair coming direct from Hong Kong are very stringent, while the same hair proceeds by way of London or Hamburg with much less difficulty, the result being that a large portion of the American shipments proceed by the European routes.

Reports received by the office of markets and rural organization of the department of agriculture from the Louisiana district, which shipped over 1300 carloads of strawberries in 1914, indicate that the frost of March 21 destroyed three-fourths of the crop already set and will probably reduce the expected shipment of 2000 cars by about one-fourth. The plants are setting another crop, but heavy shipments will be delayed for two weeks.

Hawaiian pineapples, mainly canned, of which the imports were not sufficiently large in 1904 to justify a separate enumeration by the United States bureau of commerce, are now being shipped into the United States at the rate of $6,000,000 worth per annum, last year's total being two and one-half times as much as in 1911, while imports from Singapore, which at one time reached several hundred thousand dollars annually, have now nearly ceased.

The Illinois Manufacturers' Association has decided upon an interesting cooperative scheme for securing business in Russia for members of its association. It will establish a selling agency at Petrograd, or wherever else it may be found advisable. It is anticipated that the collective showing which will be made by Illinois manufacturers in the proposed exhibits at Petrograd will afford perhaps the most powerful advertisement that American goods have ever yet had in Russia.

Agricultural News Notes of the Pacific Coast

Northern California

There is talk of establishing a milk condensary at Woodland, Yolo County.

The California Swine Breeders' Association meets on the exposition grounds, San Francisco, next Friday, April 23.

The strength of the Federated Poultry Association, which was recently organized, is increased almost weekly by the additions to its membership.

Eradication of red spider was discussed at the recent monthly meeting of the Yolo County farm bureau in the offices of Adviser Searls at Woodland.

Construction of the largest silo in the Sacramento Valley is in process at Orland, Glenn County. It has a capacity of 250 tons and is built entirely of concrete.

The report of Horticultural Commissioner Norton of Nevada County shows that over 10,000 fruit trees, mostly Bartlett pears, were planted during the month of March.

Saturday is the date of the annual picnic to be held at the University Farm at Davis, Yolo County. A stock parade, games, picnic and general good time, are scheduled.

Horticultural Commissioner Harney of Yuba County reports a cultivated area in the county of 152,000 acres out of a total area of 400,000. Forty thousand acres are irrigated.

Yolo County proposes to hold a redbud festival. It is also planned to ship boxes of the redbud to different cities for sale. A redbud association has been formed to boost for Yolo County.

On request of the Yolo County Hog Raisers' Association the county supervisors have passed an ordinance providing for quarantine of any premises on which an infectious or contagious disease of live stock exists.

Warning has been issued to the rice growers of Butte County to take exceptional pains to keep rice free from weeds. Foul seed has been offered which it is feared will bring many serious pests into the rice growing section.

Poultrymen representing nearly 50 per cent of Sacramento County's output have organized in the effort to secure better returns for products, and to that end will standardize all poultry products shipped by members of the association.

To stimulate the cooperation of the federal and state governments in the improvement of navigation on the Sacramento and San Joaquin rivers, the assembly today adopted Assemblyman Sharkey's joint resolution requesting Governor Johnson to appoint a commission of three to act in conjunction with a like federal board.

Hop growers of California who are interested in organizing a California hop growers' association met at Santa Rosa recently. A representative from Mendocino County reported that 80 per cent of the acreage in that section has been signed up with the association. In Sacramento County about 50 per cent of the acreage has been signed and in Sonoma County 44 growers, with a total of 1804 acres, have joined the association.

Central California

Kings County is making very large plantings of olives this spring.

The Turlock irrigation district has adopted single tax by a vote of 993 to 260.

Stock men of the San Joaquin Valley are making a campaign against glanders of horses.

Work on the new milk condensary at Salida will commence May 1, according to a recent report.

The Pajaronian predicts the local apricot crop will be between 50 and 75 per cent of last year's.

The Tulare Rochdale Company shipped 826 cases of eggs from Tulare during the month of March.

Dairymen of Los Banos, Merced County, are discussing a plan for establishing a cooperative creamery.

The California Associated Raisin Company has absorbed the packing plants of the North Ontario Packing Company at Hanford and Kingsburg.

California dealers are planning to make big shipments of apples to London. Sixty thousand boxes of Newtown Pippins are ready for shipment.

A bill has passed the assembly which will require that all packages of seeded raisins be stamped with the variety of grape from which they are made.

The supervisors of Tulare County are arranging to take over another bunch of state highway bonds in order to secure advancement of good roads work in that county.

A new road is being planned through the Sequoia national park to connect with the new Tulare County road running from Mineral King to Lemon Cove, Tulare County.

Secretary Hibbard of the Raisin Festival committee has invited 36 organizations of Fresno County and the San Joaquin Valley to take part in the great parade on Raisin Day, April 30.

The Corralitos Apple Growers' Association last year handled 150 carloads of apples. To date more than 300 have been promised this season. The association expects to secure a packing house in Watsonville.

Prof. Bioletti of the University of California college of agriculture addressed growers of Reedley Saturday afternoon on mildew control. The address was given under the auspices of the Reedley chamber of commerce.

Farmers of Chowchilla, Mariposa County, recently dedicated their farmers' clubhouse, the auditorium of which has a seating capacity of about 300. The principal address at the dedication was made by Dr. Thos. F. Hunt of the state university.

A pre-raisin-day celebration will be held at the San Francisco Exposition April 28. The Associated Raisin Company will distribute on that day 10,000 loaves of bread and 10,000 packages of raisins in the California building or the Court of Abundance.

The Turlock Merchants' and Growers' Corporation is organizing its business and will soon send out crop contracts for this season. The association expects to handle all products of the Turlock disrict but will give special attention to watermelons and cantaloupes.

Southern California

The Calexico district is having an invasion of woolly worms.

Escondido, San Diego County, is shipping 3000 dozen eggs daily.

There is agitation for the establishment of a cooperative creamery at Escondido.

Tomato growers of Heber expect an early season with little competition from Mexican fruit.

One hundred colonies of bees were shipped from a Rialto apiary to Idaho one day last week.

The Ventura County Game Preserve Association is experimenting with rice planting on its preserves.

Ventura County still has about 300,000 bags of lima beans in its warehouses and 32,000 bags in farmers' barns.

An effort was made to reduce the bounty on gopher skins in Imperial County but the old bounty of ten cents was retained.

The cutting and curing of hay will be the subject of discussion at many of the local meetings of the Ventura County farm bureau.

At Ventura County Day at the Panama-Pacific Exposition lima bean tie pins will be in order. Thousands of them will be distributed.

A petition has been presented to the supervisors of San Luis Obispo County asking that a county horticultural commissioner be appointed.

An immense steel tower to cost nearly $25,000 is to be erected on a prominent peak of the Sierra Madre mountains near Mt. Baldy. It will be an observation tower for detecting forest fires.

Ventura County bean planters are arranging for a contest open to boys and girls of that county for the best plot of lima beans. The winner gets a free trip to the Panama-Pacific Exposition.

The bean contest committee of the Ventura County chambers of commerce will announce prizes and terms of the contest in a few days. Trips to the Panama-Pacific exposition will be offered as prizes.

Entrymen who have filed on lands of the Colorado desert are hoping that a bill passed just at the close of the recent session of the national legislature may enable their holding their lands until they can secure water.

The people of San Diego are showing their neighborly spirit by making up a special train which left that city last Monday for a week in San Francisco at the Panama Pacific Exposition. The San Diego people will go north by way of the valley and return via the cost line.

A very interesting Farmers' Institute was held in Arroyo Grande on the 13th and 14th of April. Five specialists from the state university discussed practical questions. Dairying, hog raising, soils, planting of deciduous trees, beans, septic tanks, sanitation and the marketing of farm products were some of the subjects discussed. The institute was under the auspices of the local Farmers' Union.

The Coast

Texas is already shipping extensively of spring onions.

Texas reports its pecan crop the heaviest yield in five years.

Experimental planting of sugar beets is being made at Klamath Falls, Oregon.

A rancher at Bisbee, Arizona, has started a poultry plant with 1000 chickens.

Cattle shipments from Silver City, New Mexico, for the past year totalled 14,000 head.

The Salt River Valley will grow about 500 cars of lettuce, celery and tomatoes this season.

Chandler, Arizona, will grow about 300 cars of cantaloupes and Glendale, in the same state, about 250.

The Oregon Onion Growers' Association within the past week shipped 26 carloads of onions to Chicago.

The wool market is holding about 20 cents a pound and sheep raisers are much encouraged at the prospect.

Belend is the first town in New Mexico to have a farm attached to its high school for use of the agricultural classes.

Severe frosts recently visited Douglas County, Washington, but as wheat is not yet heading no material damage was done.

The Oregon hop growers have organized a state association and have signed up 80 per cent of the hop acreage of the state.

The Stevensville, Montana, Poultry Association, has decided on December 15-18 as its next show dates and has voted in favor of comparison judging.

The Cochise County Cattle Growers' Association (Arizona) at its recent semi-annual meeeting elected Fred Bennett president and J. T. Hood secretary.

A temperature of 25 degrees in many strawberry sections of Texas caused great losses to growers and it is feared the peach crop is seriously injured.

Oregon's legislature has passed a law requiring all cattle and horse brands to be registered with the state veterinarian. The registration fee will be $1.00.

The college of agriculture at Pullman, Washington, will have a 100 foot addition to its dairy barn. Other improvements will be made to the extent of $40,000.

Idaho has a new bounty law which provides a bounty of $2.50 for each coyote, lynx or wild cat, $10.00 for each bear or wolf and $25.00 for each cougar or mountain lion.

Recently, three transatlantic liners left Texas City, a port on Galveston Bay, loaded with cotton, worth $2,000,000, for Europe. One bound for Bremen carried 10,000 bales, and two for Liverpool, 26,138 bales.

At the recent meeting of the Washington Fruit Growers' Association plans were made for marketing the 1915 fruit and berry crop. J. O. Norton was elected president and A. J. Milem, secretary and manager.

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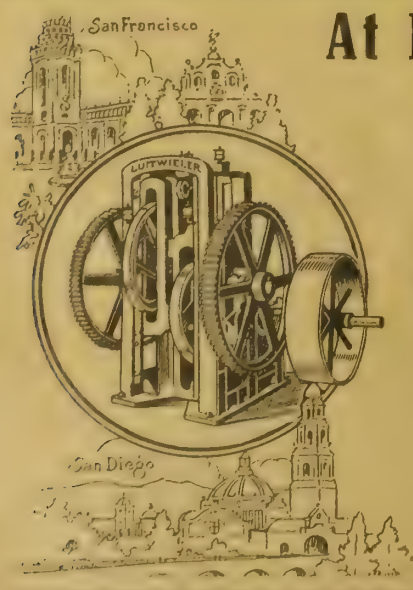

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Live Stock and Dairy

YOLO COUNTY HOG RAISERS AWAKE

THE cooperative movement in Yolo County made necessary because of great losses in swine herds has resulted in a most effective hog cholera fighting organization. From notices in various county papers it appears that every section of the county is fully alive to the need of a cooperative attack on this disease. Circulars are being sent to all hog growers and from some of them we take the following hints:

How Disease Is Started

Practically all of the excretions of a hog sick with cholera are virulent, and when brought in contact with well hogs will produce the disease. Such material is scattered:

By sick hogs, even though symptoms have not appeared.

By hogs exposed but not sick.

By scattering excretions or litter of sick hogs.

By shoes and clothing of neighbors or buyers.

By wagons and tools.

By stock cars used for shipping.

By infected railroad stock yards where hogs are loaded and unloaded.

By merchandise and feed, shipped in cars that have contained hogs.

By hogs brought together in one place, as at state and county fairs.

By streams or canals that drain infected pens or to which infected hogs have access.

By dogs, cats, rabbits, buzzards, crows, pigeons and other animals.

By many other ways that make the appearance of the disease an apparent mystery.

To Prevent Infection

To prevent infection of your hogs, place all newly purchased stock in quarantine for fifteen days, and if possible dip them before turning out. Persons coming from other ranches should disinfect their shoes before entering hog lot. Keep hogs in a dry lot with shade, and away from running streams. Clean up yards and pens, disinfecting after any outbreak of disease. Dip hogs two or three times a year, repeating each time after ten days. Have clean water and clean feed, troughs being built on cement floor or a plank platform raised several inches on the ground and frequently cleaned. Charcoal, salt and sulphur should be kept where the hogs can munch it.

When cholera appears notify the Yolo County Swine Raisers' Association, office Board of Trade, telephone Main 4361.

Another set of rules, or "As a guide for the control of members the following code of ethics has been adopted:"

Section 1—Members of this association are expected to cooperate with the county veterinarian and the state veterinarian and farm adviser in effort to control and eradicate cholera as well as other diseases among swine in Yolo county.

Section 2—Every member of this association, whenever sickness occurs among his swine, which appears to be infectious in nature, shall immediately notify the county veterinarian, and the members of the board of control in his district, of the existence thereof.

Section 3—No member of this association shall allow a carcass of any hog which dies to remain upon the ground, but he shall immediately dispose of such carcass by cremation, if possible; otherwise by deep burial in quicklime.

Section 4—Every member of this association, when sickness occurs in his swine, shall promptly prevent access of exposed or infected animals to any irrigation canal, or other stream passing through his ranch. He shall also avoid drainage of infected pens into any such stream or canal.

Section 5—Whenever cholera appears among the hogs of a member of this association he shall have his swine treated with anti-hog cholera serum, and also thoroughly clean and disinfect all infected yards, pens, etc., with a disinfectant of recognized strength, in order to prevent the spread of the disease. He will also allow a placard to be tacked on a prominent place on the fence adjacent to the entrances to infected areas; such placard shall state in plain language that cholera exists among hogs on his premises, and shall warn all people to keep away from the hog pens thereof.

Section 6—Every member of this association shall prohibit strangers, and especially venders of patent hog remedies, from visiting his pens, and he is advised against the use of these remedies.

Section 7—Every member of this association, whenever disease exists among his hogs, shall refrain from visiting the hog pens of other swine raisers in Yolo County, and shall clean and disinfect his hands and change his clothing and shoes after handling his infected hogs and visiting the infected pens, before he holds any intercourse with any other swine raiser in Yolo County.

Section 8—Whenever it has been determined that cholera exists among hogs of any resident of Yolo County, the president of this association shall urge all swine raisers whose hogs are in imminent danger of infection therefrom, to allow such hogs to be immunized with anti-hog-cholera serum.

Section 9—Every member of this association shall have displayed in a prominent place on a fence near the entrance of his premises, a stenciled sign reading as follows: "Member of Yolo County Hog Raisers' Association —No visitors allowed in hog pens without permission."

Section 10—Every member of this association agrees to see that the rules of this association and its code of ethics, as well as the laws of the county of Yolo and state of California concerning the eradication of hog cholera, are properly complied with by his neighbors, and each member further agrees that when violations of these rules, code of ethics, and laws come under his observation, he will immediately notify the member of the board of control who lives in his district, as well as the president of the association, and also if necessary, the state veterinarian.

Section 11—As hogs which are vaccinated by the serum-simultaneous method for producing immunity against cholera are, in some instances capable of temporarily transmitting the cholera to non-immunized hogs, every member of this association agrees, whenever his hogs are so vaccinated, that he will permit his premises to be placarded as follows: "Hogs on these premises have been vaccinated with virus and serum—no visitors allowed in these hog pens."

Such a member shall also handle his hogs and prevent the extension of hog cholera infection by personally changing his shoes and clothing and disinfecting his hands as provided in Section 7 of this article.

Section 12—The members of this association agree to neither buy or sell any hog that has been included in any infected herd until at least the date such quarantine has been raised by the proper authority.

Section 13—Every member of this association agrees, whenever new hogs are brought onto his ranch, that he will place said hogs in a separate quarantine lot or pen for a period of fifteen days, and that he will dip such hogs in proper disinfectant before turning them with his other animals.

Section 14—Every member of this association further agrees that whenever new hogs are purchased from outside of Yolo County, they shall be placed by themselves for a period of at least thirty days before being turned in with the other hogs.

HOLSTEIN FRIESIAN RECORD BREAKER

I am advised by preliminary reports that the Holstein-Friesian cow Mabel Segis Korndyke 161784 has broken the

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DURING THE ENTIRE YEAR WE WILL MAINTAIN A LARGE DISPLAY OF IMPORTED HORSES AT THE EXPOSITION. THE ONLY EXHIBIT OF PERCHERON STALLIONS AND MARES AT THIS GREAT INTERNATIONAL EXPOSITION.

Every animal in our exhibit has been especially selected and conditioned for this view herd.

Buyers can make selections from these Show Animals, and the animal purchased will be shipped direct to any point in the United States free of charge.

Four Black Rising Three-Year-Olds, All Weighing Over a Ton. From Left to Right, Margio, Monsieur, Militari and Megissieur

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record for fat production in the junior four-year class of the thirty-day division, by producing in 30 consecutive days 135.546 lbs. fat from 2,664.6 lbs. milk. She freshened at the age of 4 years, 2 months, 14 days.—Malcolm H. Gardner, Superintendent Advanced Registry.

WHAT DO YOUR COWS TEST?

Supposing you know one of your cows has a test of 3.4 per cent of fat for the first month she is milking, have you any certainty of what she will test the next two months or the last two? One cow in the herd may keep at that first test for three or four months running, another may give far richer milk the third month, and the test may increase steadily; or again, with two cows both increasing in the test during lactation, one may increase far more rapidly than the other Hence, at the end of the season one cow may have given considerably more fat than another which gave about the same weight of milk.

It will thus be seen that the question of sampling as well as weighing a cow's milk is of great importance. Neither is it sufficient to sample and test the mixed milk of the herd; individual quality is worth study. It should be plainly stated in addition that the times demand more attention being paid to testing, for the simple reason that the general average test seems to be steadily increasing. As milk is valuable in proportion to its cream, or to its test of fat, it is important for the dairyman to know which are his high-testing cows. He may want a specially rich milk for his own table use; he may want an extra good price when selling a high-testing cow; he may want to raise heifers likely to test at least as high if not higher than their dams; so evidently it will pay him to know the test of each cow he owns. It is a simple matter to take samples on three days per month, and get a composite sample tested once a month.—C. F. W.

WHAT IS BUTTER FAT?

Butter fat exists in milk in the form of very small globules which are suspended in the milk and do not occur in solution, says Prof. G. W. Barnes, farm advisor on livestock of the agricultural extension service of the University of Arizona college of agriculture. These fat globules vary greatly in size with the breed of cows. The composition of the fat which makes up these globules determines the quality of butter which may be produced from the milk. Some feeds produce fats in milk which have a low melting point, while other feeds produce fats which melt at a higher temperature. Linseed meal, gluten meal and alfalfa have a tendency to produce a soft butter fat, while cotton seed meal, cotton seed hulls and corn stover produce a butter with a high melting point. The excessive use of cotton seed or cotton seed meal and cotton seed hulls will give butter a tallow flavor, but when fed in connection with alfalfa hay or bran has a beneficial effect upon the quality of the butter in giving it more solidity, due to the higher melting point of the fat produced from it. Butter fat is made up of a number of oils, some of which are volatile and others non-volatile. The volatile oil makes up about seven or eight per cent of the fat, while the non-volatile oil amounts to about 91 or 92 per cent. If butter is melted and poured into a tall bottle, the different fats will separate to some extent and the difference in the fat can be noticed after it has stood for a few days.

The percentage of butter fat in milk is quite variable with different cows, and it also varies more or less from day to day in the same cow. A cow usually gives a very poor quality of milk for a week or two after calving; then the butter fat becomes practically normal and remains so for a period of four or five months, after which it increases somewhat in the richness of butter fat. It will also vary more or less between the first and last milk drawn each time the cow is milked; the first milk is somewhat low in butter fat, while the very last drawn from the udder will be very rich. Any undue excitement of the cow will have a tendency to disturb the percentage of butter fat in the milk. A dog running through the barnyard and chasing the cows, an irritable attendant who makes a great deal of unnecessary noise, a change of milkers or a change in the weather, may be the cause of the variation of the percentage of butter in the cow's milk. The longer between the milking periods the lower the per cent of butter fat, but the more milk; the shorter between milking periods the higher the per cent of butter fat, but the less milk.

Such variations when they do occur will usually be accompanied by a decrease in the flow of milk at the particular milking. The change of feed might produce a temporary variation in butter fat percentage, but it is impossible to produce a permanent variation in the butter fat by any change in the feed the cow is getting. In other words, it is impossible to increase the per cent of butter fat in a cow's milk by increasing the amount of grain in her ration. It should be remembered, however, that an inincrease in the feed will usually result in an increase of the total amount of milk produced and consequently give an increase in the total amount of butter fat.

GUERNSEY ADVANCE

The first Guernsey cow to enter the advanced register was Glenwood Girl VI, who commenced her record in May, 1900, and completed it in April, 1901. During that time she produced 12,187.33 pounds of milk and 572.30 pounds of butter fat.

The first cow to enter with over 600 pounds of fat was Portia of Maplehurst, who completed her record of 11,622.65 pounds of milk and 602.37 pounds of butter fat in June, 1902, practically one year after the first cow entered the advanced register.

In the July, 1911 issue of the Guernsey Breeders' Journal appears a list of the cows with over 600 pounds of fat to their credit, and there appear in this list the names of forty-one cows, which means that from April, 1901, until July, 1911, a period of ten years, there were forty-one cows who made records of over 600 pounds of butter fat.

There was recently compiled by The American Guernsey Cattle club a list of cows which had entered the advanced register with over 600 pounds of fat in the last year. This list included cows entering the advanced register covering a period from Nov. 15, 1913, to Nov. 15, 1914, and totaled up sixty-one cows, or in other words, twenty more cows have entered the advanced register in the past year with over 600 pounds of fat than entered with this amount in the first ten years of advanced register work in the Guernsey breed.—A. G. C. C.

PRODUCTION COST

Investigations made by the college of agriculture of the University of Missouri show that on 14 farms the average cost of keeping a work horse a year was $88.23. This cost was divided as follows: Feed, 77.4 per cent; labor, 10.7 per cent; miscellaneous, 11.9 per cent.

It was found that the average cost a day for horse labor was 7.9 cents. This cost varies with different months, being 5.2 cents in May and 15.9 cents in February.

The following table gives the hours of labor required to produce an acre of various crops:

Crop	Man hours	Horse hours
Corn	23.92	42.32
Oats	10.83	19.48
Wheat	11.78	21.37
Soy Beans	24.73	36.31
Cowpeas	24.25	40.06

The dollar cost of producing some farm crops was found to be as follows: Corn $13.52, oats $10.87, wheat $12.30, clover $8.10, cowpeas $13.60, soybeans $13.53.

The cost of keeping a milk cow for supplying home needs only was found to be $47.95. This was apportioned to feed, labor and miscellaneous in the following proportions: Feed, 55.92 per cent, labor 37.66 per cent and miscellaneous 6.42 per cent. The cost of

LOOKING for REGISTERED HOLSTEINS?

Of the Highest Quality and of Faultless Conformation

THEN DON'T MISS THE

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75 — Registered Holsteins — 75

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They are bred in the highest producing strains and include the highest record cows ever offered at public sale in the West, including White House Belle, 660.2 lbs. milk, 29.27 lbs. butter seven days; Alba Sadie Cornucopia Creetia, 612.3 lbs. milk, 28.85 lbs. butter seven days; a 20-lb. 4-year-old; an 18-lb. jr. 2-year-old.

A great lot of bulls to head your herd. They are faultless individuals, young and well marked and second to none in breeding.

A noteworthy feature of this sale is the fact that nearly 20 cows and heifers will be in calf to TILLY ALCARTRA SON, the famous young herd sire of McAlister & Son's herd, a son of the only cow to make over 30,000 lbs. of milk in one year.

TERMS: $500 and under, cash; over $500, one-third cash; balance, in three equal payments in three, six and nine months' time, with note and approved security and 8% interest. 5% discount for cash on time sums.

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Located one mile from street car line and Santa Fe R.R., new stand alfalfa on virgin soil, Riverside domestic water and 1200 feet underground vitrified pipe connecting with Riverside irrigating water system. Will cut 350 tons hay this season. Ranch is bounded by 10-year-old walnut trees, has a 5-room house, barn, outbuildings and fruit.

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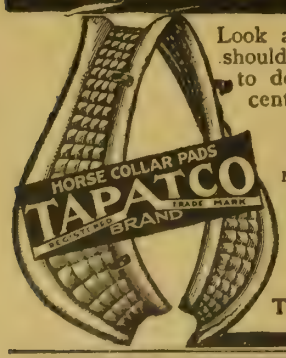

Look at the sore on that horse's shoulder! How can you expect him to do a full day's work? A few cents will cure him or prevent these sores. TAPATCO Pads will

Keep Your Horse at Highest Working Power

Made from start to finish right in our own immense factory. Filled with our own Special Composite Stuffing. Light, soft, springy and very absorbent. No dirt; no trash; no short, cheap, limy hair with hide attached to attract rats and mice. Put TAPATCO Pads on your horses when you take them out in spring and you'll have no trouble from galled shoulders or neck.

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LAND: Level, clean, strong; no brush or stumps; ready for plowing; between two railroads and within 1½ miles of stations on Southern Pacific and Western Pacific. In the Upper Sacramento Valley.

SOIL: Deep San Joaquin loam.

WATER: Unlimited water at 20 to 25 feet.

EQUIPPED: with a plow, a harrow and a cultivator, a pumping plant complete, trees and seed.

SPECIAL: This land is absolutely above all flood from rivers; the titles are clear and guaranteed; there is no bonded indebtedness; there are no reclamation or irrigation assessments. This is clean, strong land without incumbrance of any kind.

DUDLEY MOULTON

Expert of Agricultural Lands

Twelfth Floor First National Bank Building, San Francisco

keeping a cow on a dairy farm was $85.10.

The cost of keeping a brood sow a year was $25.91. One farmer was able to reduce this cost nearly one-half by using winter pasture crops.

The cost of keeping a hen a year under farm conditions was 65.7 cents.

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Barley Beards

One of our cows has a swelling under her jaw. It seems to be in the inner side, under the tongue. She eats and chews her food and seems in good health. Has started to slobber a little. Can this be lump jaw or fox tail?

The trouble must be due to barley beards or the beards from the fox tail grass as, from your description, it only affects the soft tissues.

Lump jaw (Actinomycosis) always attacks the bone and causes an enlargement of the jawbone. It may be that the opening in the mouth where the trouble started is not closed. In that case a little food or saliva will find its way into the opening occasionally and keep up the irritation. The canal through which the beards follow should be washed out thoroughly and tincture of iodine injected through it two or three times a week. If the inner opening is once closed it should heal in a short time. As long as the bone is not affected you can feel pretty safe in using the milk.

Tumor

I have a grey mule about ten years old with a growth on her rectum about the size of a lemon, with a cord that leads back along the rectum. This started about four months ago but never has discharged any pus. I have been feeding alfalfa hay and she is in good condition. The local veterinarian has pronounced it cancer.—Subscriber.

I am inclined to think it is an hemorrhoid or melanotic tumor. Either one is not so very serious. Cancer is very uncommon in animals. Tie a cord around it very tight at the base and if it does not drop off in a few days tie another around tighter. Gray animals are most inclined to melanotic tumors.

Rheumatism

Five-year-old cow had her third calf about two weeks ago. She is stiff and drags her hind legs. She always has good appetite and gives plenty of milk. When eating she can hardly bend over and she is always groaning. Some say she has kidney trouble, and we sent for some medicine for the kidneys but it seems it is not doing her good.—Subscriber, Morganhill.

Pains that can not be located are usually called rheumatism and often yield to rheumatic remedies. Try giving her the following powders: Powdered gentian, six ounces; powdered nux vomica, three ounces; bicarbonate of soda, four ounces. and salicylate of soda, three ounces. Mix and give a large tablespoon once a day.

Leaking Milk

Is there any way to prevent a cow's teats (which have been dilated) from leaking?—Subscriber, Visalia.

Great care should be exercised in dilating the teats to avoid overdoing it, but even if they are stretched a little too much they will usually contract again in a short time. If it continues until she is dry at that time a slight gash with a sharp knife across the end of the teat will form a small scar that will close it all right.

Warranted to Give Satisfaction.

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Has Imitators But No Competitors.

A Safe, Speedy and Positive Cure for Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

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IS THE RELIABLE METHOD FOR PREVENTING

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HOG CHOLERA

AND ALL OTHER CONTAGIOUS DISEASES.

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The Standardized, Reliable Dip and Disinfectant.

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20 choice registered, tuberculin tested Shorthorn Bulls, 14 to 20 months old; all are good individuals, some are of show class type and of fine breeding. Call or address

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Use any injector, but Cutter's best.

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Thoroughbred Poland China Swine
High Grade Stock of Best Strains.
Young Stock For Sale
M. BASSETT Hanford, Cal

Poultry for Profit

A POULTRY SHOW FOR EXHIBITION PENS ONLY

The Poultry Breeders' Association of Southern California held the first exclusive Exhibition Pen Show ever held in Los Angeles, April 15, 16 and 17 at 409-411 South Hill Street.

The members of the association are true fanciers, and whenever a show is held they are willing to put a shoulder to the wheel and make it a success, and the Exhibition Pen Show was anything but an exception to the regular annual events.

For the time of the year the 28 exhibitors brought out over 50 exceptionally fine pens of birds. All varieties were well represented, including bantams, turkeys and ducks. The Rhode Island Reds with eight pens led in numbers, while the Cornish Indians and Barred Plymouth Rocks tied for second place with six pens.

A large display of fancy pigeons, Guineas, Silkies and Novelty Bantams were entered for exhibition purposes only and added quite a little to the attractiveness of the show.

The coops were neatly arranged and each pen of five birds was assigned to two double coops instead of one double coop as is the case in most shows.

All the specimens shown were in excellent feather, considering the time of the year, and their condition was equal to that of any birds in the big winter shows. The usual old time breeders were on hand and enjoyed a middle of the year gathering.

Credit is due Walter M. Ross of Glendale for the manner in which the show was conducted and for its success, for it paid out well and the attendance was larger than was expected. The supply house, real estate, magazine and other booths helped materially in defraying expenses and also added to the attractions. Ribbons of appropriate design were placed on the winners and the selection of the prize winners was handled by Judges J. L. Harrison, A. G. Goodacre, Geo. E. Masterson, E. E. Emmerson and N. E. Luce. Each was assigned classes and was loud in his praises of the quality of stock shown.

Following is the list of awards as handed in:

Cockerel bred—Barred Plymouth Rocks—1, Goodacre Brothers; 2, Frederick Espe.

Pullet bred — Barred Plymouth Rocks—1 Frederick Espe; 2, W. P. McPherson; 3, Goodacre Brothers.

White Plymouth Rocks—1, A. A. Bamford.

Partridge Plymouth Rocks—1, H. D. Armstrong.

White Wyandottes—1, and 2, M. D. Cartwright.

S. C. Rhode Island Reds—1 and 2, J. L. Harrison; 3, L. A. Schmoeger.

R. C. Rhode Island Reds—1, Lester Payne.

S. C. Black Minorcas—1, Mrs. W. D. Root.

S. C. Buff Minorcas—1 and 2, William P. Williams.

Silver Campines—1, N. E. Luce.

Buff Orpingtons—1 and 2, W. J. Stewart; 3, Goodacre Brothers.

White Orpingtons—1, W. J. Stewart.

Partridge Orpingtons—1, Goodacre Brothers.

Black Langshans—1 and 2; William T. Blakely.

Light Brahmas—1, Fanciers' Exchange.

Golden Sierras—1, Goodacre Brothers.

Speckled Sussex—1, Mrs. C. L. Waring.

Dark Cornish—1, 2 and 3, John D. Mercer.

B. B. Red Game Bantams—1, Fowler & Masterson.

Black Cochin Bantams—1, W. J. Stadlman.

Bluette Bantams—1, Dr. G. Irwin Royce.

Pekin Ducks—1, Mrs. Mary I. Anderson.

Bronze Turkeys—1 and 2, Charles G. Weaver.

POULTRY ASSOCIATION

Poultry producers of Sacramento County recently organized the Sacramento Poultry Producers' Association, the purpose being to raise the standard of egg production and to educate the public as to the different between eggs produced under sanitary conditions and those not so produced. George H. Croley of San Francisco, president of the California Federation of Poultry Associations, addressed the meeting.

Morris Brooke was elected temporary president and W. E. Harris, secretary. Forty-eight members have been signed by the association, representing about 70 per cent of the poultry industry in the county. The following committee on permanent organization was named: C. T. Horgen, L. T. Nillsen, Mrs. J. E. Dunn, Edward Klose and Mrs. A. Mull.—Sacramento Union.

POULTRY QUERIES

Locating Turkey Ranch

In selecting a location for a free range turkey ranch would you recommend the Sacramento Valley with its early and late rains and heavy dews or would you prefer the Imperial Valley with its extreme heat and dry climate? Would there be as much insect life in the latter location? Can you suggest any certain location which is favorable to the truk?—Subscriber, Merced.

If I were selecting a location for turkeys I would choose neither extreme of damp or dry, but the good middle ground of nice rolling foothill land, preferably with some trees and a brook or two. This is merely my preference, however, for, barring the fact that poults are quite susceptible to dampness, turkeys do well almost anywhere in California. I have heard of their being raised with great success in Imperial Valley where lack of natural green feed must be something of a drawback, in Victor Valley, Antelope Valley, San Fernando Valley, on the wheat fields of the San Joaquin Valley, in the interior valleys of San Diego and Los Angeles Counties, almost everywhere, in fact, except in marshy river bottoms. I think you would not make a mistake in selecting hillside land anywhere, but it must be land where you have water enough to raise plenty of green feed, for California hillsides are not very green in summer, and the turkey needs lots of green. The main thing is to have plenty of range and to see that your turkeys roam about and hunt for their food instead of sitting down and waiting to be fed.—J. A. K.

Turkey's Foot Swollen

We have a turkey with one foot greatly enlarged in several places. We've lanced it but no pus came out although it felt feverish. Can you tell us what it might be and what to do for it?—Subscriber, Springville.

I think your turkey's foot has been either bruised or punctured by a sliver or perhaps a bit of glass. Sometimes a witch-hazel compress will relieve the soreness and scatter the swelling. You will need to bandage the foot securely, but not too tightly, and to keep it wet with the witch-hazel for a day or two. If there is poison in the wounds, however, you will probably have to use a poultice to draw the swelling "to a head." Antiphlogistine is good for this purpose or an ordinary bread and milk poultice. When you have drawn it to a head, lance and cleanse thoroughly with peroxide and apply any good antiseptic ointment. Any treatment you would use in your

(Continued on Page 503.)

Tells why chicks die

E. J. Reefer, the poultry expert of 905 Main St., Kansas City, Mo., is giving away free a valuable book entitled "White Diarrhoea and How to Cure It." This book contains scientific facts on white diarrhoea and tells how to prepare a simple home solution that cures this terrible disease over night and actually raises 98 per cent of every hatch. All poultry raisers should certainly write Mr. Reefer for one of these valuable FREE books.

Don't be deceived by appearances. The ground mica in

MICA AXLE GREASE

forms a silvery coating that makes the spindle appear dry and shiny. But this coating is slippery to the touch, for ground mica is a good lubricant in itself. It clings to the spindle and makes easier turning. That's why a little Mica Axle Grease goes a long way. Dealers everywhere.

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WHITE LEGHORNS, BLACK MINORCAS AND R. I. REDS OUR SPECIALTY.
Our Chicks are hatched in the
BEST VENTILATED HATCHERY IN CALIFORNIA.
INSTRUCTIONS HOW TO RAISE CHICKS FREE.

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Don't Forget

That care in selecting the grain you are going to feed your baby chicks will save you lots of trouble and loss. The ingredients of

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Special Chick Food

are very carefully selected to give the best results.

Only strong wheat, sound corn, kiln dried steel cut oats and carefully selected seeds are used in its composition.

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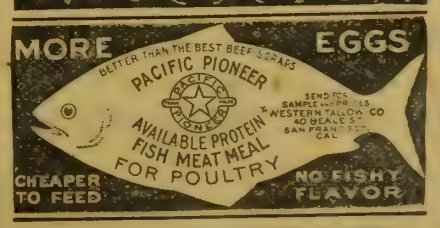

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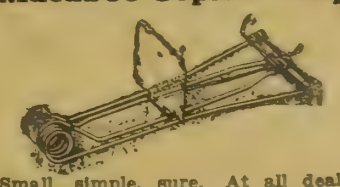

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TREES

Lease Expires Next Spring—Must sell. Have left about 2,000 Eureka lemons, three-quarters inch and up, buds selected from trees producing heavy crops of fancy fruits. 2,500 Valencia Late five-eighths inch up, 2,000 Marsh Seedless grapefruit five-eighths inch up. These are stocky and especially adapted for desert planting. Will sell with loose roots or balled. Prices as follows for loose roots: Eureka lemon, three-quarters up, $16.00 per hundred; Valencia Late, five-eighths up, $15.00 per hundred; Marsh seedless grapefruit, five-eighths up, $15.50 per hundred. All information cheerfully given. E. J. Van der Sluis, Glendora, Cal.

For Sale—10000 VALENCIA LATE
5000 MARSH SEEDLESS GRAPEFRUIT
8000 EUREKA LEMONS
12000 WASHINGTON NAVELS
Softland trees, perfect in quality, grown by us. Lowest price. Will plant if desired. Consider some exchange—now is most favorable time to make contract for next spring planting. Write or phone today for prices. Phone 559. Ward Realty Co., San Dimas, Cal.

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The Avocado is the most valuable of all fruits and the most important future industry before the people of California today. Vigorous, field-grown, budded trees of standard frost-resistant variety; from four to seven feet high, $2.00 to $3.00, according to size. Write for literature. W. A. Spinks, Duarte, Cal.

Cheap Reliable Trees—4,000 Phillips' Clings; also Tuscans, Fay Elbertas, French, and Imperial prunes, 10,000 Bartletts, 8,000 Gravensteins, Grafted Walnuts and other stock cheap. Write or wire for just what you want. Will save you money. Table Grove Nurseries, Healdsburg, Cal.

Very Fancy Citrus Stock—Eureka lemons, Valencia and navel oranges and grapefruit. Very strong one and two year old trees, heavy root growth. Very low prices. Get our quotations for any quantity wanted. Smith Citrus Nurseries, 619 Oakland avenue, Pasadena. Colorado 4089.

For Sale—20,000 budded orange trees and lemon trees averaging one-half to three-fourth inches at 10c apiece as they stand. Will give plenty of time to remove trees. Also 150,000 sour seed bed stock at your own price. B. W. Bosbey, 2116 Cedar St., W. Alhambra, Cal. Phone 332-R.

Buy Fruit Trees Direct From the Grower—Phillips & Tuscan Clings, 4 to 6 ft., 14c; 3 to 4 ft., 11c. Rome Beauty, Winesap, etc., 5 to 10c; all choice. Best time for planting. Julius Mayr, Tree Grower, Hemet, Cal.

Prices Reduced—Ganter and Harman Avocados, 4 to 7 ft., extra fine field grown trees with large, even heads; on rented ground and must be sold. Our prices will surprise you. Citrus also reduced. Magnolia Nursery, Whittier, Cal.

For Sale—2000 Late Valencia Orange trees, two years from bud. 1800 Washington Navel, one year from bud; A1 stock. Address H. H. Eshelman, Soldiers' Home, Cal.

The 1200-Acre Nursery, growers of 1500 varieties of trees and plants. OREGON NURSERY CO., Orenco, Oregon. Sales office, 522 Chamber Commerce, Los Angeles, Cal.

Two-Year-Old Eureka Lemons—Washington navels and Valencia buds, any amount, 24c loose root or 35c balled, f.o.b. Harman Avocado buds, $1 to $2.50. 3 to 6 ft. Box 331, Glendora, Cal.

For Sale—Finest Valencia and Washington navel trees in the country, 20c loose roots, 25c balled f.o.b. Small orders promptly filled. B. C. Dodson, Glendora, Cal.

Seedless Grapefruit—Limited number of fine trees, propagated from a tree brought from Florida. A superior type of Marsh's Seedless. Send for circular. G. W. Sherwood, Fullerton, Cal.

10,000 Valencia Orange Trees, ⅝ and up. Superior stock from carefully selected buds. These trees at your own price. Will trade. Twombly Ranch & Nursery Co., Fullerton, Cal. Phone 158-J3.

Very Fine Sweet and Sour Orange Seed-Bed Stock — PRICE REASONABLE. MIGHT TRADE FOR GOOD AUTO OR TEAM. ORANGE COVE NURSERIES, OROSI, CAL.

Eucalyptus—Orders filled by flat or carload. Correspondence invited regarding quantity and variety. Stratton's Nurseries, Petaluma, Cal.

The Walnut Nursery still has a few Eureka, Chase and Mayette grafts. Order quick. W. A. Litten, Prop., R. F. D. No. 2, Whittier, Cal. Home phone 7863.

A Bargain in first-class Navel, Valencia and Lemon trees. All strong, healthy, vigorous stock. Get my prices before ordering. A. G. Wright, Fullerton, Cal.

For Sale—Eureka Walnut Trees, budded on Native Black Walnuts. Choice stock. Order immediately. Don't delay. Wm. Holve, Fullerton, Cal.

100,000 Citrus Trees—Choice Seedlings and Buds. Wanted, a budder. Butler's Morning Side Nursery, Lamanda Park, Cal.

For Sale—Field-grown budded avocados, Harman, Ganter, Taft; 2 feet to 7 feet high, $1.00 to $3.00. Home Phone 444. A. B. Rogers, Glendora, Cal.

For Sale or Trade—Sour seed bed stock, 12 to 30 inches. Truman Cole, Montebello, Cal.

For the best Orange, Lemon and Grapefruit Trees write us. J. S. Killian, El Monte, Cal.

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TREES

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Spineless Cactus—Strictly first class. Very reasonable prices. The real thing—not slabs with the spines brushed off. You can save money by writing to me. Nick Kass, Lincoln, Cal.

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For Sale—Yellow sweet potato plants, $1.50 per thousand F. O. B. Santa Ana, Cal. S. D. Teel, R. D. No. 3, Box No. 8, Santa Ana, Cal.

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Wanted—Man or woman who has had practical experience in gardening and intensive cultivation, to deliver a short informal talk one evening of each week before small gatherings. We will pay well for your services. You must be able to give facts and figures, tell what you've done and how you've done it. Address A. Cultivator Office, Los Angeles.

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POULTRY

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At Five California Shows I won 112 firsts, 55 seconds, four times best bird in show and many specials. Utility and show stock. Eggs and chicks of Black, Buff and White Orpingtons, Rose and S. C. Reds, White and Blue Leghorns, Silver Campines, Anconas, Salmon Faverolles, Polish and Cornish Games. Free mating list. Holman Poultry Farm, Stockton, Cal.

Baby Chicks—Rhode Island Reds and White Leghorns. My guarantee safe arrival, full count, strong, vigorous; fine bred chicks, Leghorns, $9.00 per 100. Will lay in five months. Reds, $11.00 per 100. Will lay in six months. J. W. Lyon, Gardena, Cal.

Barred Plymouth Rocks—Winners at New York and California's leading shows. Laying strain unequalled. Eggs for hatching from seventeen Champion matings. Eighteen years breeding Barred Rocks exclusively. Write for catalogue. C. H. Vodden, Los Gatos, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. National Poultry Co., 607 E. Third St., Los Angeles, Cal.

Eggs and Chicks from prize winning birds, Golden Buff Orpington and Barred Plymouth Rocks. Excellent winter layers at reduced prices. K. L. Kirby, Oakdale Poultry Farm, R. D. No. 2, Watsonville, Cal.

S. C. White Leghorn Baby Chicks and Hatching Eggs that are Top Notch. Write for particulars. Prices reasonable. Ten years in business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

Petaluma Hatchery—The one that's different. We challenge the hen, or anybody else. Don't compare prices, compare quality. Circular free. L. W. Clark, Petaluma, Cal.

Ancona Eggs—Select stock, $1.50 per 15, $6 per 100. Baby chicks 15c each. Mammoth Pekin Duck Eggs, $1 per 12, $6 per 100. Baby ducks 20c each, $17.50 per 100. J. P. Clough, 3980 Peralta Ave., Fruitvale, Cal.

Safety First—Feed your baby chicks Croley's Dry Mixed Chick Feeds manufactured by Geo. H. Croley Co. Inc., 631-637 Brannan St., San Francisco, Cal.

Chicks—Day old chicks from my healthy, vigorous, heavy-laying free-range stock of S. C. White Leghorns; price $6.50 per hundred. R. P. Hansen, R. 4, Box 177, Petaluma, Cal.

White Rock Incubator Chicks, $15.00 per 100. High class stock. Healthy, vigorous and splendid layers. The best all purpose fowl. Mahajo Farm, P. O. Box 597, Sacramento, Cal.

For Sale—Baby Chicks, Wyckoff White Leghorns, $9.50 per 100; $45 per 500; early delivery. Oswald Miller Robertson, THE ARLINGTON HATCHERY, Arlington, Cal.

White and Brown Leghorn Chicks—Good stock. Also Rocks and Reds. Prices reasonable. Write, James D. Yates, Poultry Judge, Modesto, Cal.

Baby Chicks—If looking for the best—get Golden Buff Leghorns or White Minorcas. Sandridge Hatchery, Kerman, Cal.

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Goodacre Blue Ribbon Strain of heavy layers. Send for 1915 catalogue. Twelve First prizes at Los Angeles show, Jan., 1915. Goodacre Bros., Compton, Cal.

Pit Games—A few choice specimens for sale. Write for prices. Delivered your station. O. L. Crane, R. D. 8, Santa Rosa, Cal.

For Sale—Ground Chile Pepper, the finest grade, $5.00 per hundred. Any quantity. J. E. Hathaway, Norwalk, Cal.

For Sale—Barred Rock Cockerels, also Barred Rock, R. I. Red, Anconas, Buff and White Orpington chix. Enoch Crews, Santa Cruz, Cal.

MACHINERY

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6 H. I.H.C. complete mounted saw.
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For Sale—1 H.P., 2 H.P., 5 H.P., 8 H.P., 12 H.P. and 24 H.P. gas engines; dirt cheap for cash; other machinery of every description bought and sold. Buttress & McClellan, 738 New High, Los Angeles. Broadway 8098.

MISCELLANEOUS

Free for Six Months—My special offer to introduce my magazine "INVESTING FOR PROFIT." It is worth $10 a copy to anyone who has been getting poorer while the rich, richer. It demonstrates the REAL earning power of money, and shows how anyone, no matter how poor, CAN acquire riches. INVESTING FOR PROFIT is the only progressive financial journal published. It shows how $100 grows to $2200. Write NOW and I'll send it six months free. H. L. Barber, 430, 28 W. Jackson Blvd., Chicago.

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For Sale—Tree Sacks, Wood Sacks, Potato Sacks, Coal Sacks, Barley Sacks, Bean Sacks, Flour Sacks, Sugar Sacks. Write for prices stating quantity wanted. Los Angeles Sack Co., Chris Haag, Prop., 348 Aliso St. Phones Main 1285—F-7288. Los Angeles, Cal.

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"Smith's Pay the Freight"—To reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St., San Francisco.

HORTICULTURAL PRINTING

Catalogues for the seed and nursery trade. The live stock and poultry industries are a specialty with us. Two thousand illustrations to select from. Write for prices and samples. The Kruckeberg Press, 237 Franklin St., Los Angeles.

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Ohio Improved Chester White (O. I. C.)—Entire herd immunized against hog cholera. Nothing but immunized stock sent out. Extra fine lot of fall pigs, both sexes, ready for shipment during February and March. Three herd boars used. All stock crated and registered. Make reservations now. C. B. Cunningham, Mills, Sacramento Co., Cal.

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Poland Chinas—Young stock; either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

Glenview Poland China—Stock for sale. Chas R. Hanna, R. F. D. No. 3, Riverside, Cal.

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Stearns' Turkeys—Won 19 first prizes at Los Angeles in January—more than all other turkey entries put together. Bronze, Black and White Holland eggs, $3 to $5 a dozen; Buff and Narragansett, $4; Blue and Bourbon Red, $5. M. M. Stearns, Claremont, Cal.

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Beekeeping—Instruction book free—explains honey productions, profits, prices, supplies, bees and management without stings. Spencer Apiaries, Iris Avenue, Nordoff, Cal.

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For Sale—Palo Verde Valley land, improved or unimproved, located in Riverside County, on the Colorado River; fine dairying, stock and hog raising country.

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Railroad is being built into the valley. Now is the time to buy land, before the railroad is completed and prices advance.

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Special inducements; government land, railways, free schools; cheap irrigation; 31 years to pay for farms adapted to alfalfa, corn, grains, fruit, etc.; climate like California; ample markets; reduced passages; special excursion being arranged. Free particulars from F. T. A. Fricke, Government Representative from Victoria, 687 Market St., San Francisco, Cal., Box X.

For Sale—16-acre apricot orchard, trees mostly two years old. Soil a fertile, sandy loam, not steep, no frosts or winds; small house; good spring. Situated one and one-half miles from town on County road. Price $3500.00. Terms $1500.00 cash, balance long time and easy payments. No exchange. Direct communications to J. J. B., Rural Route No. 2, Watsonville, Cal.

For Sale—800 acres of fine valley land, situated in Santa Maria Valley near the town of Ramona. 30 miles from San Diego, 10 miles from a railroad. The soil is especially adapted to the growing of figs, olives, peaches, plums, grapes, oranges and many other crops; for particulars apply to owner. F. J. Etcheverry, Ramona P. O., San Diego Co., Cal.

For Sale—20 acres, Yolo County. Near State Farm at Davis. I will furnish alfalfa, beans and corn seed, also necessary farm implements. Plant now for the season's crop. See alfalfa and berries growing on the land. Dudley Moulton, 12th Floor First Nat'l Bank Bldg., San Francisco, Cal.

County Sectional Maps—Showing vacant government land, $2.50 any county. VERY PLAIN. Easy to see and select your choice. Booklet and circulars FREE. Write Joseph Clark, Searcher of State and U. S. Records, Sacramento.

For Sale—Stock ranch; fine grazing the year round. Well located. For a bargain investigate this. For snaps in ranches see my list. Miss McCrea, 207 Delta Bldg., Los Angeles.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

For Sale or Exchange—Ten acres planted to two year old Valencia orange trees, at North Whittier Heights. Will consider trade for vacant lots. Box 54, Glendora.

For Sale—10-Acre Ranch near Riverside. If you want a bargain address OWNER, 330 W. Randolph St., Huntington Park, Cal.

For Sale—Orange, olive, peach and rice land. Close in, on good terms. Fred Hart, Exeter.

Queries

Morning Glory in Garden

Part of my garden has wild morning glory in it. We have been trying to kill it out, but have not succeeded. —Subscriber, Waukena.

The best remedy for morning glory, especially in a garden, is persistent, almost daily cultivation. To do that one must grow crops which will permit clean culture of nearly all the surface. If preferred to smother the morning glory and let the land lie idle for a time, then cover with several loads of manure, sufficient to give a depth of three to four inches. Morning glory will not live long once it is prevented from reaching air and light. For that reason clean cultivation accomplishes its eradication in a short time.

No Inspection

How should one proceed in shipping grafts or buds into a county where there is no horticultural commissioner and no inspectors?—Subscriber, Vacaville.

A certificate of inspection should be secured from the inspector or horticultural commissioner in the county from which shipment is made. We take it if there is no inspector in the county to which the shipment is made that the railroad company would deliver without any further inspection.

Yellow Leaf of Roses

Kindly advise me what to do for roses where the leaves turn yellow. What is the cause of this trouble?—Subscriber, Bakersfield.

Yellow leaves in a plant are like a pale face in a human being, an indication of some trouble. But like the physician who treats the human the plant doctor cannot prescribe with no more definite information than is given in this question. There is nothing to indicate any fungous trouble, but it is barely possible the scattering of flowers of sulphur over the leaves would aid in controlling any mildew or other fungus, then thorough pruning, followed by spading, fertilizing and general improvement of the condition of the plant would no doubt prove beneficial. Of course, if by yellow leaves the subscriber means a yellow dusty fungus growing upon them, then it is a case either for destruction of the plant or spraying with Bordeaux or other fungicide.

A Foreigner for President

What would the people of the United States do if a man born in foreign lands of American mother and alien father should become president? —Subscriber, Hemet.

The constitution of the United States requires the president to be a native-born citizen, not under 35 years of age, and for 14 years a resident of the United States.

Marketing Belgian Hares

An inquirer desires information regarding shipping Belgian hares to market and the form in which the trade prefers to receive them. We have answered that as a general thing the trade prefers to receive them alive in coops. However, the question was submitted to Mr. R. V. Moore and he answers: "I notice the raisers of hares have no special way of marketing. Some send in crates alive, while others send dressed in sacks. They are killed by hitting them behind the ears with a club, then their throats are cut and they are hung up to bleed a few moments. After that, split the breast lengthwise, taking out all the intestines, leaving only the liver, as well as the skin and head. They are then usually left hanging on nails stuck through the hocks of their hind legs (heads downward) overnight to cool off, before being consigned to market in sacks. It is never advisable to skin before sending to market, as the carcasses dry out and do not look fresh when placed on the sale counters of stores."

Feeding Catfish

We have an excavation which perhaps is too large to call a well. It is 30x18 feet, with a depth of about 20 feet. About a year ago we put in twenty-two catfish. In the early spring there were many small fish, but in a short time they disappeared. Will fish eat their own young, and if so, what can we feed them so we may raise the young ones? Have screen over the pump, which we use to draw water from this supply. The fish which we originally put in the pool have grown rapidly. — Subscriber, Murrietta.

We take it this pool has clean gravel sides and presume there is but little natural feed. If it were more shallow, and water lilies, reeds or natural growth were permitted in the water there would be an abundance of feed, so that it is probable the young would not be eaten. In the absence of these, it would be necessary to feed, and our experience in this matter is not sufficient to enable us to give very definite information as to how it could be done economically. There is a prepared feed for gold fish, and for them bread, rolled oats and similar feeds have proved satisfactory. If any of our subscribers have had experience along this line we will be glad to hear from them. Also regarding the screen over the suction pipe, we may add that it should be very fine to prevent young fry from being drawn in and thrown into the irrigation ditch.

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Screw Casing
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Guaranteed for Pressure

Pacific Pipe Co.

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Advertisements in California Cultivator are Guaranteed
See Announcement at Head of Editorial Page

The Household Department

A GOOD TIME COMING

By Emma A. Lente

Oh, the sweet fields, the dear fields,
that we shall wander over;
The meadows we shall ramble through
knee-deep in fragrant clover,
Where buttercups will lavish gold all
along our way,
And the sun will shine with fervor all
the long, glad day.

When the birds will sing at dawn,
their hearts with joy a-quiver,
And the silver mists drift up from
the long length of the river;
When the lilac and the lily and the
glory of the rose
Make a Paradise of gardens, where
the richest color glows.

When the wind is from the south and
the soft showers fall,
And the leaves are all a-glisten, and
the sleek robins call
To mates and nestlings listening, that
the world is very fair,—
Oh, the good time coming; and would
that we were there!

RAISIN DAY, APRIL 30

ALL California will celebrate Raisin Day on April 30. The city of Fresno has been the center of the Raisin Day movement, but we all join heartily in honoring this, one of our richest and most characteristic products. Cultivator readers here offer a number of ways in which it may best be used and most appreciated.

Raisin Bread

Roll raisins in flour to insure even distribution. Soak one yeast cake in 1½ cups of potato water; mix enough flour to make a stiff batter; beat five minutes. Let stand over night. In the morning scald two cups of sweet milk, in which put one rounded tablespoon lard, one tablespoon salt, three tablespoons sugar. When milk is lukewarm mix with the yeast; add enough flour to make a stiff batter; beat about 10 minutes; let rise; when sufficiently raised, add one package of seeded raisins; mix; add more flour and knead until dough is smooth; let rise. Make into loaves and bake one hour. When baked, wet top of loaves with sugar and hot water to prevent the crust becoming hard.—Grace Robinson, Santa Paula.

Fruit Cake

Four cups seedless raisins, two cups sugar, two full teaspoons of cinnamon, one level teaspoon each of cloves and nutmeg, two-thirds of a cup of shortening and two cups of hot water. Put on stove and let boil 10 minutes. Remove from stove and let it get cold or even cool will do. Then add the following: One-half cup of cornstarch, 3½ cups flour. Sift in with flour one rounding teaspoon of baking powder and two level teaspoons of baking soda. Add last 1½ cups of English walnuts. Bake in a moderately hot oven for 40 minutes. Use your own judgment in putting in the flour, for sometimes three and a half cups is too much, and sometimes is not quite enough.—Mrs. Bunah B. Brooks, Hanford.

Raisin Bread

One yeast cake, one-half teaspoon cinnamon, one cup raisins, one egg, two quarts flour, one tablespoon butter, one-half cup sugar, one-half teaspoon salt. Soften yeast cake in a cup of warm milk for one-half hour. Sift flour, cinnamon and salt together. Add egg, raisins, butter and sugar. Then mix in yeast, knead until smooth and elastic, adding milk to soften if necessary. Set over night. In morning knead down, let raise two hours; shape in loaves. When raised double its size, brush with milk and sprinkle cinnamon and sugar over top, then bake in moderate oven about three-fourths of an hour. This will make two loaves.—Esther Richard, Santa Cruz.

Raisin and Buttermilk Bread

Children are especially fond of raisin bread. It is palatable, concentrated food, healthful and mildly laxative. Children (and most adults) crave sweets and this bread supplies this need and thus takes the place of cakes and candies. The following bread may be cooked in a fireless, steamed on top of the stove, or baked in an oven. If baked in a fireless, place the pans between two heated radiators for one hour; or steam three hours in baking powder cans with hot radiator below. It requires 25 minutes in a moderate oven or two hours if steamed on top of the stove.

Sift four cups of flour, one teaspoon of salt, one teaspoon of soda, two teaspoons of cream of tartar and three tablespoons of sugar. Rub in four tablespoons of lard or butter, then add two eggs well beaten, one and one-half cups of raisins and sufficient buttermilk to make a soft dough. Mix well and divide into four small loaves, place in greased pan and bake in moderate oven 25 minutes. If steamed, more milk should be added, as steamed bread requires a softer mixture. Quite often I have substituted sour milk for buttermilk and had very good results.—Ella M. Tarbet, Onarga, Ill.

Raisin Loaf

Three cups flour, two-thirds cup butter, one-half cup sugar, one-half teaspoon salt, one cup raisins, grated rind one lemon, two teaspoons baking powder. Mix dry ingredients, rub in butter, add raisins and lemon rind, mix to a very thick drop batter with cold milk. Turn into well-greased loaf-pan. Bake one hour in moderate oven.—Mrs. Alva Joyce, Orosi.

Sweet Raisin Bread

Two cups bread sponge, three tablespoons of sugar, one tablespoon of shortening, a pinch of salt, and one-half cup of seedless raisins; add enough flour to form one large loaf or two small ones.—Mrs. E. B. Taylor, Modesto.

Raisin Bread

Soak one cake of yeast in one and

A Few Uses for Cornstarch

Suggestions for Housekeepers By a Famous Woman Writer

One of the best-known woman writers in this country on the subject of housekeeping and cooking, Emma Churchman Hewitt, writes as follows:

"During my long editorial service on the Ladies' Home Journal and other magazines I was brought into intimate acquaintance with housekeepers in all parts of the United States, and especially with their work and achievements in cooking. I found that the novice, too, often uses cornstarch only as the basis of a few puddings and other desserts, while the cook of the older generations uses cornstarch a dozen times a day in all kinds of dishes. I found, too, that the experience of up-to-date housekeepers everywhere was the same as mine—that those who had the greatest success with cornstarch recipes always depended upon Kingsford's. They use Kingsford's cornstarch for thickening their gravies and sauces; for giving a fine texture to their bread, biscuits, cakes and cookies; for making their pie crust perfect and flaky as well as for griddle cakes, waffles, cakes, ice cream and other things too numerous to mention."

Kingsford's Cornstarch, costs no more than inferior kinds. It is carried by all good grocers. Try it once and you will use it always.

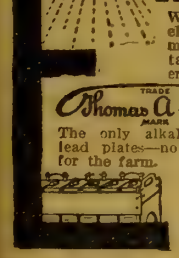
one-half cups of potato water, mix in enough flour to make a stiff batter. Beat well about five minutes. Let stand over night. In the morning scald two cups of sweet milk. Put in this one tablespoon of cooking fat, one tablespoon salt, three tablespoons of sugar. When milk is luke warm, mix with the sponge, add enough flour to make a stiff batter; beat about 10 minutes, then set in a warm place and let it rise. When it is light, add two cups of seeded or seedless raisins; mix, Add more flour and mix till dough is smooth, then let it rise again. Make into loaves and bake one hour. When baked, wet top of loaves with sugar and hot water to prevent the crust becoming too hard, or you can grease the loaves with cooking fat. This makes the crust soft, too.—Mrs. J. C. Rogers, Fullerton.

An Excellent Recipe For Making Good Divinity Fudge

Good divinity fudge, or any kind of candy for that matter, requires strict attention to directions as to quantities and methods. Below is given one of the best recipes known for making this popular confection.

"Divinity Fudge"—2 cups sugar, ¾ cup Karo, ¼ cup water, 2 eggs (whites only), 1 teaspoon vanilla, ½ cup chopped nut meats, ½ pound dates, stoned and cut fine. Cook sugar, Karo and water till crisp when tried in cold water. Beat the whites of the eggs in a large bowl, and pour the syrup slowly onto them, beating the whole till it begins to harden. Add the vanilla, nuts and dates. Spread quite thick on a shallow buttered tin. When cool, cut in large squares.

Excellent recipes for making Caramels, Walnut Caramels, Cream Caramels, Chocolate Caramels, Peppermint Candy, Taffy, Yellow Jack, Cream Drops, Peanut Wafers, Cocoanut Candy, Nougat, and many other sweets too numerous to mention, will be found in a little booklet issued by the manufacturer of Karo Syrup, which can be obtained free of charge at all modern grocers. Ask for it.



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The only alkaline battery—no acid—no lead plates—no cleaning periods. Ideal for the farm.

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DAISY FLY KILLER placed anywhere, attracts and kills allflies. Neat, clean, ornamental, convenient, cheap. Lasts all season. Made of metal, can't spill or tip over; will not soil or injure anything. Guaranteed effective. Sold by dealers, or 6 sent by express prepaid for $1.

HAROLD SOMERS, 150 DeKalb Ave., Brooklyn, N. Y.

Don't Suffer From Ants

A Simple Way of Ridding Every House of This Pest

Many a woman has been driven almost distracted by a house infested with ants. No pest appears to get into a house any easier, or out any harder. All kinds of preparations have been tried in the effort to exterminate them, but without success.

It remained for a sufferer from this pest—a baker and candymaker—to devise a remedy which would not only exterminate ants, but do it almost instantaneously. On the verge of being driven out of business by a swarm of ants—which overran every part of his bakery—he originated a paste which seemed to have almost supernatural powers—not an ant remaining in the place after spreading it around.

So efficacious was the remedy that it has been put up for general use under the name of Kellogg's Ant Paste. Each package has a patent rattle cap, which provides a warning night or day that the contents are poisonous. Ask your druggist for a package of Kellogg's today, and end that ant nuisance forever.

Raisin Roly-Poly

One coffee cup each white and Graham flour (or all white), two rounded teaspoons baking powder, one-half teaspoon salt. Mix well and wet with cream and milk, or milk alone. Turn out on board, divide in two portions. Pat out one-half into sheet one-half or three-fourths inch thick. Spread with seeded raisins, sugar and cinnamon. Roll, pinch edges together, lay on greased plate, steam about one hour. Pat the other into a greased pie plate, rub over with milk, bake in quick oven. Open, butter and spread with stewed raisins or other fruit. Both served with cream. Makes two simple, nourishing desserts.—E. S. F., Madera County.

Soft Graham Raisin Loaf

One cup sour milk, one-fourth cup molasses, one-fourth cup sugar, one and one-half cups Granam flour (fine), one teaspoon soda, one teaspoon salt. two tablespoons melted lard, one cup raisins cut (not chopped) and slightly floured. Let stand ten minutes after putting into pan, then bake 45 minutes.—Annie M. Beals, Corvallis.

Raisin Puffs

One-half cup butter, one cup sugar, two eggs, one cup sweet milk, two cups pastry flour, two teaspoons baking powder, one cup raisins stoned and chopped. Cream the butter and sugar, add the well beaten eggs. Mix together the flour and baking powder and add the flour and milk alternately to the first mixture. Then add the raisins. Steam one-half hour in cups.—Elsie Pedroia, Lodi.

Stuffed Cookies

For cookies—One cup white sugar, one-half cup butter or lard, one egg, one-half cup sweet milk, one teaspoon vanilla, three and one-half cups flour, two teaspoons baking powder.

For filling—One-half cup white sugar, one-half cup water, one cup chopped or gound raisins, juice of one lemon, one teaspoon flour.

Cook filling until thick, stirring constantly. Roll dough very thin, cut cookies round, place in pan and put a teaspoon of filling in center of each. Place another cooky on top of each and bake in a moderately hot oven.—Mrs. L. D. Pike, Fullerton.

MAY PRIZE CONTEST

Have you been successful in canning vegetables? What vegetables have you canned? What has been your method? Have you used a steam pressure outfit, a home made boiler or what? Have you canned for home use only or have you marketed the product? Did it pay?

Cash Prizes

For the best short account $2.00, for the second best $1.00. All recipes published will entitle sender to three months' extension of subscription to the California Cultivator. If you have already received one extension for subscription this year you are not entitled to further extension for recipe furnished. With your recipe send name of member of your family now receiving the Cultivator that extension may be properly credited.

Any suggestions as to further contests are gladly received.

Write Early

Send in your canning hints early. Please write on one side of paper. All contributions should be in this office by Thursday morning, May 13. They will be published in the issue of May 20.

PRIZE WINNERS

The first prize for April recipes is awarded to Annie M. Beals, Corvallis, Oregon; the second to Mrs. L. D. Pike, Fullerton. Other receipes will be published later.

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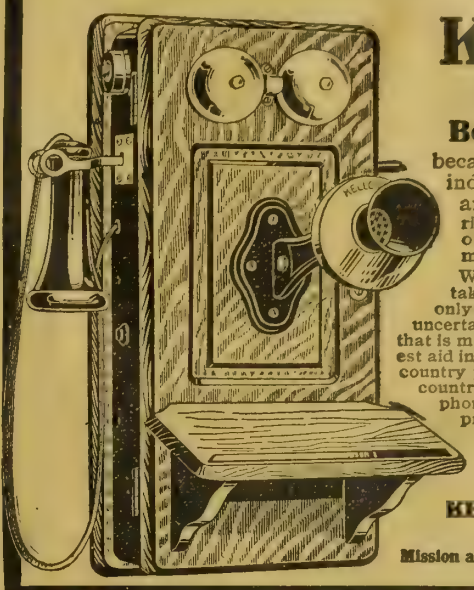

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San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, April 21, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade 3 to 4 cents above following quotations:

Creamery Extras .... .26
Firsts .... .25
Country .... .19
Ladle .... .18

CHEESE

Prices to trade, 1 and 2 cents higher:

California Fresh .... 13@13½
Cheddar .... 19@20
Domestic Swiss .... .20
Eastern Daisy .... 18½@19
Oregon Triplets .... 16½@17
Longhorn .... .19
Imported Swiss .... 30@32

EGGS AND POULTRY

Prices to trade, 3 cents higher than following quotations:

Fresh Ranch, case counts 22½
Candled 24½
Select 26½

Prices to producers:

Hens, lb. .... 15@17
Roosters, old 9
Broilers, lb. 27
Fryers 27
Roasters, lb. 24
Turkeys 20
Ducks .... 14@18
Geese 16
Squabs, doz. .... 2.50@3.00

LIVE STOCK

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs., per cwt. 8.00
Prime Steers .... 7¼@7½
Heifers .... 6¼@6½
Calves, lb. .... 8½@9
Sheep—
Ewes, head 4.50
Wethers 5.00
Lambs, head .... 4.50@4.75

POTATOES

Wholesale selling prices:

Idaho Russet .... 2.00@2.20
Idaho Rurals 1.65
Highland Burbanks 1.90
Sweets, cwt. .... 2.75@3.00
New, lug .... 1.00@1.25
Northern Burbanks, cwt. .... 1.80@1.90
Salinas 2.25
Lompocs 2.25

ONIONS

Wholesale selling price:

Australian Brown, cwt. 1.25
Bermudas, crate .... 1.25@1.50
Oregon Globes .... 1.35@1.50
Yellow Danvers .... 1.00@1.25
Sets—
Yellow .... .10
White .... .12
Garlic .... 20@30

VEGETABLES

Wholesale selling price:

Asparagus .... 4@8
Artichokes, Northern, doz. .... 30@70
Brussels Sprouts, lb. .... 15@20
Beets, doz. .... 30@35
Beans—
String 6
Wax .... 6@7
Kentucky Wonders 10
Cabbage, sack .... 1.00@1.10
Carrots, doz. .... 30@35
Cauliflower, doz. .... 80@90
Celery, crate 4.00
Cucumbers, Hothouse .... 1.25@2.00
Outdoor, box 2.00
Egg Plant, lb. .... 23@25
Escarole, doz. .... 35@40
Horseradish, lb. .... 10@12
Leeks, doz. .... 35@40
Lettuce, crate 70
Mint, doz. .... 35@40
Onions, Green, doz. bunches .... 15@20
Oyster Plant, doz. .... 35@40
Parsnips, doz. .... 40@45
Parsley, doz. 15
Peas, lb. .... 4@5
Peppers—
Bell, lb. .... 30@40
Chili, lb. 30
Radishes, doz. 15
Rhubarb—
Crimson Winter .... 55@60
Strawberry .... 75@90
Giant .... 70@75
Spinach, doz. 15
Squash—
Cream, lug 60
Summer, box .... 90@1.00
Tomatoes, lug 3.00
Turnips .... 30@35

FRESH FRUIT

Wholesale selling price:

Apples—
Rome Beauties 2.00
Pearmains 1.75
Avocados, doz. 9.00
Bananas 4
Berries—
Strawberries, crate .... 75@90
Blackberries .... 9@12
Cherimoyas, lb. .... 20@25
Loquats, lb. .... 8@10
Pears, Winter Nelis, lug 2.25
Pineapples, lb. .... 6@7½

CITRUS FRUIT

Wholesale selling price:

Lemons 2.00
Grapefruit, Seedless .... 1.75@2.00
Navels 1.85
Tangerines, half box 1.50
Limes, basket 1.00

DRIED FRUITS

Wholesale prices to retailers are:

Evaporated Apples, Fancy, lb.
boxes .... 7½@8½
Apricots .... 9½@11
Nectarines 12½
Peaches .... 5¾@6¾
Pears .... 11@14
Prunes .... 6@10½
Plums 10

HONEY

Wholesale selling price:

Comb, Fancy, Water White 17
White 15
Light Amber 12½
Extr. Water White .... 7½@8
White .... 6@7
Light Amber 5
Beeswax 32

NUTS

Prices named by California Walnut Growers' Association are:

No. 1 .... 16½
Budded Walnuts 20
Jumbos 19
No. 2 12
Culls 9

Prices fixed by California Almond Growers' Exchange, f. o. b. California.

Almonds—
Nonpareil .... 21@22
I X L .... 20@21
N P U .... 19@20
Drake's Thinshell .... 17@18
Pecans 17
Peanuts—
California, Raw 6
Japan 7½
Eastern 7½
Rice Corn .... 5.00@5.25

RICE

Wholesale selling price:

California .... 4.75@5.00
Broken .... 3.75@4.00

BEANS

Wholesale selling price:

Producer's price not far from one dollar under these quotations:

Limas 6.25
Bayous .... 6.00@7.00
Lady Washington .... 6.00@6.25
Pinks .... 5.00@5.25
Black Eyes 7.50
Lentils 12.00
Small White .... 6.00@6.25
Garbanzos .... 8.00@8.50

HAY

Prices to producer f. o. b. Los Angeles:

Barley Hay .... 9.00@13.00
Wheat Hay .... 8.00@11.00
Tame Oat .... 9.00@14.00
Alfalfa .... 8.00@11.00
Volunteer .... 5.00@7.00
Straw .... 5.00@6.00

GRAIN

Wholesale selling prices f. o. b. Los Angeles:

Corn, Yellow 2.10
Corn, White 2.20
Wheat .... 2.50@2.55
California Red Oats 1.85
Oats, White 2.15
Oats, Hulled 2.55
Egyptian Corn 2.10
Barley Seed 1.60
Barley, Hulled 2.00
Milo 1.90
Rye 2.30
Sunflower Seed 7.50

FEED STUFF

Wholesale selling prices f. o. b. Los Angeles:

Bran, Heavy 1.65
Alfalfa Meal 1.15
Alfalfa Molasses, per cwt. 1.20
Beef Scraps 3.00
Beet Pulp 1.25
Cracked Corn, cwt. 2.15
Cracked Wheat, cwt. 2.65
Cotton Seed Meal 1.80
Bone Meal 1.95
Meat Meal 3.00
Bone, Green 1.65
Charcoal 2.00
Oil Cake Meal 2.50
Fish Meal .... 3.15@3.25
Rolled Oats 2.20
Middlings 1.95
Rolled Barley 1.55
Feed Meal 2.20
Scratch Feed .... 2.20@2.40

San Francisco Market

SAN FRANCISCO, April 20, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade, 4 cents above following quotations:

Extras .... .23
Prime Firsts .... .22
Firsts .... .22

CHEESE

Wholesaler to retailer.

Oregon Y. Am. .... .14
Young America .... .12
California Flats .... 8@11
Cheddar .... .20
Oregon Twins .... .14

EGGS AND POULTRY

Prices to trade 3 cents higher than following quotations:

Extras 22
Firsts 18
Select Pullets 19

Price to producer:

Hens, lb. .... 16@19
Fryers .... 27@30
Broilers .... 30@34
Roosters, Young .... 23@27
Old .... 10@12
Broilers .... 32@36
Squabs .... 2.50@3.00
Ducks .... 15@17
Geese .... 2.50@3.00
Belgian Hares, lb. .... 7@8
Dressed .... 13@14
Turkeys, live .... 16@18

LIVE STOCK

San Francisco prices, gross weight:

Steers .... 4@7
Cows and Heifers .... 3@6¼
Calves, lb., live weight .... 6@9
Hogs .... 5@7½
Wethers .... 6½@7
Ewes .... 6@6½
Yearling Lambs .... 7½@8
Milk Lambs .... 8@8½

POTATOES

Wholesale selling price:

Idaho .... 1.15@1.30
Idaho Russet .... 1.40@1.60
Delta Burbanks .... 1.40@1.70
Salinas Burbanks .... 1.50@1.75
Oregons .... 1.40@1.75
Shimas .... 1.00@1.40
New Potatoes, lb. .... 4@5
Sweets, cwt. .... 2.25@2.50

ONIONS

Wholesale selling price:

Onions, cwt. .... 75@1.00
Australian .... 3.75@4.00
Oregon .... 90@1.10
Garlic, new .... 20@25

VEGETABLES

Wholesale selling price:

Asparagus, box .... 1.25@2.00
Beans—
String .... 8@10
Wax .... 8@10
Brussels Sprouts, lb. .... 3@5
Celery, crate .... 1.50@2.50
Cucumbers, Hothouse, box .... 2.00@2.75
Lettuce, crate, Southern .... 90@1.00
Egg Plant, lb. .... 20@25
Peas, lb. .... 2@4½
Peppers—
Bell, lb. .... 25@30
Chili, Mexican .... 3@5
Rhubarb—
San Jose .... 60@80
Alameda .... 45@65
Squash, Summer, crate .... 1.00@1.25
Tomatoes, Mexican lug .... 3.50@4.00

FRESH FRUIT

Wholesale selling price:

Apples—
Newton Pippins .... 50@1.25
Bellflowers .... 25@50
Berries—
Strawberries—
Southern, crate .... 75@1.25
Fresno, crate 1.25
Watsonville, chest .... 6.00@10.00
Longworths, chest .... 10.00@12.00
Other varieties, chest .... 6.00@8.00
Bananas, Hawaiian, bunch .... 1.25@2.00
Pineapple, doz. .... 2.00@3.50

CITRUS FRUIT

Wholesale selling price:

Grapefruit, Seedless, new crop .... 1.25@3.25
Lemons .... 1.50@2.50
Lemonettes .... 1.00@1.50
Navels .... 1.50@2.25
Limes, case .... 4.00@5.00
Tangerines, halves .... 75@1.75

DRIED FRUITS

Wholesale prices are:

PRUNES—1914 crop, bulk basis: 30-40s, 5½c; 40-90s, 4½@5c; 90-100s, 4@4½c. The above are for both Santa Clara prunes and stock from outside sections.

Other Fruits. 50-lb. boxes—	Standard	Choice	Extra Choice	Fncy
Ev'p'd Apples	7¼c	7½c	8 c	
Peaches	4 c	4¼c	4½c	5¾c
Apricots	9 c	9½c	10 c	11 c
Pears	7 c	8 c	9 c	10 c

RAISINS

The following prices are f. o. b. Fresno, as given out by the Associated Raisin Company, for immediate shipment, and are guaranteed against a decline till June: Fancy seeded, 16-oz., 7½c; 12-oz., 5⅞c; bulk, 6c; choice seeded, 16-oz., 6⅞c; 12-oz., 5⅝c; bulk, 5½c; Thompson seedless, No. 1, 16-oz. pkgs. 7c; 12-oz., 6¼c; 50-lb. cs., 6½c; loose, Muscatels, 1-crown, 5½c; 2-crown, 5½c; 3-crown, 5⅞c; 4-crown, 6c; Sultanas, 50-lb. cs., 5¾c; bulk, layers, 50-lb. bxs., $2.75; in 20-lb. boxes, 6-crown, $2.75; 5-crown, $2.25; 4-crown, $1.60; 3-crown, 5-lb. bxs., $1.50; on all bulk stock, 50c additional. Cartons—Clusters, 20 to cs., No. 1, $1.70; No. 2, $2.10; No. 5, 4 to cs., $2.25. Local representatives of the Associated are asking about ¼c higher, while several of the largest independent packers are quoting ½c under these figures.

NUTS

ALMONDS—Prices fixed by Almond Growers' Exchange to the trade, f. o. b. California:

Nonpareil 21
I X L 20
Ne Plus Ultra 19
Drakes 16

Wholesale selling price:

Peanuts—
Unpolished .... 5@8
Polished .... 6@6½
Shelled, Jap .... 6¼@6¾
Italian Chestnuts .... 6½@7

BEANS

Wholesale selling price:

Limas .... 5.30@5.35
Pink .... 4.20@4.25
Black Eyes .... 6.00@6.25
Cranberry .... 5.00@5.25
Small White .... 5.25@5.30
Garbanzos .... 6.50@6.75
Large White .... 5.15@5.25
Bayou .... 5.30@5.40
Manchurian Speckled Bayous .... 3.90@4.00
Manchurian Butters .... 4.50@4.75
Red Mexican .... 5.30@5.40
Red Kidney .... 6.00@6.25
Horse Beans .... 3.50@4.00

HONEY

Wholesale selling price:

Comb, Water White 15
Amber .... 10@12
Dark .... 7@10
Extracted White .... 6@7
Light Amber .... 3½@4½
Dark 2
Beeswax .... 27@32

HOPS
1914

Wholesale selling price:

Sacramento Valley .... 12½@14
Sonoma-Mendocino .... 12½@15
Oregon Clusters .... 12@15

HAY

Under date of April 17, Scott, Magner & Miller say:

Receipts of hay for the past week were 3471 tons, as against 2606 tons of the preceding week, and 2150 tons the week before. Fancy growths of wheat and red oat hay are scarce and in demand, and an occasional car is sold in excess of our top quotations. The weather has been most favorable for the new crop and farmers are commencing to get their machinery ready to take care of this as time approaches for harvesting in some districts very shortly. The first crop of alfalfa is being harvested in some sections and crop is reported in good condition and from present outlook will be quite heavy. New crop alfalfa is already arriving in the Los Angeles and San Diego markets from the Imperial Valley sections. There is no change to report in the straw market.

We quote the average wholesale price of hay in carload lots on today's market as follows:

Fancy Wheat Hay (light bales) .... 11.50@12.50
No. 1 Wheat or Wheat and Oat .... 9.00@10.50
No. 2 Wheat or Wheat and Oat .... 6.00@8.50
Choice Tame Oat .... 11.00@12.00
Other Tame Oat .... 6.00@9.00
Barley .... 5.00@8.00
Wild Oat .... 6.00@8.00
Alfalfa .... 6.00@9.00
Stock Hay .... 4.50@5.00
Straw, per bale .... 30@45

GRAIN

Alfalfa Seed 16½
Wheat, Cal. Club .... 2.32½@2.35
Corn, Egyptian White .... 1.80@1.85
Corn, Eastern Yellow .... 1.74@1.75
Barley, Feed .... 1.27½@1.32½
Oats, Red, Feed .... 1.52½@1.60

WEATHER CONDITIONS

April 17, 1915

Report from the various stations of the United States Weather Bureau, by George H. Wilson, director, San Francisco.

	Rainfall Data: Past Week	Seasonal to Date	Normal to Date	Temperature Data—Past Week—: Maximum	Minimum
Eureka	.52	39.99	41.05	62	42
Red Bluff	.14	31.82	22.51	86	44
Sacramento	.00	14.06	18.20	80	48
San Francisco	.05	23.92	20.71	70	52
San Jose	.00	19.15	15.58	76	42
Fresno	.28	9.42	8.50	82	42
Independence	.00	2.93	8.42	80	....
San Luis Obispo	.00	23.83	18.60	78	42
Los Angeles	.00	15.35	14.74	84	50
San Diego	T	12.99	9.29	72	52

T means trace.

Oats, White Feed	1.80@1.85
Millet	2½@3¼
Flaxseed	5@5¼
Rye	2.00@2.25
Sunflower	5@5½

FEED STUFF

Wholesale prices.

Alfalfa Meal, car lots	14.50@15.50
Bran, ton	27.50@28.50
Feed Cornmeal	39.50@40.00
Cracked Corn	39.50@40.00
Rolled Barley, ton	28.00@29.00
Rolled Oats, ton	37.00@37.50
Middlings	32.00@34.00
Shorts	29.00@30.00
Oilcake Meal	38.00@39.50
Cocoanut Oilcake Meal	24.00@25.00

Citrus Fruit Market

LOS ANGELES, April 21, 1915.

Material advance has been made in prices over last week's, and this in face of the shipment in excess of 1500 cars per week. The shipments during the first week of April were 1573 cars. The East is generally educated as to the high quality of California fruit, and the consumption for the next four or five weeks will be great.

Lemons likewise are slightly better, though many disastrous shipments have been made because of poor keeping quality.

Shipments

Shipments of oranges from Southern California to date since November 1, 1914, 18,108 cars, lemons 2,379, total 20,487. To same date last season, oranges 19,899, lemons 1,070, total 20,969. From Tulare County: Oranges 5,209, lemons 189, total 5,398. Last season to same date: Oranges 4,655, lemons 30, total 4,695. From northern countes: Oranges 628, lemons 1. Last season, same date: Oranges 398, lemons 5.

NEW YORK, April 19.—Thirty-eight cars navels, three budded, one bloods and navels, one blood, one St. Michaels and sweets, and three cars lemons sold. Market strong with prices about 10 to 15 cents higher on navels. Lemons unchanged. Fair.

	Avge.
NAVELS—	
Mahala, L. V. W. Brown	$2.85
Swastika, L. V. W. Brown	2.55
Green Banner, Suth. Ft. Co	2.60
Native, Sutherland Ft. Co	2.45
Gold Medal, G. O. Groves, Inc	2.70
Silver Medal, G. O. Groves, Inc	2.60
Blue Winner, xf, Covina H. G	3.30
Blue Winner, fy, Covina H. G	2.55
Red Winner, Covina H. G	2.30
Gold Medal, G. O. Groves	2.70
Silver Medal, G. O. Groves	2.50
Golden Rod, Highgrove O. G. A	2.55
Fruita	2.45
Native Sons of America, imp	2.65
Native Son of America	2.45
Salt Lake, King Ft. Co	2.40
Euclid, Growers Ft. Co	2.75
BLOODS—	
Native Sons of America	$2.50
Camel, Q. C. Ex. (ventilated)	2.40
SEEDLINGS—	
Dos Palmas, San Marino G	$2.20
King River	2.30
Mission Bells, A. B. Chapman	2.30
Mission Memories, A. B. Chapman	2.20
Carnival, S. T. Ex	2.30

POULTRY QUERIES

(Continued from Page 497)

own family for a similar injury is suitable for the turk.—J. A. K.

Poisoned Hens

In the past week we've lost three hens, all of which were apparently in perfect condition until two or three hours before they died. They just seemed to droop and die. Can you tell us what the cause can be?—Subscriber,

It looks as if the hens had eaten something poisonous. Could they have found decaying flesh about the premises or poison that had been put out for squirrels or gophers? If they died on the nest death may have been caused by a rupture of the oviduct in trying to lay an egg. If they were moving about as usual and in perfect condition I know of nothing that could cause such a sudden taking-off but poisoning of some sort. Putrid flesh is one of the deadliest poisons, and some of the meat sold by butchers as "green-cut bone" is nothing more nor less than putrid flesh. I should make a thorough examination of the premises, and see that the hens get no spoiled food of any sort.—J. A. K.

BOOK FOR YOUNG GARDENERS

(Continued from Page 491)

gardens have been given.

"Flower gardens are always beautiful and attractive when properly cared for, and they may often be made remunerative as well. Wild flower gardens, ferneries rockeries, and water-gardens will frequently transform commonplace grounds into works of art, and are a pleasing change from the ordinary type of garden. All of these may be found fully described and illustrated in the chapters devoted to ornamental gardens."

There are 29 chapters in the book touching upon tools and planning the garden, soil preparation, hot beds and methods of growing, storing of vegetables, etc., insects and garden pests, planting of trees, small fruits, grafting, budding, etc.. mushrooms, with several chapters given up to ornamentals, landscaping, growing potted plants, bulbs, and answering nearly every question which would come up in garden practice.

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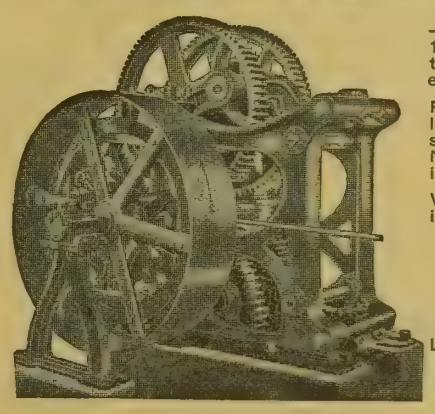

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Size of Farm ..... *Acres.* *(Check main crop raised.)*

Fruit	*Rice* .....
Grapes	*Alfalfa* .....
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Hay	.....

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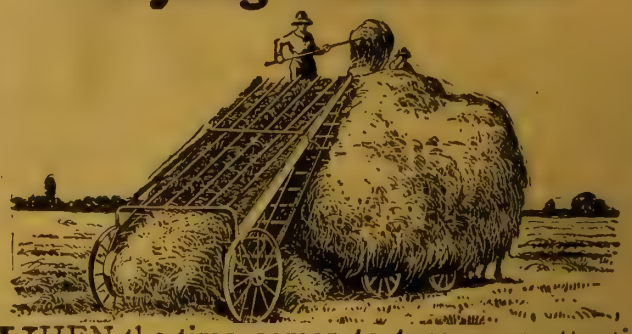

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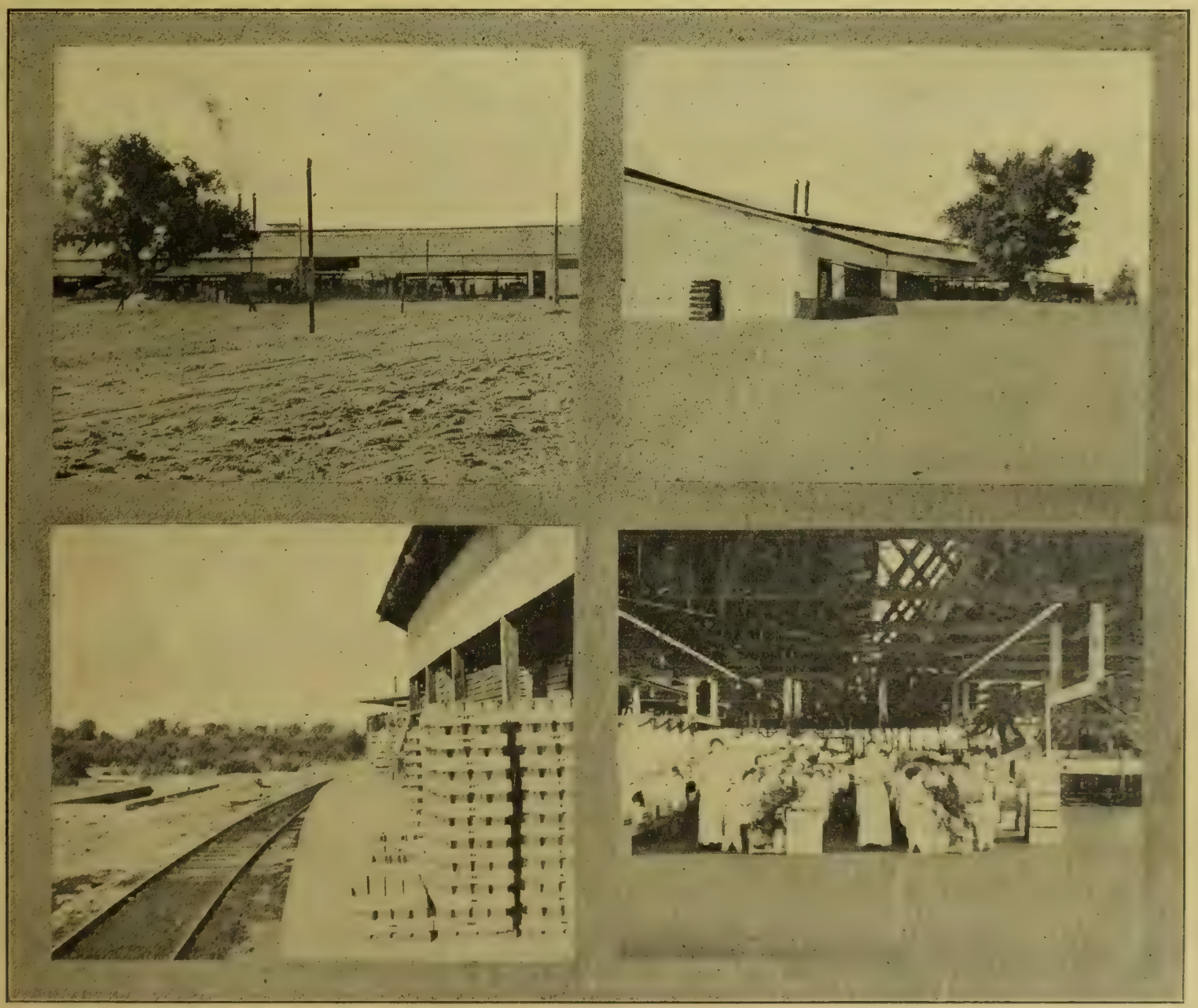
Rural Californian combined with California Cultivator

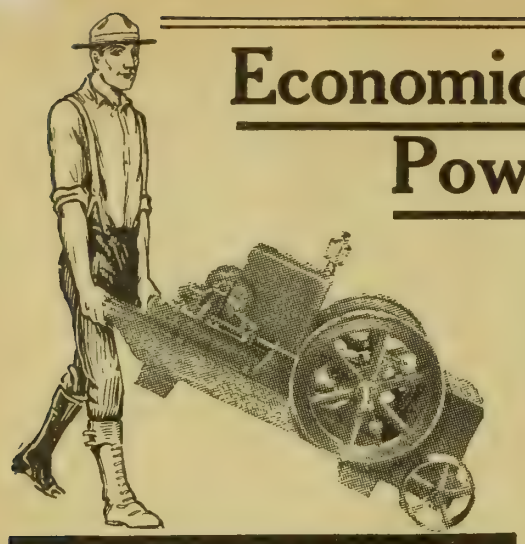
An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES April 29, 1915 SAN FRANCISCO

Successful Cooperative Cannery at Porterville

Fruit Growers of Tulare County Have Financed and Operated for One Season One of the Most Successful Canneries in the State. The Pictures Shown Below Give Something of an Idea of This Plant, Which Is Fitted for Handling Fruit in the Most Economical Way. See Article Giving Plan of Organization on Third Page





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No longer is it necessary for you to pay out most of your profits for hired labor. You can get all the **power** you need for practically every kind of agricultural work from these **simple** little engines—and move them around—and operate them **yourself**. Each one will do the work of at least three hired men and **save** you the cost of their wages. About 2,000,000 "internal combustion" engines are now in daily use upon American farms. The

FULLER & JOHNSON
Type "N" Gasoline Engine

combines all the good points of high-price engines (up-to-the-minute design, finest materials and unusually high-class workmanship) into a strong, light, durable engine of **moderate price.** There is no need of paying more for an engine than the price of a **Fuller & Johnson.**

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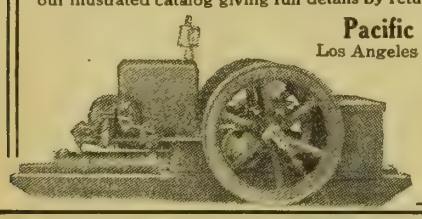

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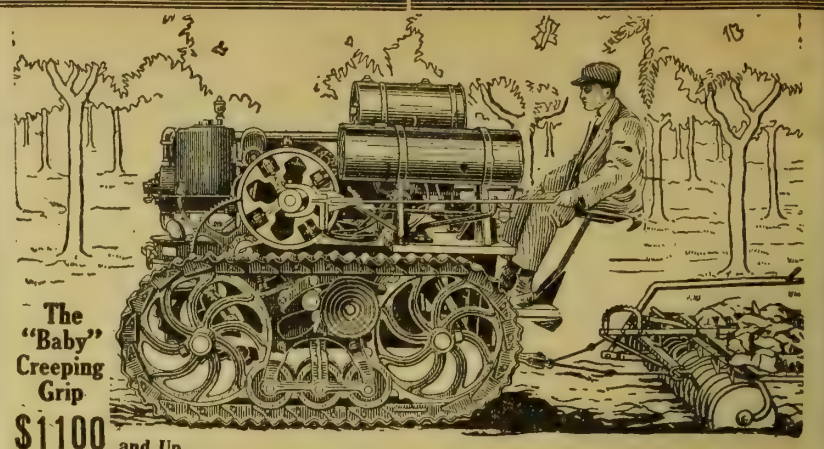

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This Baby Creeper was designed for the small rancher, particularly the fruit rancher. It delivers 16 Brake and 10 Tractive H. P. and does the work of 6 good horses or mules.

It is low, gets under the trees, turns in its own length, its fuel consumption is very low and it does not require an expert operator.

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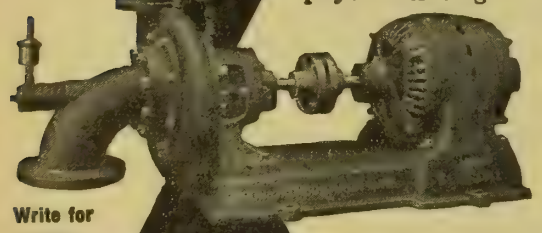

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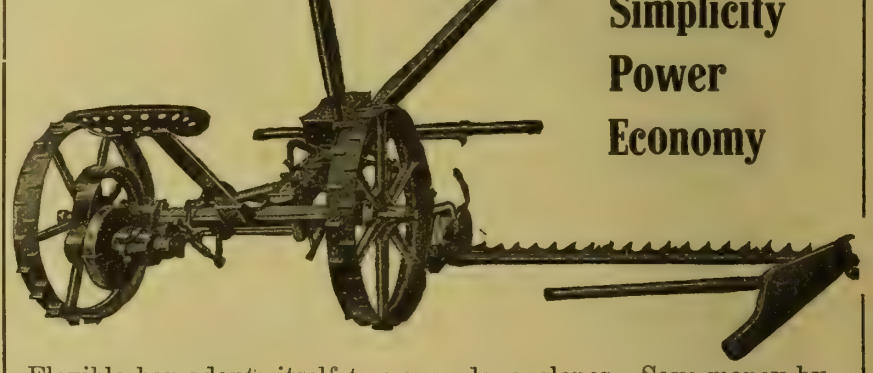

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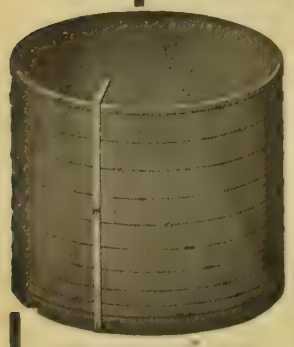

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California Cultivator

Rural Californian combined with California Cultivator

Vol. XLIV No. 17 LOS ANGELES: THURSDAY, APRIL 29, 1915 One Dollar Yearly

Cooperative Canneries Conserve California Capital

Account of One Successful Cannery Owned by Fruit Growers of Tulare County Should Induce Other Sections to Move Toward Similar Effort

IT'S a pleasure to see an up-to-date factory with hundreds of hands putting out a food or other product rapidly and in order. It is doubly a pleasure to see this work done cooperatively by the producers of the raw material. It was my privilege last summer to see the first days' operation of the new cannery of the Tulare County Growers' Association, located at Porterville. The building is a large, well-ventilated and lighted structure, fitted with endless carriers, automatic washers, dippers, peelers and cookers. The cutters and packers sat at long, low tables, the center of each of which was fitted with endless carriers which took the filled cans to the cookers. These cookers were set so that the carrier in passing through it brought the fruit out at the other end perfectly sterilized; in fact, except for label, ready for the consumer.

But the object of this article is not to give a description of canning methods so much as to call attention to the organization which built and is operating the cannery. The company is composed of both farmers and business men of Tulare County. The farmers wanted to dispose of their crops to advantage and the business men wanted an institution which would afford employment for many, and besides, wanted the money which farmers would spend if fair returns for fruit crops were secured. Hence the combination.

The first year, in face of exceptional conditions, was a success. The second promises better. We hope the example of the Porterville growers will be followed in other parts of the state. First, however, a word of caution. Investigate fully as to quantity and quality of fruit, capital to be commanded and probable market. Is it possible to secure a keen business man and qualified cannery expert as manager? It is not so much a question of richness of soil of the farm as of richness (in experience and knowledge) of the farmer. Likewise equipment, capital and fine fruit may fail unless in the hands of good directors and manager.

Again as to markets: That's a long question. Excepting under abnormal conditions the consumer usually waits for the goods to seek him. In that seeking of market sometimes lines cross and the merchant finds himself handicapped because some other merchant is seeking the same trade. To meet that competition profits are sometimes sacrificed. Likewise the farmer with a load of potatoes or of canned fruit suffers. We should be wiser.

I trust Mr. Vernon Campbell, who is manager of this cannery of the Tulare County Growers' Association, will not object if I quote a few paragraphs from a recent letter:

"As you are aware, this is my first experience in the handling of cooperative institutions, my experience having been entirely in stock companies' work. I find the principles of cooperation considerably different from those of ordinary corporations and I have a number of things to work out in reference to this business which would not apply to the ordinary growers' associations.

"The grading of fruit is considerably more complicated, it being necessary to go to considerable expense and trouble in order to make each grower his just returns. The matter of costs is quite complicated in this connection as the costs must be properly apportioned according to quality and value of the various products.

"It is our intention to establish a central organization working along lines similar to but closer than the central organization of the orange growers. We do not believe it will be policy to encourage the formation of more cooperative canneries to work independently, for this leads to more competition than we have now at this time. Competition between the various packers is constantly increasing the cost of goods in the East without benefiting the consumer, and as the packers receive less for the goods the price to the grower is less."

More cooperation on the part of cooperators is needed. Members of one organization are too often competing with the members of others. Let us get together.

The officers of the Tulare County Growers' Association are: W. M. Burton, president; H. L. Pomeroy, secretary; G. W. Morrell, S. T. Pennebaker, C. N. Jordan, H. H. Newman, W. D. Tobias, J. S. Linnell, H. E. Spear, C. H. Doyle, G. A. Williamson, directors.

Constitution and by-laws my not be interesting reading, but for other sections which may be contemplating cooperative canneries we give the following as adopted by the Tulare County organization. Mr. Campbell writes that there may be later amendments, but as yet it stands as originally adopted.

BY-LAWS OF THE TULARE COUNTY GROWERS' ASSOCIATION

Article I.

Place of Business—The principal place of business of this association is the City of Porterville, County of Tulare, State of California, and the office of the corporation shall be at such place in said City of Porterville as the board of directors shall from time to time designate.

Article II.

Annual Meeting—The annual meeting of this association shall be held at the principal place of business of this association on the first Saturday in May of each year, at the hour of nine o'clock a. m., and at that meeting eleven directors shall be elected and qualify, and such other business be transacted as shall be deemed necessary.

At such meeting the president of the board of directors shall preside, and in case of the absence of the president the vice-president, and in case of the absence of both, the members present shall elect one of their number to preside for the time being. Immediately after the meeting of said association the persons elected as directors shall meet and cause to be elected one of their number president, and one vice-president, and shall also elect a secretary, manager and treasurer, who need not be members of the association, and they shall also elect from the board of directors and executive committee, consisting of three (3) members, who shall have active charge and control of the business of the association, subject to the approval of the board of directors.

Article III.

Proxies—Each member must personally attend such meetings in order to vote thereat; and no proxies will be permitted.

Article IV.

Other Meetings—The directors shall hold their regular meetings quarterly on the first Saturday of the months of February, May, August and November, and special meetings at any time upon the call of the president; said call to be made by mailing notice or by personal delivery of the same.

The board may call a special meeting of the association at any time by mailing notice thereof to each member one week previously, and one-third of the members shall constitute a quorum at all meetings of the association. The notice shall set forth the object of the meeting.

Should any of the directors cause dissatisfaction a special meeting shall be called by the board of directors within one week at the request of one-third (1-3) of the members of the association. At such meeting if by two-thirds (2-3) vote of the members present the office of any director or directors shall be declared vacant the meeting may at once proceed to elect directors to fill such vacancies.

The absence of a director, unless from an unavoidable cause to be determined by the board of directors, from three (3) successive regular meetings shall be deemed to be and shall act as a resignation, and the directors may proceed to fill the vacancy until the next regular meeting of the association.

Article V.

Powers and Duties of Directors—The board of directors shall have general management of the affairs of the association, authorize the expenditures and constitute the governing power of the association in all matters of business. They shall make all contracts for necessary materials for handling and marketing fruit, and for that purpose may and they are hereby authorized and empowered to negotiate such loan or loans of money from time to time as may be necessary, and by resolution by the board of directors the president and secretary are hereby authorized under the seal of the association to execute such note or notes, in such sum as may be required for such purpose.

They shall by majority vote elect a manager who shall serve at their pleasure, and at such salary as they may determine, and whose actions shall be limited strictly by the board of directors. The manager shall have general charge of the office of the association and of the plant and all property of the association. He shall give his personal attention to the handling, canning and shipping of products and shall see that efficient service is rendered.

Article VI.

Duties of Officers—Section 1. The president shall preside at the meetings of the association and all meetings of the board of directors and shall sign all certificates of memberships, contracts and conveyances and all documents and agreements that the board of directors may, by resolution, require him to sign, and also the minutes of the proceedings of all meetings of the association and directors. He shall have the custody of the bonds of all the officers and employees except his own, which last shall be filed with the secretary. In the absence of the president, the vice-president shall perform all his duties.

Section 2. The secretary shall keep full and precise minutes of the proceedings of the association, and of the board of directors in proper books. He shall countersign all certificates of memberships, contracts, conveyances, documents and agreements, and generally shall perform all duties pertaining to his office as the board of directors may require.

Section 3. The treasurer shall keep full and precise records.

Article VII.

Membership—None but actual producers of fruit or vegetables can be members of this association.

Growers who desire to become members must pay to the assocation the sum of twenty dollars per acre for each acre of fruit or vegetables handled by the association, together with a membership fee of five dollars, and each member shall sign the by-laws.

Any person applying for membership in this association shall be accepted or rejected as the board of directors deem best.

Article VIII.

Duties of Members—It shall be the duty of all members of this association and they hereby agree to sell and market their products through the agency of or by the means provided and directed, or by the agency or agents selected and employed by this association only, and the members shall not be at liberty to sell, market or consign any products through or by any other means than such as are directed and provided or selected and employed by this association; provided, however, that any member may withdraw from the association for any one year after 1914 by giving written notice to the secretary during the month of April of such year of his intention so to do.

In case any member of this association does otherwise sell, market or consign his products, he shall immediately forfeit his membership in this association, and all rights hereunder and all his right, title and interest in and to the property of the association.

The growers shall have the right on obtaining the approval and consent of the board of directors in cases where small quantities of products or products not in condition to be properly handled through the association, can be disposed of to local trade to better advantage, to make such disposition of their products without incurring the forfeiture herein provided for.

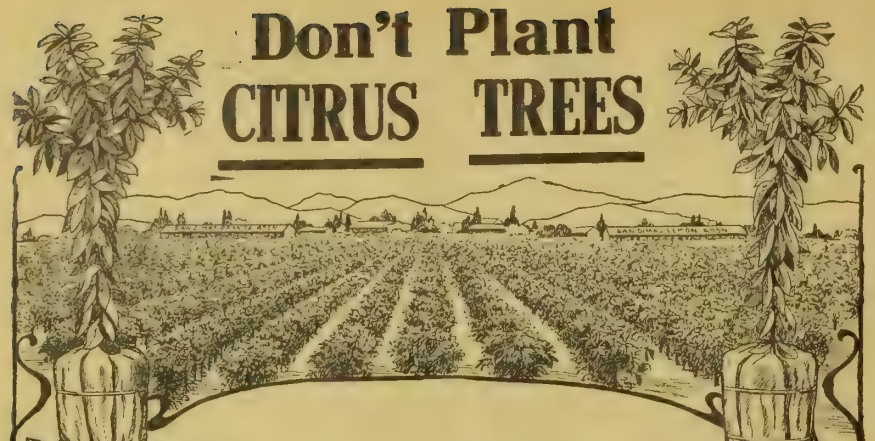
Article IX.

Withdrawal from Membership—Any member may withdraw from membership in this association after the year 1914, by giving written notice to the secretary during the month of April of any year of his intention so to do, and immediately upon receipt of such notice the board of directors shall proceed to determine the value of the interest of such member in and to the property of the association.

In case the said member is dissatisfied with the award made by the board

(Continued on Page 512)

Don't Plant CITRUS TREES



until you can meet the five essential requirements of success. Here they are: **Sufficient Water Supply; Quality Trees; Safe Thermal Conditions; Good Care; Good Soil.**

These five things are fundamental and he who ignores any one of the five invites failure.

Good fruiting trees are good revenue producers, and if you have the requisite water, location and soil—true citrus land—you cannot afford to miss the opportunity to

Plant Citrus Trees

Place your order NOW for Spring delivery. You will perhaps never have another chance to buy QUALITY TREES at so reasonable a price. Even the so-called CHEAP TREES which might better be called EXPENSIVE TREES by the man who expects to receive an adequate return on his investment) are quoted the same or very little less.

We were founded twenty-five years ago, and have been improving the grade ever since. Buy TEAGUE QUALITY TREES, embodying vigor and symmetry of root, body and top—and in the selection of buds, which will not only be true-to-name in the general acceptance of the terms, but true to the best type of the varieties to which they belong as well.

Write today for prices and particulars. No orders too large or too small to fill. All correspondence promptly answered.

Our booklet "CITRUS CULTURE" sent to any address on receipt of 25c.

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Citrus Trees Exclusively San Dimas, Cal.

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High Grade Citrus Trees of all Varieties at Reasonable Prices

20 Years Experience Growing Nursery Stock

Our nursery is located in a clean district, therefore our trees are absolutely free from insect pests.

These trees are excelled by none, for the reason that our stock of one-year-old buds are grown on new soil, and the greatest of care has been taken in the selection of buds which were taken from our own groves.

Lemons, Oranges and Grapefruit ⅝ and up, guaranteed to be true to name.

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Citrus and Tropical Fruits

SELLING CITRUS FRUITS

THE present conditions in Europe have produced a vast army of prophets in America. The prophecies as to results to this country of war in Europe are of intense interest—to each prophet making them. But as one newspaper has expressed it, "Prophesying is a profession that requires nearly a thousand years of steady application—to get one into reliable touch with the designs of the Almighty."

The citrus marketing situation exhibits a condition which induces a horde of prophets to tell us what would result if existing marketing methods were only upset and some other scheme put into action.

One would sell direct to the consumer, another to the retail trade, another would establish a chain of stores and sell both to consumer and retailer. One would sell only on the "good" old f. o. b. plan or at auction or at this or at that other place.

All of this will lead to some good, providing folks just keep their heads and quietly think over these plans and prevent the "interests" and some of our well meaning orange growers —who are generally the newer comers to the state—from creating a flurry and a demand for unsound methods.

But a condition and not a theory confronts us, and not only the orange grower of California but the orange grower of Florida, of Spain, of Italy and of Asia Minor. The apple grower of the Northwest, the melon producer of Imperial Valley and the fruit and other producers the world over are facing ruin.

Florida growers are proceeding to destroy or at least weaken their great cooperative organization, for note:

"Jacksonville, Fla., April 16.—The citrus fruit growers at Leesburg and vicinity have withdrawn their membership from the Highland Citrus sub-exchange of the Florida Citrus Exchange and have formed an organization which will be known as the Lake County Growers' Association.

"For some time past reports have been circulated that the Leesburg association and some other associations, particularly those on the East Coast, were not satisfied with the way their fruit had been marketed or the prices received, but the Leesburg Exchange members are the first to take the initial step and withdraw."

We take it this means that the fruit of its members will now compete with that of the members of the exchange. That surely will not guarantee greater profit.

"Again: "Spokane, Wash., April 11. —The North Pacific Fruit Distributors, a marketing agency for many of the fruit growing districts in Idaho, Washington, Montana and Oregon, with headquarters here, announced last night that because of the past bad season and the withdrawal of the Hood River district, it had been reorganized.

"Expenses have been reduced by the abolishment of the publicity department, a reduction in the auditing and clerical forces, the closing of the New York and Chicago offices, the resignation of the traffic manager and the voluntary decrease of the salary of the general manager to $1500."

Cutting out publicity and being content with less efficient management means lower initial expenditure, but will it mean increased profits?

The manager of the Northwest Exchange finds that apple averages the past four years have been in excess of $1.00 per box to the grower and suggests that:

"The orchardist must take the excess above $1 a box in the good years and create a sinking fund wherewith to finance himself in the lean years."

It appears that the California grower is keeping his head rather better than the average. However he's thinking a lot and talking some. At a recent meeting at Covina C. C. Chapman is reported in the Covina Argus to have said:

"The revision of the tariff in general throughout the United States has contributed to the financial depression." He made a very strong point concerning the large amount of shipments of frosted fruit following the freeze of 1912. This, he said, had been a great factor in demoralizing the California fruit market. The market was recovering slowly from this blow because the California fruit had been in the finest condition during the last two years, but the effects of dumping great amounts of frozen fruit into the Eastern markets would continue to be felt for a number of years."

He further said, "Florida ships as many cars of fruit into the market as does California. Florida is now an equal competitor in amount, with a shorter haul. The buying power of the people of the United States and Canada is at a low ebb. This does, of course, affect the price of citrus fruits as well as the price of all kinds of products from the soil. Potatoes are selling for from 35 cents to 50 cents the bushel in New York, Boston and other points. The citrus industry is not in the best condition of any of the businesses of the world, nor is it in the worst condition.

"At a critical time in the orange shipping this year an enormous amount of decay began to show up in the orchards. This was soon the case in the Eastern markets. Cars began to arrive with 5, 10, 15 and even 20 per cent decay. This was during and after the heavy rains. Many shippers saw that the fruit was bad and made the mistake of deciding not to ice it, but to send it cheaply under ventilation. Many cars arrived in horrible condition.

"The population of the United States has only increased 20 per cent in the last ten years, while the increase in the output of oranges was from 100 to 200 per cent." The speaker drew a significant picture of this fact, showing the ever-growing problem of marketing the increasing amount of oranges. "In California," he said, "there are 21,000 acres of Valencias less than four years old and therefore non-bearing; 20,000 acres of lemons less than four years old; 42,000 acres of navel oranges less than four years old." He quoted these

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figures to show what will confront the industry in a few years.

"Out of two million boxes of oranges raised in Jaffa this year," Mr. Chapman said, "the growers have only been able to market 75,000 boxes on account of the great world-war. The people are in terrible distress. Spain is losing between two and three million cases of oranges, the case being larger than the California box."

Mr. Chapman's conclusion was to the effect that "the grower in California must either have tariff protection or he must spend less money for the growing, packing and marketing. He said that if the California grower will be asked to compete on an equal basis with foreign fruit, as will be the case after the war, he must pay less for labor, less for packing and shipping, and all his cultural work must be brought down to a point where he can successfully compete with cheap foreign costs."

Many other addresses were made, many opposed to present methods of the exchange. "Sell in California," or the old f. o. b. plan, is the most popular. It sounds good to the new comer. The old timer says, "No." The editor of the Cultivator was at one time manager of one of the local associations of the California Fruit Growers' Exchange. That was more than a score of years ago and he still recalls the heartache which was caused by some of those f. o. b. sales which were so popular then. Every slump of the market called for rejection because of claimed inferiority or decay. After rejection the dealer would turn around and buy at his own figure. On this point we quote from Mr. Matthews of the Argus in an article under title of "Lest We Forget:"

"Those of our growers who, like the writer, have lived in this valley for the past 20 and 25 years, can remember when at certain seasons of the year buyers in this valley for oranges f. o. b. California were as plentiful as blackbirds; that our livery barns were taxed to their utmost capacity to provide rigs for these enterprising gentlemen who were in the field from early in the morning to late in the evening trying to convince the grower that their firm was the only one to which they should sell their fruit f. o. b. California. After all the orchards in the valley had been contracted these gentlemen disappeared until the shipping season arrived. Then it was the same old story. With strong markets and prices ruling high in the East, the fruit was moved rapidly and the shipper reaped the handsome profit. On the other hand, with a weak and declining market, the buyer would find one excuse after another why the fruit should not be picked, and in many cases the grower would lose two-thirds of his crop by drop, the shipper would make a profit on the remnant, and the grower would pocket his loss on the whole."

The Cultivator believes that all the disaster which has come to citrus growers from the two cold years, from free trade, from war and financial depression would not equal that which will come if their great cooperative organization is seriously weakened.

It won't be, for the citrus grower looks farther than today's penny.

NEW CITRUS ORGANIZATION

Regarding a new organization of citrus shippers we note the following in the Packer:

There is now in the process of organization a body of growers and shippers, whose object is to arrive at some plan for the benefit of the citrus industry. Its ultimate purpose is to make a change in the present marketing system for the benefit of the industry at large. The president elected is Kenneth MacRae, a grower at Rialto, who has been known for many years as an auction man, in fact is popularly called the "father of the auction" in Los Angeles. The vice-president elected is Fred Boruff, a large olive and lemon grower in San Fernando; treasurer, Dr. Putnam from Riverside; secretary, E. H. Eskew, assistant sales manager for the Randolph Fruit Company.

No name has as yet been chosen for the organization. A committee was appointed on organization and another committee on membership. It costs $1 to join. It is said that it is to be an independent growers' organization, although up to the present time a number of independent shippers are interested in the matter.

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OUR SPLENDID STOCK OF ORANGES, LEMONS, POMELOS AND OLIVES—in all the leading varieties, should be investigated before placing your order. It makes no difference how few or how many trees you may wish to buy, we can supply you with the choicest quality stock and at prices that will certainly prove tempting.

ASK FOR OUR "BULLETIN ON THE OLIVE," GIVING VALUABLE INFORMATION that should be in the hands of every planter. We specialize on the growing of fine olive trees and have an exceptionally choice assortment of Mission, Manzanillo and other varieties. Olives are coming into their own and if you contemplate planting, it is particularly necessary that you should plant the varieties which are going to prove the most profitable at the time your trees come into bearing.

"ROEDING'S PRACTICAL PLANTERS' GUIDE" —— SENT FREE

This book is the result of Mr. George C. Roeding's more than 30 years' experience in California horticulture. It tells how and when and what to plant. Also gives detailed information illustrated with photographs on PRUNING. Contains 11 pages of valuable data on citrus fruits and olives.
If you intend planting send us your list for prices and suggestions and we will send you a copy free—otherwise the price is 25c. Write us to-day.

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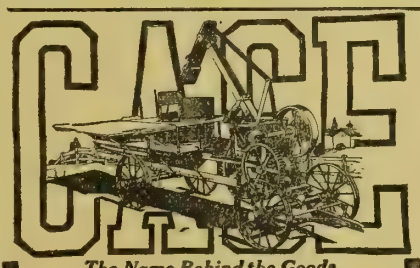

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Just to illustrate how they are built, remember this—the boxes of all gears are carried on a single casting. No chance then for gears to get out of line. Do you want to know more about the details of their construction? They are built like all CASE machinery, to do the best work in the shortest time at the least cost—*and they do it.*

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Just right for home use. 3 men and 2 horses will bale from 1½ to 2½ tons per hour. Automatic feed. Bales 60% faster than any hand-fed machine. Strongly built. 72-inch tying chamber, walls cannot bulge. Send for catalog and prices.

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It describes our 300 guaranteed, durable pumps—hand and power—$3 to $300—which our Service Dept. will help you select—free. Send for your free copy today.
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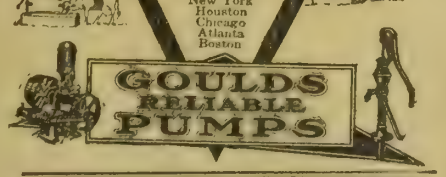

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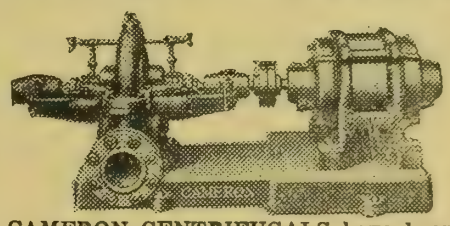

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CAMERON CENTRIFUGALS have been designed and built with the special aim of producing a combination of high working value and low operating cost. Simple and strong all through. Finest material and workmanship. Highest efficiency. Backed by an experience of over fifty years. Can be operated by motor, gas engine or belt.
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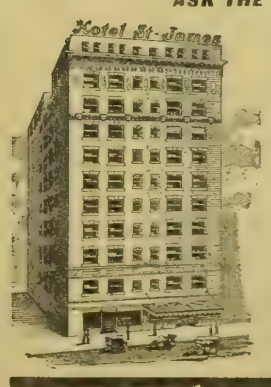

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Genuine Florida Sour Stock. Sweet Stock grown from carefully selected California seed. Before buying see us. Prices right.

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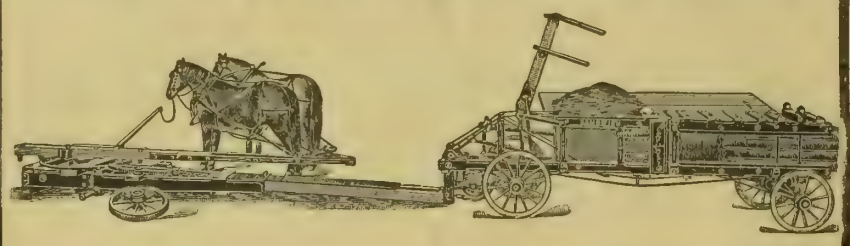

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Hawley, King & Company

224-228 So. Los Angeles St. **LOS ANGELES**

An Overproduction of Apples ?

The present demand for apples in the United States, including those used for export, is placed by the Department of Agriculture at 55,000,000 barrels. If that many apples were raised in this country there would be no overproduction. Figures from the Department of Agriculture show there has been an average annual decrease of 25 per cent in the apple production during the last nine years. The serious shortage that exists for apples is attributed largely to the dying out of the old orchards and the insufficient plantings of new ones.

The Yucaipa Valley, eight miles from Redlands, altitude 2400 to 3000 feet, is the place to plant an apple orchard, and this is the time of year to visit Yucaipa and see what you would have if you had planted four years ago. It is not too late to make a start.

Come to Redlands and let us take you to Yucaipa and show you our five, ten and twenty acre tracts at $285 per acre, on very easy terms. One share of stock in a Mutual Water Company with each acre.

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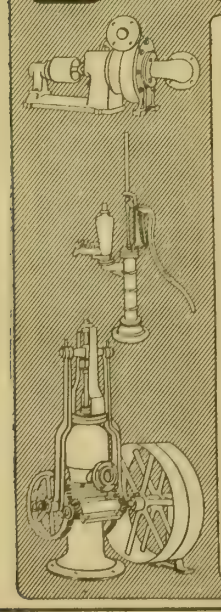
209 Orange Street **REDLANDS, CAL.**

PUMPS



Whatever kind of a pump you need—we have it. Handling all styles of pumps we are not obliged to urge any one type on you, but are in a position to help you select the pump best adapted to your particular requirements. We manufacture and sell

Horizontal Centrifugal Pumps
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Illustrated are three of the many different styles. Don't decide on a pump till you put your needs up to our Pump Specialists. Their advice and suggestions will cost you nothing.
WRITE TO US and state your requirements—by guiding you to a right selection we can probably save you both money and trouble.
FREE CATALOG 28-B describes Bean Horizontal and Vertical Centrifugal Pumps.
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A postal will bring either or both by return mail.

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Deciduous Fruits

CROP ESTIMATES

IT is apparent there will not be a 100 per cent crop, especially as to apricots, which it appears are running generally under normal. Likewise prunes will be light; peaches will perhaps be nearly normal, though certain sections report serious inroads by the blight. Our guess would be the apricot crop would run between 60 and 70 per cent of normal.

John Tuohy, Tulare, Tulare Co.

So far as I have observed or been informed the outlook for a new crop of apricots and peaches in this vicinity is fully up to the average. No damage from frost so far and none now expected.

The orange crop is very promising. Growers are cooperating in the handling and marketing of that crop in a very businesslike way.

D. C. Funk, Upland, San Bernardino County

The apricot crop in this vicinity will be good. Trees blossomed heavily; the weather was very favorable and the fruit set well, so we have promise of a big crop of fine quality.

Peaches also look well and give promise of a big crop.

J. P. Dargitz, Sacramento, Sacramento County

I am so out of touch with the fruit business now that I fear my guess would not be very reliable; in fact, would be too much like guessing that has been done in the past.

The weather and moisture conditions have been all that could be desired by the grower to get big crops. However, both apricots and peaches have a habit of dropping and blasting the growers hopes, though peaches not so much as prunes or apricots. It is early, but the outlook is generally excellent to date.

Sheridan W. Baker, Santa Rosa, Sonoma County

Replying to your inquiry as to the apricot and peach crops in this section it is safe to say that the prospects are good. We grow comparatively few apricots.

The prune crop is harder to estimate and present reports are to the effect that it will be a half crop at least.

A. Hancock, Bakersfield, Kern County

The prospects for the apricot crop in Kern County at this date are only fair. Two-thirds of a normal crop, or about one-half of last year's crop (which was a record-breaker), would be about right, I think. The early and late varieties are very light, but the medium varieties are fair.

Peaches also have a tendency to be light; some varieties are better than others, but none will be up to normal.

In fact, the prospects for nearly all kinds of fruit here appear to be below normal or full crop, but probably will be better grade on that account.

Winters Dried Fruit Company, Winters, Yolo County

The conditions for making crops have been all that one could wish for, having plenty of rains at the right time, a warm spring, farm operations brought up to standard. Shot-hole fungus on apricots is bad, the canker worm also on apricots. and prunes. Still we have a prospect that will show up a greater tonnage than in years past.

Apricots, 100 per cent; peaches (all varieties), 100 per cent; almonds (all varieties), 80 per cent; prunes, 75 per cent.

Harry Lee, Secretary Orange County Dried Fruit Association, Santa Ana.

The apricot crop will be 70 per cent of last season's crop, or 70 per cent of a full crop.

Very few peaches in this district.

Ventura County Dried Fruit Association, Santa Paula

Ventura County apricot crop estimated at 50 per cent of last year.

N. E. Mathews, Santa Ana, Orange County

Concerning apricots, I have cut all mine out, due to unsatisfactory market conditions. Many others in this section have done the same. Many have nearly all their crop of last season yet. The prospect for coming crop yield is good.

Peaches only fair as far as I can learn, as they have never proved profitable in large quantities here. There are not many orchards in the section.

D. Felsenthal, Fillmore, Ventura County

Apricots in Ventura County are spotted, as near as I can learn, ranging from 20 per cent in some localities to 80 per cent in others, with an average of from 55 to 60 per cent of last year's crop.

Chamber of Commerce, Paso Robles, San Luis Obispo County

Apricots have set well and give promise at this time of a good yield. The showers have helped to bring them along and to hold off the frost. Have had no frost this month. Same is true of all crops—peaches, pears and almonds.

Grain in most all sections promises very well and feed is good. In fact, just at this time the entire crop prospect is for above an average yield.

W. L. Whepley, Lemon Cove, Tulare County

Lemon Cove has prospects of the largest crop of oranges ever harvested this year. The bloom was very early and immense, and is setting nicely.

S. O. Walker, Secretary California Cured Fruit Exchange, San Francisco.

To gain as definite information as possible is ever our effort, and we probably fail in accomplishing our desire nearly as often as others do, especially early in the season, and an estimate of probable production, to have any value whatever, should be state-wide. In some districts in the state we are compelled to rely largely upon reports made by those who are not members of this organization, and therefore we have to accept the same at their face value or disregard them wholly. This brings us to say to you that we believe the 1915 crop year will produce a total from 25 to 40 per cent. less than the production of the 1914 crop year. Having said this, it is also proper to say that there are a portion of our own people who insist that they will not have this year 25 per cent of last year's tonnage of cots.

With regard to the prune situation, reports from different localities are so widely divergent, and yet evidently honest, that we believe that notwithstanding the opinion of others to the contrary this year's total will not very greatly, if at all, exceed the 1914 crop.

Sebastopol Apple Growers' Union, Sonoma County.

No apricots are raised in this section and very few peaches.

The cherry crop was more or less damaged by rain at blossom time and will probably turn out about 20 per cent of a normal yield.

Prunes are estimated at one-half and apples indicate a full yield.

M. Sharpe, Vacaville, Solano County.

Apricots, 100 per cent. Some shot hole fungus owing to late rain and inability to spray owing to wet ground.

Pears, about 20 per cent owing to thrips.

Prunes, about 50 per cent.

Plums, about 90 per cent.

Cherries, about 30 per cent. Late rains washed the pollen.

Grapes, about 100 per cent to date.

Peaches, about 100 per cent.

Other fruits not grown commercially here.

LIGHT APPLE TONNAGE THIS YEAR

A dispatch from North Yakima says: "With the blossoming period for soft fruits practically over and that of apples well along, reasonably accurate estimates of the 1915 fruit tonnage is possible. Field managers for the larger organizations and fruit dealers who have been touring the valley agree that the apple tonnage will not exceed 70 per cent of that of 1914 and probably not be more than 60 per cent. Some put it as low as 50 per cent, as the older trees, which bore heavily last year, are nearly all idle this year.

"In the Zillah district, one of the heaviest shippers and where old trees predominate, there will not be more than one-third of the apple tonnage of last year. Cherries and pears are exceptionally heavy and cherries are setting well. Some peaches are light, but it is believed the tonnage will be as great as a year ago. There have been no frost injuries this spring.

LITTLE LEAF

"This disease of "little leaf" attacks many different kinds of trees, occurring to a very wide and serious extent in the San Joaquin Valley. Especially on peaches it is the cause of very severe loss. Two very common ideas have been in existence, namely, that the disease is due to gall-forming nematodes upon the roots or that it is the effect of crown gall. Extensive examinations by the University of California experiment station have shown that while both of those conditions are common in trees or orchards affected with little leaf, still there are many cases where little leaf is not accompanied by either of these troubles. Therefore it must be due primarily to some other condition.

"Two facts have been found very pronounced as to the occurrence of this disease, namely, that affected trees are usually located either in streaks of sandy or very light soil running through the orchard, or that they are planted in places where corrals or barnyards were formerly located. The latter condition is very common and striking in the San Joaquin Valley. In the investigations thus far conducted little leaf is always accompanied by a lack of available nitrogen in the soil. This may be due to a lack of total nitrogen, or, as in the case of the corrals, to a lack of nitrifying power in the soil.—University of California Agricultural Experiment Station.

ALTITUDE STERILIZATION TABLE FOR USE IN CANNING.

Bases on 29-inch barometer with temperature at 70 degrees Fahrenheit at sea level.

Note—Add time in third column to the process times given in directions if you are above sea level. Determine how high, then consult table.

Altitude	Water boils at	Additional time
512 feet	211 degrees	2 minutes
1025 feet	210 degrees	4 minutes
1539 feet	209 degrees	6 minutes
2063 feet	208 degrees	8 minutes
2589 feet	207 degrees	10 minutes
3115 feet	206 degrees	12 minutes
3642 feet	205 degrees	14 minutes
4169 feet	204 degrees	16 minutes
4697 feet	203 degrees	18 minutes
5225 feet	202 degrees	20 minutes
5674 feet	201 degrees	22 minutes
6304 feet	200 degrees	24 minutes

—Canning Recipes.

CALIFORNIA CANNING SEASON

Approximate period of packing the different varieties.

Fruits

Apricots, latter part of June to middle of August.

Blackberries, latter part of June to fore part of September.

Cherries, latter part of May to middle of July.

Currants, last three weeks of June.

Gooseberries, latter part of May to latter part of June.

Grapes, fore part of September to end of October.

Nectarines, latter part of July to fore part of September.

Pears, latter part of July to latter part of September.

Peaches, Free, latter part of July to middle of October.

Peaches, L. C., latter part of July to middle of October.

Peaches, W. C., middle of August to middle of October.

Plums, Green Gage, middle of July to middle of September.

Plums, Egg, middle of July to middle of September.

Plums, Golden Drop, fore part of August to fore part of September.

Plums, Damson, latter part of August to latter part of October.

Quinces, middle of September to middle of November.

Strawberries, fore part of May to latter part of October.

Vegetables

Asparagus, latter part of March to middle of June.

String Beans, middle of June to end of November.

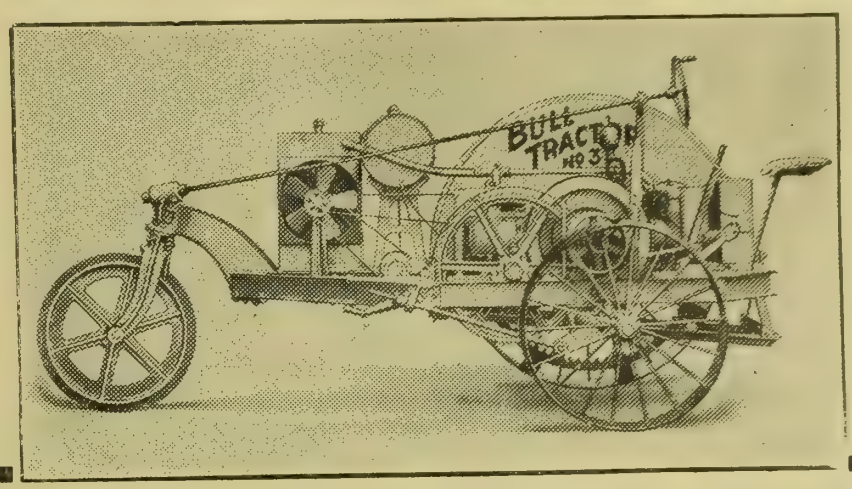
Peas, middle of May to latter part of June.

Tomatoes, latter part of August to latter part of November.

$685. F. O. B. Pacific Coast Points

New Big Bull TRACTOR

"A Giant in Power, a Midget in Cost"



Makes Horses Too Expensive to Buy and Keep

THIS NEW BIG BROTHER OF THE FAMOUS "LITTLE BULL," which took the farmers of this country by storm last year, develops from 7 to 10 horsepower at the draw bar (where you get the pull), and from 20 to 25 horsepower at the belt (for stationary work). The **New Big Bull Tractor** is the "big tractor buy of the year." There are several thousand now in use (more than most other makes combined) and all **GIVING SATISFACTION.**

TEN REASONS

Why You Should Buy the New BIG BULL TRACTOR

1—It can be depended upon and DELIVERS THE GOODS.
2—It will do more all-round farm work than any other tractor anywhere near its cost. Look at the following features:
3—The Bull wheel runs in the furrow and does not pack the land. This principle covered by patent.
4—The patent STEER WHEEL also running in the furrow in line with the bull wheel, makes the tractor positively and automatically self-steering.
5—Patent leveling device, by which the tractor is quickly and easily adjusted to side hills or deep furrows.
6—Direct drive with only four gears. All complicated transmission and compensating gears absolutely eliminated.
7—Special gear shifting device.
8—Electric welded gasoline tank and brass tube radiator.
9—Extra large crank shaft and connecting rod bearings.
10—Extra large inspection plate on top of motor, affording easy examination of bearings, without disturbing timing.

Send for specifications today. You can own and use this machine at a BIG PROFIT. Get the facts.

Our first big shipment of the **New Big Bull Tractor** arrived here last week and we are filling our early orders from it. Another big consignment is headed this way. Is your tractor in this shipment?

PRACTICAL DEMONSTRATION

Come and see it or fill out the coupon and mail it today, and we will send you ALL YOU WANT TO KNOW. Get TRACTOR WISE. Buy where thousands of sales keep the margin of profit down within reason.

Let us show you how you can make big money by owning a good tractor, but MORE MONEY by owning a New Big BULL TRACTOR.

Hughson & Merton, Inc.

Pacific Coast Distributors

530 Golden Gate Ave., San Francisco

1229 South Olive Street, Los Angeles

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Hughson & Merton, Inc.,
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Los Angeles

Kindly send me full particulars regarding your Big Bull Tractor.

Name .....

Address .....

THE SCHMEISER PORTABLE AUTOMATIC DERRICK

THE
HAY STACKER THAT SAVES
TIME, WORK AND MONEY

This derrick will handle hay, loose or baled, in the easiest, quickest and most economical manner known. It is always ready, is portable and can be moved from place to place as easily as a farm wagon. With it three men can do the same amount of work as nine men by hand. Has great lifting capacity and is unequalled for hoisting machinery, timbers, or heavy loads of any kind.

WRITE US TODAY and we will send you descriptive and illustrated literature. The Schmeiser Portable Automatic Derrick is not an experiment. It is the result of 25 years of actual experience gained in farming. It is being used with great success all over the Pacific Coast. Write us NOW for full details explaining just what it can do and how it can save you time, work and money. Address

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PILES UP HAY AND PROFITS

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It gives superlative service long after it has served its first usefulness.
When you buy a —STILETTO— hammer, saw, screwdriver, chisel, brace, bit, axe, hatchet or in fact any article bearing this famous trade-mark you may be sure that the more you use it the more pleased you will be with it.

If your dealer does not sell —STILETTO— write for the name of the dealer who does.

Pacific Hardware & Steel Co.
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STILETTO
REG. U.S. PAT. OFF.

I Want to Show You This 40 ACRE EQUIPPED FARM

LAND: Level, clean, strong; no brush or stumps; ready for plowing; between two railroads and within 1½ miles of stations on Southern Pacific and Western Pacific. In the Upper Sacramento Valley.
SOIL: Deep San Joaquin loam.
WATER: Unlimited water at 20 to 25 feet.
EQUIPPED: with a plow, a harrow and a cultivator, a pumping plant complete, trees and seed.
SPECIAL: This land is absolutely above all flood from rivers; the titles are clear and guaranteed; there is no bonded indebtedness; there are no reclamation or irrigation assessments. This is clean, strong land without incumbrance of any kind.

DUDLEY MOULTON
Expert of Agricultural Lands
Twelfth Floor First National Bank Building, San Francisco

CONSTITUTION AND BY-LAWS

(Continued from Page 507)

of directors the value of the interest of such member shall be determined by appraisement by three disinterested persons but in no case shall the value of such interest exceed the amount actually paid to the association by such member.

In case of the death of any member the value of the interest of such deceased member in and to the property of the association shall be determined as above specified and paid to the legal representative of such deceased member. Provided, however, if said legal representative desires to succeed to the membership of such deceased member he may with the consent of the board of directors do so.

In case of a bona fide sale or destruction or loss of the property of any member served by this association, or the occurrence of any other act which shall have the effect of permanently removing such member from the privileges of this association, the value of the interest of such member shall be determined as herein specified and paid to such member, and all the rights, privileges and interests of such member in the association shall thereupon cease.

All amounts to be paid under this article upon the termination of any membership shall be paid by the board of directors as soon as such membership shall be taken by some other party, and as soon as the association has sufficient funds on hand with which to pay said amount.

Article X.

Expulsion of Members—Any member of this association may be expelled from the association by the board of directors for any cause or conduct which the board of directors shall determine by a two-thirds (2-3) vote to be injurious to the association.

In case of the expulsion of any member the value of the interest of such member in the property of the association shall be determined as specified in the last foregoing article, and shall be paid to such member within 40 days thereafter, and upon the payment of such amount to such expelled member all the interest of such member in and to the property of the association shall be terminated and all the rights and privileges of such member in the association shall cease.

Article XI.

Division of Profits—Each variety of products shall be graded according to quality, and each member shall receive credit for the number of pounds delivered of each grade that may be established, and receive pay for the same on the basis of what that grade has actually sold for in the market, less the expense of marketing the same. The net proceeds of sales of products shall be distributed pro rata from time to time as fast as the returns become available.

Article XII.

Funds—The funds of the association shall be paid to the treasurer and his receipt taken for same, and shall only be paid out on check signed by the president or vice-president, and countersigned by the secretary, or by the manager when authorized by the board of directors.

Article XIII.

Books, Etc.—Proper books of entry shall be kept, showing all receipts and disbursements of monies, the amount of fruit delivered to the association by each member, and the variety and the grade thereof. The books and correspondence of the association shall be in the name of the association, and each member shall have access to said books and correspondence during business hours. A suitable office shall be secured in which the books and papers of the association shall be kept; such office shall be the headquarters of the association.

Article XIV.

Amendments—The by-laws may be amended or altered by a two-thirds (2-3) vote of the members at the annual meeting or at a special meeting called for that purpose.

Know All Men By These Presents: That we, the undersigned, directors and secretary of the Tulare County Growers' Association, do hereby certify that the above and foregoing by-laws were duly adopted as the by-laws of said association on the —— day of March, 1914, and that the same now constitute the by-laws of said association.

THE CANNERY IN THE HOME

YEARS ago the home used to be the center of industry. The family operated its own little factory and attended to its own distribution and the day of the prosperous middleman prevailed.

Then the installation of modern labor-saving machinery, operating on a large scale, took the business away from the small plant and consolidated it under larger systems. The result was hardship and poverty for the masses with all the profits going into the hands of the few gigantic operators.

People began to ask for a revision of the old standard under methods which are perfectly modern. The back to the soil movement was the first sign of this demand.

With people back on the soil the marketing question came up more strongly than ever. People on the land demanded the maximum returns for their efforts.

Especially has this proven true in the case of canning and packing establishments. The family which sells all its fruits, berries, vegetables, meats, etc., to the large cannery does not make a glowing profit. People coming to realize the profits in the canning and marketing business, began to demand their share of the profits.

"Why can't we have a cannery of our own at home?" became the question.

To answer this demand there are now on the market many ideal home canning outfits. These are really canneries of the regulation standard but adapted to the home where they can be installed on a small scale and enlarged as the business warrants it. Thus every family is in position to start its manufacturing business in a small way, canning all it produces, getting the top market prices for its products, and gradually, according to its own ability, grow as large as it desires.

Many of the best canning firms today began in this way only a few years ago. While this system is comparatively new and the practical small home cannery is really an innovation, the results have already been such that today thousands of families are

Touring—
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—a change from the oil you have been using means bother in adjusting the feed. Otherwise too much or too little is fed into the cylinders. No trouble if you use

ZEROLENE
the Standard Oil for Motor Cars

It is *obtainable everywhere*, from Seattle to San Diego, from Spokane to Phoenix—at city garage or roadside hamlet.

And it is always uniform—the same body—the same perfect lubricating quality.

Dealers everywhere, or at all agencies and Service Stations of the

Standard Oil Company
(California)
Los Angeles

realizing the immense possibilities of having their own cannery at home.

The marketing question for the farm which operates its own small cannery is a very simple one. There is always a good demand in the nearby towns and cities for the better grade of home canned fruits, vegetables, meats, etc. Of course, quality counts, as in everything else, but poor quality is its own fault, the fault of carelessness and lack of proper attention, while good quality is the sure road to success and more money for the farm home.

When a family puts up a good grade of canned foods, which may be put up in glass jars with equal facility, the reputation of the brand soon spreads and there is no limit to the amount which can be sold.

A great advantage of the small cannery on the home farm is that it gives profitable occupation to everyone on the place, young and old. Fruits and vegetables must be prepared for canning or packing in glass, and the sterilizing must be done. Then there is the labeling and crating—thus giving everyone something to do which is profitable.

It is a well known fact that the canneries of the Pacific Coast have made hundreds of thousands, yes, millions of dollars during the past few years. Gradually much of this profit is being diverted direct to the home through the medium of the home cannery. But the demand for good canned food is so huge that instead of being competitors the canneries operating on a large scale and the canneries on the farm today and those that are being planned for this and coming years can operate with perfect friendliness. There is room for all, for the market is the whole world. Packed in glass and in tin, Pacific Coast fruit, vegetables and meat, can go to the remotest corners of the world and bring top prices for the growers.

The home cannery is without doubt the greatest invention of modern science contributing to the wealth of the farmer, the gardener and the orchardist.

A FEW NOTES ON THE COST OF CANNING

Written for California Cultivator
By W. V. Cruess

A SMALL cannery designed for handling peaches and tomatoes would need the following equipment at least, if the plant is to operate on a commercial scale: Cutting table, lye peeler, washing tank for peeled peaches, blancher for peeled peaches, sorting belt for peaches, grader for peaches, canning table, syruper, exhaust box, sanitary capping machine, cooking or sterilizing machine, scalder for peeling tomatoes, peeling and filling table for tomatoes, pulp machine for tomato pulp, motor or steam power with connections to drive machinery, and steam boiler for cookers. The necessary buildings should contain a receiving and storage room for fresh fruit, an office, scale room and wagon scales, canning room, cooking room, boiler room and warehouse room. The machinery including boilers for cooking and power will cost $6000-$8000 according to a large cannery supply company of California. The buildings would be extra. Probably $12,000 would not be any too much capital to equip and build such a plant. Its capacity would be at least 500 cases of two dozen cans each per 12 hours.

This would be 12,000 cans or approximately 13 tons of peaches daily. For a season of 50 days on peaches this would be over 600 tons of fruit. For a cannery devoted to peaches and tomatoes only the peach crop would have to be cleaned up before starting on the tomato crop because the machinery can not be used conveniently for both.

Allowing 12,000 cans of tomatoes daily or approximately 17 tons daily for a 50-day season the plant would turn out 850 tons of tomatoes.

Or there would be canned a total tonnage of peaches and tomatoes together of 1450 tons. This is figuring on a 12-hour day and a yield of 40 cases of peaches and 30 cases of tomatoes per ton on a basis of number 2½ cans. Two dozen cans per case.

The capital necessary to operate such a plant may be approximated from the following figures: A ton of peaches will cost on the average $20, tomatoes will cost $6.00-$8.00 per ton. The total cost of grading, peeling, syruping, canning, labeling, etc., of the peaches will amount to approximately $60 per ton for peaches according to figures given by Mr. Campbell of the Tulare County Growers' Association. At $20 for the fresh fruit this brings the total cost to about $80 per ton f. o. b. cars at factory. Tomatoes can be canned more cheaply than peaches because no sugar is used in the cans and the labor cost is less.

The profit on peaches when sold at $1.20 per dozen and 7 per cent discount will be approximately $10. According to a cannery supply firm consulted concerning profits in tomato canning, the profit was placed at 50 per cent of cost of fresh tomatoes. This would be a profit of $3.00-$4.00 per ton.

Thus if the cannery be of the cooperative type, producing all its own fruit, it could pay the owners $30 per ton for peaches and $9.00-$12.00 for tomatoes. This would be net after paying all operating costs and interest, but does not take care of sinking fund.

The wastes in marketing can be seen when it is known that the farmer's ton of fruit which he sells for $20 costs the housewife in the East $288. The marketing side of canning will be more difficult for the new cannery to solve than its technical problems.

Cans used for peaches and tomatoes can be made at the factory, but the necessary machinery costs about $12,000. Unless very large quantities are to be used it will therefore be better for the cannery to buy its cans ready made at $18-$20 per 1000.

There are a number of home canning outfits on the market.

The objections to the small outfit for commercial purposes are the necessity for use of solder cans rather than the sanitary cans, the non-uniformity of product, the very large amount of hand labor and difficulty in disposing of small lots of fruit or vegetables that can not be taken by the local market. However, several moderate sized home canneries might combine their output and market cooperatively with greater success than if each acted independently.

If possible, the cannery either large or small should produce not only peaches and tomatoes but should also be able to supply other fruits and vegetables as well. The more complete the line the better, because the buyer would naturally prefer dealing with one firm in preference to half a dozen to obtain a corresponding number of different canned products.

In business watch your competitors. No one man or concern has a monopoly of all the best brains and methods. Let competition be an incentive to your energy and ambition. Give the other fellow a fair square deal and beat him out on your merits.—Walter H. Cottingham.

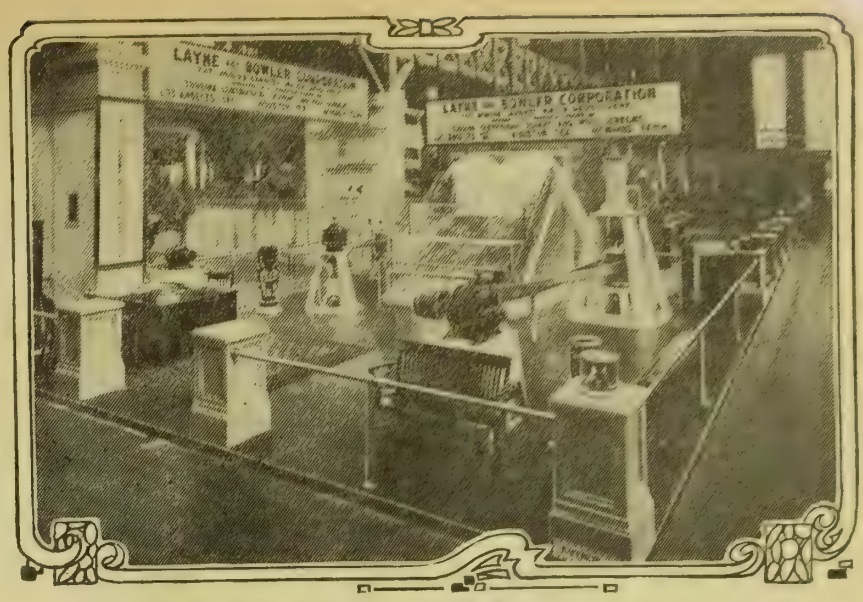

Exhibit of Pumps at San Francisco Exposition

Visited by hundreds of prospective irrigators. One of the most interesting and complete exhibits of irrigation pumps ever assembled is that of the Layne & Bowler Corporation in the Palace of Machinery at the San Francisco Exposition.

In this exhibit are the turbine centrifugal pump for shallow and medium work, belt driven; one driven by direct connected vertical motor, and one for extraordinary depth where the weight of the shaft is carried on an oil thrust bearing.

They are all in actual operation and prospective irrigators and pump users are availing themselves of the opportunity of seeing the exhibit. The different styles of well screens and steel casings are also shown.

One of the best pump men on the Coast has been chosen by the manufacturers to superintend the exhibit and answer questions visitors may ask.

To those who are unable to attend the exposition, the Layne & Bowler Corporation, 900 Santa Fe Avenue, Los Angeles, manufacturers of the world famous Layne & Bowler Pump, will gladly send their pump and irrigation booklet, No. 30. It gives valuable irrigation information and will be sent free of charge and postpaid.

Plants by Parcel Post--Postpaid

TOMATOES—Stone, Beefsteak, Dwarf Stone, Earliana—20c per doz., $1.00 per 100.
PEPPERS—Anaheim Chili, Chinese Giant—20c per doz., $1.00 per 100.
EGG PLANTS—35c per doz., $2.00 per 100.
ASTERS—All Colors—25c doz., $1.50 per 100.
CANTERBURY BELLS—35c doz., $2.00 per 100.
DELPHINIUM BELLADONNA—$1.00 doz., $5.00 per 100.
SWEET POTATOES—Yellow, 50c per 100, $3.00 per 1000.

Morris & Snow Seed Company
439 So. Main St., Los Angeles

ARNOTT & CO. HAY PRESS HEADQUARTERS

Only Two Men to Run Easy on Men and Team- **-THE AUTO-FEDAN-** Means One Less Man-

Three Stroke - Great Capacity - Self Feed- No Danger - Smoothest Bales - Easily Moved- and Set - Extra Power - Simple - Durable - Guaranteed - Sold on Easy Payments CATALOG MAILED FREE

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Especially Strong For Alfalfa - Feed Hopper only 39 Inches from Ground - Largest feed Opening-

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Orchard Brand Spray Materials

ATOMIC SULPHUR paste, for the control of mildew, miscellaneous fungus troubles, red spiders and mites on fruit trees, grape vines and other plants. It may be effectively combined with arsenate of lead, oil sprays and nicotine solutions when spraying for other troubles without causing any injury where the separate ingredients used alone would be safe. Effective as a carrier and spreading agent for nicotine solutions and arsenical poisons.

LIME SULPHUR SOLUTION, a high grade, concentrated, clear liquid, free from sediment, for spraying citrus trees and for dormant spraying on deciduous fruit trees.

BORDEAUX MIXTURE paste, a concentrated, efficient fungicide ready for use by diluting direct in spray tank.

ARSENATE OF LEAD paste and powder, for the control of codling moth and other chewing insects.

MISCIBLE OILS, OIL EMULSION, LIQUID WHALE OIL SOAP, etc., for the control of aphis and other sucking insects.

In dealing with this Company, fruit growers obtain advantage of quick delivery, fresh materials, minimum freight rates, prompt service, uniform prices and definite directions for the intelligent use of these materials in order to obtain the best possible results.

Bulletin No. 5 gives the latest and best available information for the efficient and economical control of insect and fungous troubles and will be mailed free of charge to any fruit grower, on application.

General Chemical Company

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Single Acting Cylinders
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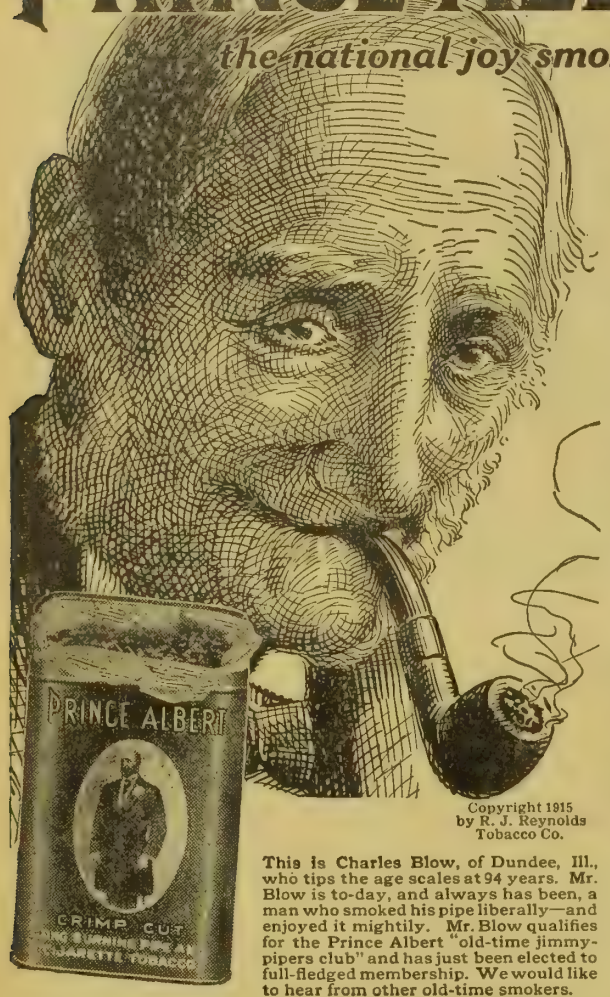


Copyright 1915 by R. J. Reynolds Tobacco Co.

This is Charles Blow, of Dundee, Ill., who tips the age scales at 94 years. Mr. Blow is to-day, and always has been, a man who smoked his pipe liberally—and enjoyed it mightily. Mr. Blow qualifies for the Prince Albert "old-time jimmy-pipers club" and has just been elected to full-fledged membership. We would like to hear from other old-time smokers.

has this to say to you:

You get busy and smoke some pipe, or roll a makin's cigarette with Prince Albert tobacco that'll make you wish you could hark back to your first days of smoking.

Because, no matter how pipe-shy any man is, no matter how tender his tongue, *he can* smoke a pipe, and *he will* smoke a pipe if he smokes Prince Albert tobacco!

Why, smoking P. A. is like having breakfast in bed Sunday morning! You just pack that joy'us jimmy pipe with load after load. The first few puffs *prove* P. A. can't bite your tongue or parch your throat. That's because it is made by a patented process owned exclusively by the R. J. Reynolds Tobacco Co. *No other tobacco can be like Prince Albert.*

Prince Albert is sold everywhere. Just say, "P. A. for mine." In the toppy red bags, 5c; tidy red tins, 10c; pound and half-pound tin humidors; crystal-glass pound humidors.

R. J. REYNOLDS TOBACCO COMPANY, Winston-Salem. N. C

Cut Rate Seed House

Our Seeds are the VERY BEST, but we are not in the SEED COMBINE. We pay as much for ours as they do for theirs, which the invoices will prove. But their profits are too large. Our slogan: SEEDS at LOW PRICE and NO PRICE can buy better. Send for our Price List.

West Coast

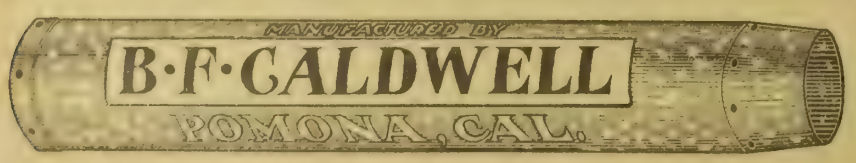
(Cut Rate)

Seed House

116-118 E. 7th St., Los Angeles

IRRIGATION PIPE

SHEET METAL WATER GATES,
OIL AND WATER TANKS, ETC.



CANNING RECIPES

THE recipes given below are from a 60-page book issued by the Henninger & Ayes Manufacturing Company, Portland, Oregon. The book is filled with information of value to home canners. In the preface the publishers say:

The readers of this book will find that the formulae or recipes given are practical, ready for use; they have all been tried and used repeatedly by men who have made a success of the canning business, and there is but one reservation that goes with them; considerable sense must be added to all formulae. By this we mean that it is absolutely impossible to give one set of time process for all conditions and locations; that every change of temperature, altitude, difference in soil or fertilizer, a wet or dry season, and a number of other causes, may have an effect upon the process; and so no large pack should be put up until a trial batch has first been made, and not only at the beginning, but frequently during the pack, in order to detect any changes.

Blanching

All green vegetables should be given a bath in running water for a sufficient length of time to make them plump and crisp. Blanching is simply the act of plunging the vegetables in a bath of boiling water, which may or may not contain salt or other chemicals. The bath must be absolutely boiling when the article is dipped, and of such a capacity that the immersion will not more than momentarily check the boil. Blanching serves to set the color of green vegetables and also removes the mucilaginous substances in which various germs find lodgment, from the surface. When chemicals are used in the blanching bath, they bleach, harden or toughen the surface according to the nature of the chemical used. The solvent power of pure water is sufficient to destroy the firmness, color and skin of many vegetables when cooked therein; this is why brine (the chemical action of salt is to harden water) is generally used to fill the cans.

The Making of Brines

In preparing brine for canned vegetables, there are but two elements to be regarded as far as the materials entering into the preparation of the brine are concerned—water and salt. Yet many canners, by neglecting to give proper attention to the selection and preparation of these materials, have nullified the results of an otherwise careful process. The water used in making brines should be soft; that is, not containing appreciable quantities of lime, and free from iron.

By dissolving the amount of salt specified in the first column of the following table in 12½ gallons of water, the percentage of salt contained in the resulting solution will approximate as follows:

½ lb. of salt in 12½ gallons of water equals ½ of 1%.

1 lb. of salt in 12½ gallons of water equals 1%.

1½ lbs. of salt in 12½ gallons of water equals 1½%.

2 lbs. of salt in 12½ gallons of water equals 2%.

3 lbs. of salt in 12½ gallons of water equals 3%.

4 lbs. of salt in 12½ gallons of water equals 4%.

5 lbs. of salt in 12½ gallons of water equals 5%.

For making brine, jacketed copper kettles, wooden tanks, with closed copper coils in bottom or wooden tanks with steam jet, may be used. In making brine, first bring the water to a violent boil, then add the sugar, salt, etc., and stir until dissolved. If material used contains any dirt, specks, chips or particles of paper, place it in a closely woven bag and suspend just below the surface of the boiling water.

Asparagus No. 1 Process

Wash free from adhering earth and give bath in cold water until crisp. Scrape off the tough outer skin and roughly assort according to diameter of stalks. Cut off butt, leaving top of right length for can. Wash thoroughly in cold water; place carefully, butts down, in a wire basket provided with a cover to keep stalks in place. Have ready a boiling hot bath containing ½ lb. salt to 12½ gallons water; immerse the grass for one-third its length and boil from three to five minutes, according to thickness of stalks, then drop so that two-thirds is covered, and cook from three to five minutes.

Then drop in cold water for the longest convenient period. Place carefully in cans and fill with cold brine (2½ lbs. salt to 12½ gallons water), solder lid and exhaust:

2 lb. cans, 8 minutes.
3 lb. cans, 10 minutes.
4 lb. cans, 12 minutes.

Tip and process:

2 lb. cans, 10 minutes at 240 degrees.
3 lb. cans, 12 minutes at 240 degrees.
4 lb. cans, 15 minutes at 240 degrees.
2 lb. cans, 40 minutes at 212 degrees.
3 lb. cans, 45 minutes at 212 degrees.
4 lb. cans, 50 minutes at 212 degrees.

Remove from process kettle and drop in cooling bath. For glass jars fill with cold brine and allow same process without exhausting.

Asparagus No. 2 Process

Wash, scrape, sort and size. Blanch two minutes in bath containing salt ½ pound, water 12½ gals. Place in side-opening cans, fill with brine (2½ lbs. salt to 12½ gals. water), solder lids and exhaust:

2 lb. cans, 8 minutes.
3 lb. cans, 10 minutes.
4 lb. cans, 12 minutes.

Tip and process:

2 lb. cans, 25 minutes at 240 degrees.
3 lb. cans, 30 minutes at 240 degrees.
4 lb. cans, 35 minutes at 240 degrees.

Drop in cooling bath. This is the time for stalks of average thickness; for small size allow three minutes less; for large, three to five minutes more.

String Beans

The smaller the beans are the finer the article they will make, because they are tender and nearly free from the tough string, from which they take their name, and which forms as the bean grows. The beans are also then of a fine color, being the rich dark green so desirable. The finest beans are picked when only about two inches long and about one-eighth of an inch thick; and for this reason, of course, a large quantity is required. From this size up, they will grade according to the time picked.

After being picked they should be brought to the factory with as little delay as possible, and care should be given that they are placed in splint baskets or slatted crates, never in bags. The reason for this, as is well known, is that when packed in bags they sweat and become tough, losing their crisp, brittle nature. If the beans become wilted, they should be placed in fresh, cold water, allowing them to stand for a time, which will largely restore their crispness.

Wash them in cold water to remove all grit and string carefully from both ends; then break or cut in pieces 1 inch or 1½ inches long. The smallest sizes are packed whole.

After properly preparing the beans, blanch two minutes in boiling water; place in cans, fill with hot 1½ per cent brine, cap, tip and process for the usual average size beans.

No. 2 cans, 40 minutes at 240 degrees, or 60 minutes at 212 degrees.

You're not afraid of new harness breaking. Well, harness that has been in service for years will stand the strain too, if you treat it occasionally with

EUREKA HARNESS OIL

That's because certain oils in Eureka are great leather preservatives. They nourish and lubricate the fibre, keep out dust, sweat and moisture, and preserve the original life, strength and elasticity of straps, tugs, breechings, etc. It pays to use it. Arrange with your harness man to dip your harness. Or apply it yourself by hand. Make your harness last longer. Dealers everywhere.

Standard Oil Company
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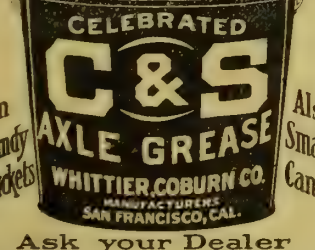
Los Angeles

"The Farmers Friend"



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Only Trap guaranteed to catch large or small gopher. Being round with thin edges gopher walks into trap before detecting anything in runway. Positive grip, jaws always hold. 100% efficient—catches gopher every time. Easiest to set. Far safer and surer than poisons or gas. Farmers say it's worth dozen other makes. Price 50c. If your dealer can't supply you, will be sent postpaid on receipt of 60c; two traps for $1.10; six for $3.00. Money back if not satisfied.

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Get a "BIG CATCH" and BIG YIELD of Clover, Alfalfa, Peas, Beans, Vetch and other Legumes—Inoculated with

NITRO-GERM ONLY 50c PER ACRE

Cheapest in the world. Guaranteed Perfect. Send for instructive circular.

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CONSULTING
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The smaller sizes require less time, dependent upon their tenderness.

Peas

In peas we have one of the most important packs of the canning industry, it being classed among the "staple articles."

The mechanical inventions have possibly been more noted in connection with this article and of more benefit to it than in any other single article connected with the business, and they have all tended to not only increase the output, with a saving in time and labor, but to increase the quality of the goods. This is so true that it is now recognized that without these improved mechanical devices it is impossible to pack peas profitably.

Grading for size:

Petit Pois or size No. 1, sieve 18-64ths.

Extra or size No. 2, sieve 20-64ths.

Extra or size No. 3, sieve 20-64ths.

Sifted or size No. 3, sieve 22-64ths.

June or size No. 4, sieve 24-64ths.

Marrowfat or size No. 5, sieve 26-64ths.

Blanching—There are two objects in blanching peas: (1) To remove the mucous substance from the outside and a part of the green coloring matter, so as to have a clean liquor in the can; (2) to drive water into the peas so that all will be tender. In the young juicy pea, the water content is at its maximum, so that the cleaning of the surface is all that is necessary. The time required for blanching is from one-half to one minute for No. 1 and No. 2 or "petit pois" and "extra sifted;" one and a half minutes for the No. 3 or "sifted;" two minutes for No. 4 or "early June," and two and one-half minutes for No. 5 or "marrowfat."

The process times given are a fair average, but the processor should bear in mind that peas grown during a wet season will require a shorter process than those grown during a dry season; also, as a rule, the later in the season the peas are planted, the more process they require. The processor should aim to turn out a finished article that is fit for table use by simply heating through, to contain no broken or bursted peas and with a perfectly clear liquor. If cans are filled too full some of the peas will burst and produce cloudy liquor.

For filling cans use a 3 per cent brine, though by many a sweet brine (3 per cent salt, 2 per cent sugar) is considered an improvement on plain brine.

Exhaust the filled cans in steam box, bringing the temperature to as near 170 degrees as possible. Cap, tip and process No. 2 cans:

No. 1 size or Petit Pois, 15 minutes at 240 degrees.

No. 2 size or Extra Early June, 16 minutes at 240 degrees.

No. 3 size or Early June, 20 minutes at 240 degrees.

No. 4 size or Sifted June, 25 minutes at 240 degrees.

No. 5 size or sifted Garden, 28 minutes at 240 degrees.

No. 5 size or Marrowfats, 40 minutes at 240 degrees.

Sizes No. 1 and No. 2 can stand a longer process without being damaged, and there are those who advocate a reversal of the above times on that account, giving the short time to the large peas and a longer time to the small peas; but in general, we advocate the above times, with such variations as local or peculiar conditions may make necessary.

Peas are nearly always packed in No. 2 cans.

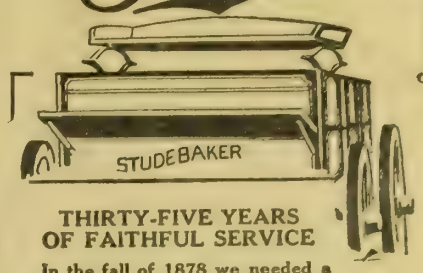
Tomatoes

Scalding: The best method of scalding is with a machine, or machines, so arranged that the tomatoes are first washed in warm water, then subjected to the action of jets of live steam for just a sufficient period to properly start the skin, and are then plunged immediately into cold water before being delivered to the peelers. When tomatoes are washed and scalded in water in the same tank the water must be at an actual, active, jumping boil in order to obtain the best results; and, if afterward they are given a bath in cold water, an effect almost equal to steam scalding may be obtained. Tomatoes thus chilled with cold water, after either steam or water scalding, will be firmer and pack a more solid can and will enable the peelers to

(Continued on Page 525)

Studebaker

WAGONS BUGGIES HARNESS



THIRTY-FIVE YEARS OF FAITHFUL SERVICE

In the fall of 1878 we needed a wagon to haul our wheat. Mr. Smith arose early one morning, and riding one horse, led the other to Eugene, ten miles away, and bought a Studebaker wagon from A. V. Peters, the Studebaker agent there.

I well remember his getting home at midnight, for I sat up and kept his supper warm for him.

My eldest child, born in June, was three months old.

The old Studebaker is still our favorite wagon. It is in good condition.

Mrs. W. T. Smith,
Natron, Oregon

Her "Baby" is now 35 years old—born year Studebaker was bought

MRS. SMITH of Natron, Oregon, well remembers the day her husband drove home the Studebaker, for her little one was three months old. And during all the years he was passing through babyhood, boyhood and on to full-grown man's estate, that faithful wagon was at work making money for the family and cutting down the cost of the investment.

Built with a reputation for durability

Such durability would not seem surprising to you if you knew the methods, the material and the men on which the reputation of Studebaker wagons is based.

Studebaker wagons owe their long life to the manner in which they are built, and the materials built into them. Air dried, selected lumber alone is used. Steel and iron are tested for ability to stand strain and stress. Even the paint and varnish used on a Studebaker wagon undergoes a chemical analysis.

And there is a great deal more in manufacturing wagons than the mere fact of putting wheels, gear and body together. A wagon must hang right and ride right. It must be built to stand rough work, to carry all sorts of loads and to travel over all kinds of roads.

Studebaker has been building farm wagons for sixty-three years, and they know how. Skilled workmen, a model plant that covers over 100 acres, and extraordinary purchasing facilities all help to make the Studebaker Wagon the best.

Studebaker also manufactures Buggies and Harness of the same high standard of excellence.

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ESTABLISHED 1886
LOS ANGELES AND MARKET STS, LOS ANGELES, CAL.

INSURE YOUR SEED

Get a "catch", a good stand, and a big yield of ALFALFA, BEANS, Peas, Vetch, and *all other Legumes*—inoculate with

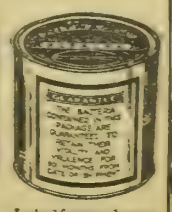
The Improved German Soil Inoculator, Nobbe-Hiltner Process

NITRAGIN

PURE CULTURE

THE SIMPLEST SAFEST AND SUREST SYSTEM OF SOIL INOCULATION FOR ALL LEGUMES

Gold Medal St. Louis 1904



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Inoculated Not Inoculated ALFALFA

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Guaranteed for Six Months by the Armour Fertilizer Works.

Absolutely harmless. Easy to use. An investment—not an expense. Remember—legumes not inoculated take *no* nitrogen from the air. Inoculated legumes mean bigger yields, richer feeding value, better soil.

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Avoid Imitations. LOOK FOR THE ARMOUR OVAL LABEL.

Make your crop sure. Inoculate with "NITRAGIN". It can be obtained for *any* legume.

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The California Cultivator

Rural California Combined with the California Cultivator

A Journal of Horticulture and Agriculture

By
THE CULTIVATOR PUBLISHING CO., Inc.
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Thursday, April 29, 1915

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

KEEP THE TICKS

We recently inserted a request for some good live chicken ticks. These were requested by Dr. Anderson for a friend in the department of agriculture at Washington who wished them for experimental purposes. We have received oodles of them and we call off the invitation as to sending any more. We did not know there were so many in California. We will give in an early issue of the Cultivator information as to their control.

BALANCE OF TRADE

We have long been appealing for increase in our output of meats and all dairy products because of the fact that we have been sending perfectly good gold to eastern markets for these things which California may as well raise. We are still buying millions of dollars' worth of pork and other meat products, but we are glad to see that in the case of one dairy product, butter, shipments have turned the other way. We are now producing more than we are eating, and butter is seeking an eastern market. We have the right conditions for producing the best on earth. Let us do it and command the very best of the eastern markets.

COOPERATORS COOPERATING

Mr. Vernon Campbell, manager of the cannery of the Tulare County Growers' Association, suggests that there might be objection to the formation of unlimited cooperative canneries in California providing each should remain in the open market and compete with the others in the disposal of their output. Why not form a large clearing house of cooperative associations? Large interests have as a rule definite understandings as to markets. The farmer generally takes the ground that a free-for-all makes things all the more interesting, hence he and his neighbor enter the market in competition, and both suffer. The gentlemen's agreement should be as good for the farmer as for any other business man.

PURE FOOD

The department of agriculture recently took action which should inspire more respect for the national pure food law. Men connected with a baking concern were arrested for using eggs which had long since ceased to be fresh. They were tried in the federal courts and were sentenced to serve terms in prison running from three months to one year.

The eggs used were those rejected in candling in the city of New York. In such large markets of course immense quantities are discarded. Many have reached the stage where they are entirely unfit for human food, but the law permits their use, after they have been denaturized, for technical purposes, the chief outlet being in tanneries.

The effect of these sentences will be salutary.

SIGN UP OR QUIT

The lima bean growers of Southern California have determined to have a greater percentage of the lima beans produced and marketed within the cooperative organization or else all will quit the game. Demand is made that at least 50,000 acres be signed up for a period of five years, and unless this is done prior to June 1 the association which has been in existence for some years will discontinue.

The period of canvassing is about over; the officials are tired of boarding themselves, furnishing their own time, grease and gasoline and soliciting signatures to contracts. Word has been sent to the growers to report at headquarters and sign up, or if they do not do so, it will be taken as an indication of their wish to have the association discontinue.

This is business, and we hope the association will stand by its plan. There are farmers who take delight in being followed up and urged to do things which are for their own interest. It is wearing on the disposition as well as the endurance. When farmers were more ignorant as to the advantages of cooperation it was perhaps advisable to follow the soliciting plan.

CANNING CLUBS

Great interest has been created in many eastern states in young peoples' contests in growing corn and tomatoes and other crops. The tomato producers have in addition to growing the crop often carried the process farther and with home canners put up the product of a quarter, a half or an entire acre. These contests have been encouraged by the department of agriculture and all state universities, and even more by local schools or civic bodies.

California entered into these contests for the first time last year, though we believe none of the contests had to do with canning, but other agricultural work was taken up by boys' clubs and resulted in a trip over the East of a score or more of youngsters from all over the state. This trip was under the direct supervision of B. H. Crocheron, who is also in charge of the farm adviser work of the state. Any community which is not now taking up this work should get in touch with Prof. Crocheron at Berkeley and learn of the possibilities of these clubs and of the advantages they afford to the young people of a community. Of course it is too late for a club to be organized to take advantage of the coming summer's trip. It is now thought the trip will be made up of a much larger party than that of last year. It will take in a circle of practically all states of the Union, but the central point of course will be Washington, D. C., where the work of the department of agriculture and other departments of the federal government will be studied.

F. O. B.

We call attention to a short review of citrus marketing conditions on another page of this issue. In addition to the points there raised we would like to refer to one more partiiularly, that is the much wished for f. o. b. plan. It seems to be sincerely desired by the shippers. If it were what it is claimed to be it would be equally as much desired by the growers. But we take issue with "an orange grower of Pasadena," Mr. George R. Stewart, when he says: "Sure, there must be some objectionable features to selling oranges f. o. b., but most that I have heard advanced are imaginary."

In argument such a statement is easily made, but to make it "take" with certain orange growers who have been in the business for 20 years it will have to be backed up with more than mere statement. The f. o. b. plan caused enormous losses to California growers, and so long as there are growers in California who were growers years ago, the memory of their treatment at that time will prevent adoption of the f. o. b. system.

The same writer seems to think there is a parallel between iron and oranges, for he suggests that iron is not marketed on the selling delivered plan. If iron were shipped every year to the extent of 50,000 carloads a distance of 3000 miles to market and the greater portion had to be disposed of within three months, perhaps there might be a parallel. But that is a type of the argument being used by those who would induce orange growers to return to a discarded method.

SUBSIDING

In The Weekly News Letter we note that "The end of the foot and mouth disease is believed to be in sight." On April 1 there were no animals in this country known to be affected with the disease. This was the first time this could be said since October. However there is no hope that the end is here, for there will probably be many outbreaks and in diverse sections of the country, but with the department now fully awake it is presumed that rigid quarantine measures which have been adopted will succeed, and ultimately the quarantine will be lifted. The department adheres to its original position, and every affected animal must be immediately slaughtered.

By far the greatest losses have been experienced in those states in which there was a widespread belief that the policy of immediate slaughter of all exposed animals and rigid quarantining of all infected districts was unnecessarily costly and troublesome.

Experience, however, has confirmed the official view that only in this way can the disease be eradicated. In certain countries in Europe, notably in Germany, the pestilence has gained such a foothold that the slaughter of exposed animals can not be resorted to and in consequence the widespread prevalence of the pestilence is a perpetual and exhausting drain upon the farmer's resources. In 1911, for example, it was estimated that in Germany there were 3,366,369 cattle, 1,602,927 sheep, 2,555,371 hogs, and 53,674 goats suffering from the disease. Since the total number of these animals in the United States is between three and four times that in Germany the loss to the country would be proportionately greater if the disease were ever to become permanently established here.

Agricultural Notes

A bill has been introduced into the Massachusetts legislature providing for convict labor on highways.

Ten counties of Michigan have formed a cooperative marketing organization to dispose of their fruit crops.

Florida's law prohibiting shipment from the state of unripe fruits has been upheld by the United States supreme court.

It is probable that an appropriation of $125,000 will be asked from the next Florida state legislature to fight citrus canker in that state.

Massachusetts announces that she expects to appropriate $2,000,000 for road work in the western part of the state the coming year.

The annual meeting of the American Guernsey Cattle Club will be held at Hotel Imperial, Broadway and 32nd Streets, New York City, Wednesday, May 12.

Receipts from grazing permits on the national forests for the season of 1915 will contribute to the public revenues approximately $1,200,000, or about $200,000 more than last year.

The Florida Horticultural Society held its eighth annual meeting in Tampa last week with an attendance of over 1200. H. Harold Hume, author of "Citrus Fruits and Their Culture," was elected president.

On March 3 the United States department of agriculture discontinued certification of healthy seed potatoes from infected districts of Maine and New York. The rapid spread of the powdery scab disease in this section has made this step necessary.

It is against the law in Texas for a landlord to charge a tenant rental more than one-fourth of the cotton crop or one-third of the grain crop. Governor Ferguson of Texas was elected last fall on a platform calling for this reform. The idea is to improve the tenant situation.

Artificial milk has been manufactured by German chemists from a basis of casein obtained in soy beans. The possibility of using soy beans in this way was discovered many years ago in China. Another report has it that the Germans are manufacturing a butter substitute from sunflower seed.

The discontinuance of trade relations with Europe has injured the agricultural industry of Siberia. Siberia is choking under the abundance of grain and is suffering from the absence of foreign markets; insufficient connection with foreign markets hinders the economic development of the country and its population.

During the year ending June 30, 1914, forest officers and government hunters and trappers on the national forests destroyed 4135 predatory animals, consisting mostly of coyotes, mountain lions, lynxes, wild cats and wolves. These animals prey upon livestock and cause an annual loss of $15,000,000 to the livestock interests of the United States.

Danish millers are required by the government to extract 64 per cent of the contents of the grain when handling rye and 68 per cent when grinding wheat, or respective recoveries of 141 and 150 pounds of flour from each 220 pounds of grain milled. All millers in the kingdom are required to make a statement of their operations every 44 days in order that the authorities may keep in touch with the situation.

Agricultural News Notes of the Pacific Coast

Northern California

The Butte County Exposition to be held in Chico the latter part of May will make live stock exhibits a big feature.

Farm centers of Humboldt County are raising a fund of $10,000 to be used in the purchase of supplies in wholesale.

A shipment of 50,000 olive trees was recently received at Marysville, Yuba County, for the new nursery being established at Mission.

The famous Durst hop ranch near Wheatland, Yuba County, has been sold and will be placed on the market in small tracts for fruit ranches.

Plum thinning is in full swing in the Vaca valley at present, most all varieties being heavily cropped with the exception of Tragedy which is very light.

M. Sharpe of Vacaville reports: "Vaca shipped about 50 boxes of cherries up to April 23. The first box of Chapmans coming from the ranch of B. K. Fields sold for $35 in Detroit.

Farmers who sell their produce at the Sacramento free market are anxious that the city shall provide another site. The location now in use will not be available much longer.

The Amador-Eldorado Live Stock Association has set aside a standing reward of $250 to be paid any person giving testimony which will lead to the conviction of a cattle thief stealing from any member of the association.

The Eldorado-Amador Stock Growers' Association recently held its semi-annual meeting at Jackson, Amador County. The next meeting in the fall will be held in Placerville. Members of this association graze their herds on the Eldorado national forest.

In a recent issue the Cultivator made note of the organization of the berry growers of Olinda, Shasta County. We have received the following correction of this item from R. E. Paddock, secretary of the Happy Valley Berry Growers' Association: "Olinda is a very small part of Happy Valley and in fact 20 of the 21 members of our association are residents of Cloverdale district and not of Olinda."

At the recent annual meeting of the California Development Board the following officers were elected: William J. Dutton, president; Robert Lynch, first vice-president; A. B. C. Dohrmann, second vice-president; Judge N. P. Chipman, James Ivrine, John P. Irish, Mortimer Fleischhacker, R. B. Hale, B. F. Walton, Chester Rowell, Thos. Maclay, James B. Bullitt, Thomas F. Hunt, P. I. Lancaster, Frederick J. Koster.

At the annual meeting of the Butte County Citrus Association, held Saturday, April 17, the number of directors was increased from seven to nine. The following were elected: Directors, J. A. Lawrence, A. Bartley, F. H. Gray, W. E. Vaughan, R. S. Powers, A. C. Mastellar and A. J. Dunstone. Two other directors are to be later elected from Palermo. J. A. Lawrence was reelected president and Oscar Warner, secretary and manager.

Central California

Gustine, Merced County, sends out 6000 pounds of butter fat daily.

Clovis, Fresno County, had two floats in the big Raisin Day parade at Fresno.

The Tulare Cooperative Poultry Association during March handled 288 dozen eggs.

Artichokes in large quantities are being planted along the coast in Monterey County.

The establishment of an alfalfa mill at Merced was discussed at a recent citizens' meeting in the city hall.

Twelve railroad systems over the country will feature raisins in their bills of fare on Raisin Day, April 30.

An industrial pageant will be a feature of the big parade on Raisin Day in Fresno. There will be 14 floats each depicting a particular feature of the raisin industry.

Two creameries, one in Tulare and one in Fresno County, are planning to ship East several carloads of butter. Last month the overproduction on the coast was about 8,000,000 pounds, it is stated.

The west side of the San Joaquin Valley will produce a crop of wheat double the size of any heretofore harvested. Owing to the war, the price is about twice that of last year, being $2.20 a cental.

The Fresno offices of the California Associated Raisin Company have been enlarged. With the absorption of a number of independent packing houses the business of the Associated has been very largely increased.

One farmer near Mendota in the San Joaquin Valley is planting such a large acreage of tepary beans that it will require ten mules for cultivation. He is so enthusiastic over the outlook that he is figuring on putting into beans another tract of 320 acres in Kern County.

Dairymen of Los Banos, Dos Palos, Volta, Gustine and Ingomar in Merced County met last week to organize an association and establish a cooperative creamery. A committee was appointed in each of the neighboring towns to canvass the local farmers and dairymen.

On April 13 the president signed an executive order eliminating 32,088 acres of land from the Stanislaus national forest. Examination of the land involved showed it to consist mainly of river slopes and hills on the north side of the Merced river. The cover is mainly chaparral, although there is more or less scattering timber in places. The total amount of such timber was estimated to be not over one million board feet. There are very few settlers upon the land eliminated. The climate and soil are such as to render some areas of future value for agriculture, but this value is largely dependent upon the development of water for irrigation purposes, which is now lacking. The examination thus demonstrated that the land is not chiefly valuable for national forest purposes and the recommendation for its restoration to the public doman followed as a matter of course.

Southern California

Last week was made anti-weed week in Santa Ana.

Two cantaloupes were sent from Brawley on April 15 to the Los Angeles market.

Many fields in the Imperial Valley which were planted to cotton last year are this year in barley.

Bee men of Imperial Valley expect a large honey crop this season, 1200 cases being the estimated total.

One thousand orange men attended the mass meeting held in Covina to discuss the marketing situation.

Imperial Valley reports the heaviest grain crop in its history. Harvesting will begin the last of this month.

Horticultural Commissioner Waite of Imperial County estimates that county now has 500 acres set to grape fruit.

In the San Luis Valley of San Diego

A farmers' institute was held at Arroyo Grande, San Luis Obispo County, April 12. A picnic lunch was enjoyed.

County there will this year be planted about 200 acres to experimental tracts of beans.

J. H. Wilson has been named as president of the Sixth National Orange Show to be held in San Bernardino February 18, 1916.

It is reported that all the sugar factories in the state will run this year. Southern California hopes for a $15,000,000 sugar beet crop.

Some ranchers in Santa Barbara County have begun planting beans but the majority will wait until the 10th of May to do their planting.

Orange County dairy and creamery men are watching with much interest the fight against Los Angeles manufacturers of homogenized cream.

The Escondido farm bureau met Monday, April 12, to discuss tomato culture. A plan was considered for organizing tomato growers into a special association.

A meeting of orange growers held at Redlands last week was addressed by Manager Powell of the exchange and P. J. Dreher, manager of the San Antonio exchange.

Dr. Cady, a hog cholera expert from the University of California, has been in San Diego County the past week giving demonstrations of the use of hog cholera serum.

At the meeting of the Escondido farm bureau on Monday, April 12, two committees were named, one to secure a tomato packing house, made up of J. W. Sherwood, C. T. Haney and G. W. McCreery, the other to secure a canning factory for second grade tomatoes, composed of Guy Whetstone, G. Humphrey, Frank Hull, G. W. Wisdom and J. H. Heath.

Roland McKee of the U. S. department of agriculture, who is stationed at Chino investigating forage crops, visited the citrus experiment station at Riverside last week. To Mr. McKee is credited the introduction of purple vetch into Southern California. The purple vetch resists aphis better than the ordinary variety and also makes a heavier and earlier growth.

The Coast

Chandler, Arizona, is assured of a creamery and ice plant.

Heavy frosts the first of the month did some damage to fruit near Toppenish, Washington.

The Chandler, Arizonan, reports that over 125,000 head of sheep are pastured east of Chandler for shearing.

The Roosevelt reservoir, which supplies the Salt River Valley of Arizona, has now 1,500,000 acre feet of water stored.

A San Simon Valley goat raiser who has a herd of 1800 Angoras claims to make his goats average 6½ pounds of mohair per season, at two clips.

Arlington, Oregon, reports sheep shearing in full swing with quality of clip much better than last year. The fleeces are cleaner and the staple longer.

The reclamation service has sent word that water will be cut off from all ranches in the Salt River Valley of Arizona where waste water is allowed to go on the roads.

It is reported that wool buyers in the Williamette Valley, Oregon, have offered 27 cents but are not finding much wool for sale even at that price. Growers are holding tight.

County Farm Adviser Paschall for Cochise and Santa Cruz Counties, Arizona, is receiving so many requests for pure seed that he has requested all farmers having seed, especially corn, for sale to send him variety, quantity and prices.

In an endeavor to find some bright side to the apple marketing situation in the Northwest this year a statistician has discovered that the average price for the past five years, including the present season, is about $1.00 per box net to the grower.

The board of governors of the Salt River Valley Water Users' Association have recently ruled that 32,000 acres of land outside the original project area shall be supplied with water as long as there is in excess of one million feet of stored water in the reservoir.

The Hood River Apple Growers' Association has withdrawn from the North Pacific Fruit Distributors. It is probable that a marketing alliance will be formed between the Hood River Association and the fruit growers of Southern Oregon and the Rogue River Valley.

The North Pacific Fruit Distributors has reorganized as a result of the past bad season and the withdrawal of the Hood River District and will this season act as a selling agency only. The fixed marketing charge has been abolished and operating costs will be paid according to tonnage.

The Arizona State Poultry Association has appointed a committee to interview poultry dealers throughout the Salt River Valley and persuade them to make May first Rooster Day, a day when dealers will buy all roosters at a fair price with the understanding that producers are to shut up all roosters carried over as breeders and produce only infertile eggs.

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CALF FEEDING

Written for the California Cultivator
By Leroy Anderson

IN answer to a subscriber's request for suggestions for weaning and feeding calves the following is submitted:

It is wise that the new born calf should have the first, or colostrum, milk of its dam as it is essential to properly start the organs of digestion. The calf may be allowed to suck the first day or may be removed as soon as born and fed the milk. Removing the calf at once usually renders the cow less uneasy, but it is more difficult to make the calf drink all the colostrum milk it needs than to let it get it from the cow. Since the cow's milk is not used for domestic purposes for four or five days the calf is assured of whole milk for that time. Whole milk should be continued for about ten days, when a little of it may be replaced by skimmed milk. During this time a large calf may be fed five or six quarts or ten or 12 pounds daily. If it can be given in three feeds, all the better for the calf. For a small calf, as a Jersey, eight or ten pounds are sufficient. The change from whole to skimmed milk should be gradual. For instance, each day substitute one pound of skim for one pound of whole milk, and in ten days the calf is entirely on skimmed milk. The calf is then three weeks old and the amount per day may be increased until it is receiving 16 to 18 pounds, which is enough for almost any calf.

Grain and Hay

Skimmed milk is in all respects like whole milk except for butter fat. The grain fed should provide for the loss of fats and one of the best feeds is corn meal. If a person has but one cow and wants to do especially well by the calf he may buy flaxseed meal—whole flaxseed ground and none of the oil removed. A handful of this with each feed will make bossie grow. Or whole flaxseed may be used by boiling it and feeding the jelly in the milk at the rate of about one tablespoon unboiled seed at a time. But flaxseed is rather expensive to feed to many calves. Linseed oilcake meal is also expensive and has lost most of its oil in the process from flaxseed to meal. Cocoanut oilcake meal is now cheaper than linseed by about $15.00 a ton and contains more oil than the linseed meal. It is a safe feed so long as it remains sweet. As it has a tendency to become rancid it should be purchased only in such quantities as will enable one to feed it within a few weeks. Corn meal is now quoted as high or higher than linseed oilcake meal. If corn meal is used a good mixture is one part each of corn meal, linseed or cocoanut meal, and wheat middlings.

When the calf is about two weeks old give it a little grain from the hand just after it has had its milk. In a few days it will learn to eat grain when the grain may be left before it continually in a box or trough. If the other feed is good the calf will not need more than a pound a day of grain up to five or six months old, and when it begins to eat more than that feed the required amount daily. Rolled barley is too coarse for very young calves but may be given when they are two or three months old. The barley may then take the place of corn meal and linseed meal. If ground, instead of rolled, any objection to barley for young calves is removed.

If hay is left before the calves they will begin to nibble at it soon after they learn to eat grain. Alfalfa of good quality is the most palatable and nutritious and may render grain unnecessary when the calves are a few months old, but when taken off milk, the grain had best be continued unless pasture is available.

Some Cautions

There is more danger of overfeeding than underfeeding young calves. Overfeeding brings on indigestion and may lead to scours, a much dreaded disease among calves. The same trouble may be caused by coarse feed when the calf is young, and another type of scours is of bacterial origin and infectious. That caused by indigestion may be removed by reducing the feed one-half or less and by giving some correctives. A tablespoon of dried blood to each calf at feeding time has given much satisfaction. If the case be very bad drench the calf with a dose of three ounces of castor oil in a pint of milk. Infectious, or white scours, needs not only the corrective treatment but careful disinfection of the entire calf quarters. Scours gives a calf a bad setback in growth and every means should be taken to prevent the disease from gaining a hold.

Always feed milk when warm and sweet. Cold or sour milk deranges the digestion. Milk direct from the separator and containing air also disturbs the digestion and may bring on scours. Get the air out before feeding. It is well to give calves access to clean water for drinking at all times no matter what their feed.

Skimmed Milk for Beef Calves

While we are on the calf question, I want to quote a Nebraska experiment, reported in bulletin 68, on raising calves on skim-milk versus sucking their dams. Six range cows were selected showing Shorthorn or Hereford blood and all were in calf to a Hereford bull. The calves of three were weaned and raised on skimmed milk, grain, pasture and hay. Their dams were milked and the milk made into butter. The other three cows raised their calves in ordinary range fashion. The record was kept for five months, at the end of which time the cost for each pound of gain from birth was calculated. For the skimmed milk calves this cost was 2.8 cents. To find the entire cost on the nursing calves there was added to the pasture for them and their dams, the value of the butter made from the dams of the skimmed milk calves. This makes the cost per pound of gain on the nursing calves to be 8.6 cents or 5.8 cents more than for the skimmed milk calves. The total difference in cost for five months was $50.27. The labor of milking the cows and feeding the calves was not considered in the cost account. This is worth considering but is probably not equal to the difference of $50. The average weight at the end of five months of the skimmed milk calves was 333 pounds, of the nursing calves 347 pounds. It was also easy to pick out the nursing calves as they were rounder and plumper than the others. But when all were a year old no difference between them could be detected.

This experiment is useful in these days of beef scarcity, for it shows that good beef animals can be grown on the same kind of a ration that is used to grow dairy calves. Not only male calves from milking Shorthorns can be made into good beef but when grass and hay are now so cheap it doubtless pays to raise the male calves of the larger dairy cows and make them into beef.

Summary

Nothing has yet been found that beats skimmed milk as a whole milk substitute for calves.

To supply the fat lost in skimming use corn meal or ground barley. These do not contain much fat but the carbonaceous matter (starch, etc.) in them takes the place of it. A little oil meal helps digestion. Wheat middlings or fine bran ought to go with the barley or corn meal.

The point is to induce the calf to eat grain and hay at as early an age as possible. Thus it becomes less dependent upon the milk diet and starts early the normal habit of the ruminant.

Good calves may be raised on milk substitutes.

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EFFECT OF LARGE RECORDS ON FURTHER USEFULNESS OF DAIRY COWS

The statement is often heard among dairymen that the big record cows are injured in the making of the record and that after the record is finished their period of usefulness except for advertising purposes has passed. In order to obtain some definite data on the subject the Guernsey cows which have completed records of over 700 pounds of fat have been studied to determine the effect of the records on the further usefulness of the animal as a factor in eventually producing human food.

There are 63 Guernsey cows who have produced over 700 pounds of fat. Of this number three have four official records the first averaging 548 pounds of fat, the second 567, the third 674, and the fourth 810. One of these cows has produced to date 10 registered calves, four of which have been born since making the last record and she is carrying at the present time her eleventh calf. One of the others lived to 10 years of age and produced six registered calves in that time. The other lived to be nine years of age and died from blood poison contracted at calving time. Regarding her work the owner said, "She was so delicate looking that I held off breeding her until late, she being 3½ years old before producing her first calf."

She was immediately entered for the advanced register and produced a living registered calf after each record except the last as stated above and has a total of four calves to her credit. One of her daughters calved at three years of age late in 1912, has a record of 730 pounds of fat, has two living daughters and is safe in calf at the present time.

Ten cows have three records each the first averaging 513 pounds of fat, the second 701, and the third 805. Of these 10 cows all but two have either produced registered progeny since making their last record or are safe in calf at the present time. One cow has produced four calves since completing a record of 836 pounds of fat, another dropped two calves and the others, with one exception, have dropped a calf or are safe in calf at the present time.

There are 28 cows that have produced over 700 pounds of fat that have two records. Of this number 11 have completed their records so recently that if a calf has been born since it would not necessarily be registered at the present time. Of the 17 remaining 11 have produced calves since making their records or are safe in calf. One cow who made 533 pounds of fat as a two-year-old has produced five calves since making her last record of 714 pounds of fat and is safe in calf at present. Another who as a two-year-old made 424 pounds of fat has produced four calves since making her last record of 778 pounds of fat and is safe in calf. Another produced five calves after making her last record of 725 pounds of fat having made 547 pounds of fat the previous year. She died at the age of 12 years and has nine registered calves to her credit. Of the six who have not had any progeny since making their 700 pounds or over record one died of a broken leg shortly after the record was made and another was killed on account of an accident shortly after completing her record. As to three of these cows we have not been able to obtain any data and they may or may not be in calf at the present time.

There are 22 cows of the 63 that have only one official record and all but three of these have produced calves since making their records or are safe in calf.

It may be true that there are isolated cases where the future usefulness may be injured where improper care and feeding has occurred during record work, but we cannot but feel there are very few instances among the heavy producers of Guernseys today where injury has been noted as the result of official testing.

On the other hand the results obtained in cases where cows have made two or more records point conclusively to the fact that advanced register work has been a material aid in the development of the individual animal as well as in the breed in general.—American Guernsey Cattle Club.

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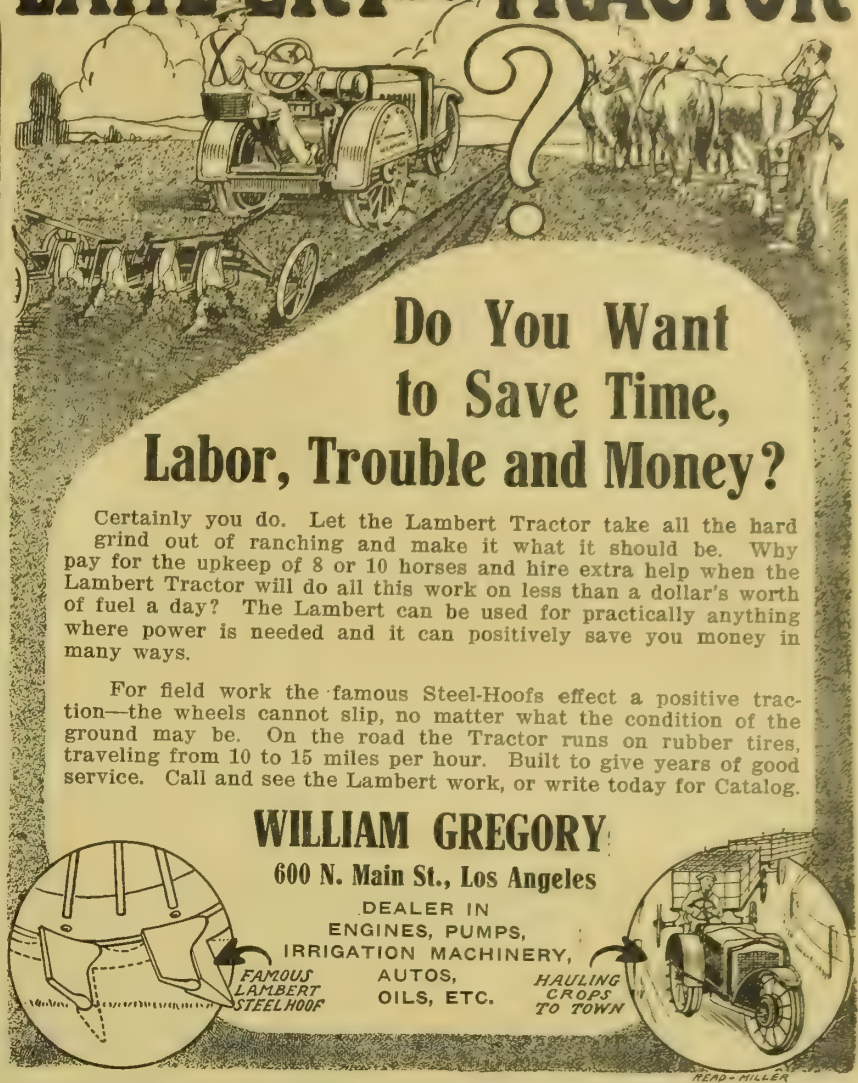

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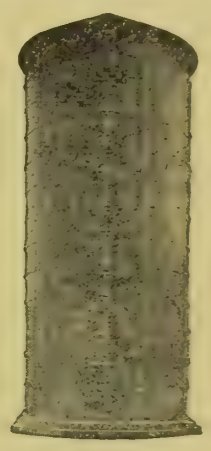

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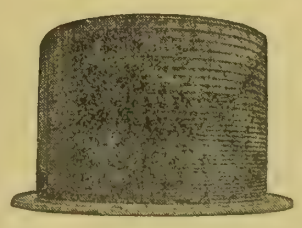

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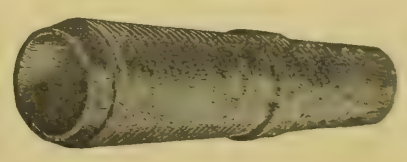

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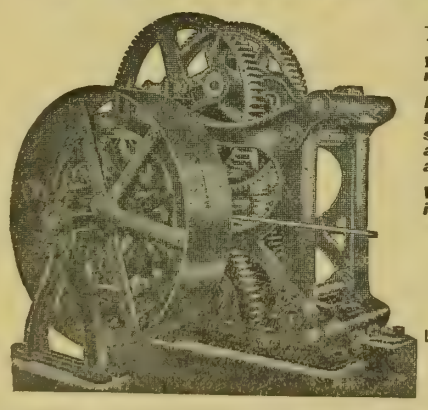

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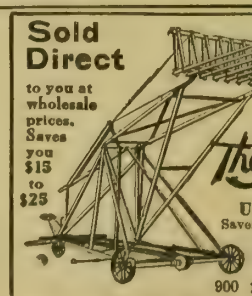

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Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Skin Disease

I have a horse which was troubled a great deal with itching last summer, constantly rubbing his sides and tail against the corral fence and would get small lumps all over his body. I tried condition powders and different stockfoods at the time but nothing seemed to help, also called a veterinarian who gave me some liniment, but it gave no relief; tried several remedies suggested by neighbors but everything without avail. During the winter when the weather was colder he was bothered very slightly, but now that the warm weather has started in the itching and lumps have also commenced again. Had him clipped in January, also washed him several times last summer.—Subscriber, Lankershim.

Mix two powders of epsom salts, one pound of common salt and half a pound of wood ashes. Give him a small handful of this once a day. Also get one pint of Fowler's solution of arsenic and give a tablespoon on the feed once a day. If this does not cure him then the trouble is due to a mite in the skin. For that use a solution of zenoleum. Wet him all over with this once a week for three or four weeks.

Book on Disease of Horses

Can you recommend a book that will enable a farmer to treat sick horses."—Subscriber, Nestor.

The Bureau of Animal Industry at Washington publishes a book on diseases of the horse that you can probably get by applying to your representative. You would do well to follow the questions and answers in the veterinary column of the Cultivator and either clip them out or save the whole paper. During each year the questions and answers cover about all the common diseases and, if you are a subscriber, you are at liberty to ask for what you do not find.

* * *

The book referred to by Dr. Petrie is "Special Report on Diseases of the Horse," issued by the Bureau of Animal Industry. It is a valuable book of nearly 600 pages. A companion book is "Diseases of Cattle," issued by the same bureau and written by practically the same veterinarians.—Editor.

Wire Cut on Udder.

Last May I had a cow cut on wire so that the milk ran out of one teat. Veterinarian sewed it up, but the stitches pulled out. Had it sewed the second time and then as the stitches again pulled out we bound it up with adhesive tape, which we renewed every day or so and syringed it out with creolin. She was a heavy milker and had only been fresh a little over a month so we were obliged to use a tube to draw off the milk. The teat seemed to heal nicely but the udder has swelled up a number of times since and broken. She is due to freshen in May and I would like to know if I run a risk and how so in letting her calve. I hate to sell her for beef as I cannot get nearly what she is worth as a milk cow, but do not wish to run too much risk. Subscriber. Waukena.

The udder should receive careful attention before she is fresh. Bathe it often with hot water, and if much milk is secreted it should be milked out at least once a day. Rub the udder with the hands when bathing it, also mix four pounds of epsom salts with two pounds of common salt and give her a large handful of it once a day. She may give you some trouble in spite of all the attention you may give her but such cases frequently recover fully.

Hip Hurt.

Three weeks ago bull hurt his hip joint and has been lame since. The joint sticks out large as your fist. Sometimes he walks lame. Please tell me what to do for him. I have blistered him but it does not seem to do any good.—Subscriber, Earlimart.

From your discription it seems that it is the point of the hip that is hurt; there is no joint there. Probably the end of the bone is broken and may give him trouble for some time. The less exercise he has the better. Liniment and blisters will do no good.

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Final Decree of Divorce.

Sometime ago a subscriber asked if he could get a final decree at the end of a year. His wife got the interlocutory from him by default. You answered that the judge may upon request of either party grant final decree. Now must the judge grant the husband the final decree if he requests it, or can he refuse if he so desires? In case he does refuse would the husband be guilty of bigamy if he married again at end of year, outside of state of California, say Mexico, Texas or Nevada and stayed there?—Subscriber, Bakersfield.

The reading of the statute is that the court upon motion of either party or upon its own motion may enter final judgment granting divorce, and such final judgment may restore them to the state of single person and may permit them to re-marry after entry thereof. There are many causes for which the judge may refuse to enter the decree, and until the final decree is entered the parties have the status of husband and wife and they would be technically guilty of bigamy if again married. In the usual case the final decree is made as a matter of course.

Shooting Game Birds.

In Cultivator of March 25 in answer to the question "Has one a right to shoot quail or rabbits on his own place, out of season, when they are destroying crops?" I think your answer would lead one to think that one could shoot quail and eat them, even out of season, if he could make the excuse that they were destroying crops. As I understand it one can shoot protected game birds or animals when such birds or animals are found destroying crops, but they must be left lying where killed and not picked up and used for food or even given away.—Subscriber, Escondido.

The reading of the statute is "Nothing shall prohibit the killing of wild birds by the owner or tenant of such property where the bird is found destroying the berries growing on such premises, but the bird so killed shall not be shipped or sold." The destruction of crops is the only defense that a person could make for killing a game bird, and if the court or jury found that the birds were in fact not destroying crops, the defense would of course fail. I fail to see any reason why birds bona-fide shot for destroying crops could not be used for food, but they could not be shipped or sold.

Estray

A horse broke into my pasture. How do I proceed in a legal manner to find the owner and in case I do not, what then?—Subscriber, McFarland.

A person taking an estray must confine the same and within one week publish for two weeks in a newspaper printed within the county, and file with the county-recorder, a notice containing a description of the animal, the mark or brand, if any, its probable value, statement of the place where found and where confined. If within 30 days from the filing of the notice

(Continued on Page 527)

Poultry for Profit

COOPERATION FOR EGG PRODUCERS

A COOPERATIVE plan to reduce the enormous waste now caused by the careless marketing of eggs is outlined in Farmers' Bulletin 656: "The Community Egg Circle", which has just been published by the United States department of agriculture. It is estimated that under the present haphazard methods of gathering and marketing eggs nearly eight per cent of the country's output is a total loss. Since the annual production of poultry and eggs in the United States is valued at more than $600,000,000—a sum equal to the value of the hay or wheat crop—the importance of reducing this loss is obvious.

The individual farmer too often regards his eggs as a mere by-product to which it is hardly worth his while to devote himself seriously; in consequence he is inclined both to neglect his poultry and to gather his eggs whenever he happens to have a spare moment or two. In consequence the output of his poultry yard is not only small to begin with, but a large proportion of it has begun to spoil before it reaches the hands of the country merchants. They usually buy the eggs on "case count," paying the same price for good, bad, and indifferent. The large markets, however, do not pay the same price and reject many altogether; in consequence the price per egg to the farmer is made sufficiently low to provide a safe margin and to cover the loss on eggs of poor quality.

These conditions have been so firmly established by long usage that the individual can do little to alter them unaided. Community cooperation, however, can quickly raise the standard of the eggs shipped from any one neighborhood, and with the standard the price. The fancy trade is quite willing to pay more for a guaranteed article and the extra cost of producing the guaranteed article is more in pains than in cash.

The plan outlined in the bulletin already mentioned calls for the organization of a community egg circle which should include as soon as possible enough members to warrant the employment of a manager. Each member agrees to gather his eggs daily and in hot weather twice a day, to keep them in a cold place, and to deliver none that is more than seven days old. No eggs are to be washed and the male bird is to be kept away from the flock except during the mating season.

The manager of the circle inspects, grades, and markets as a whole the deliveries the members make to him. Payment is to be made to the members in proportion to the number of eggs of each grade that they deliver and the prevailing market prices, less their proportion of the necessary expenses. The bulletin also gives suggestions for convenient receipt forms which will enable the members to check up their payments with their deliveries.

Such a system will enable the circle to make arrangements for delivery of regular supplies to the best and most discriminating class of trade. There is always a demand for guaranteed eggs on the part of clubs, hotels, restaurants, and even well-to-do private families, but the individual farmer rarely has a sufficient output to enable him to make a contract with any of these consumers, and the country merchant has no means to guarantee to the consumer the eggs that he buys from individuals over whom he has no control. Cooperative marketing also enables the eggs to be put up in attractive cartons which can be turned into valuable mediums of advertising and reduces the expense of shipments. The increased returns, furthermore, will encourage the producer to devote more time and care to his stock, better hens will be kept, they will be kept in better condition, and in consequence there will be more eggs as well as better ones.

WHY MEETING OF A. P. A. SHOULD BE HELD IN SAN FRANCISCO

By T. E. Quisenberry, Superintendent of Poultry, P. P. I. E.

San Francisco is the logical place for the annual meeting of the American Poultry Association in 1915.

The nominating ballot shows a large majority of those voting advised this location for the meeting place of this, the world's largest live stock organization.

The railroad fare from St. Louis, Chicago and surrounding points to the Atlantic City Convention two years ago cost A. P. A. members as much as the fare this season will be from those points to San Francisco.

No guarantee of new members or of any other nature was demanded of Atlantic City or of Chicago last year and the year previous.

The central west and the western members voted for Atlantic City in 1913 and Chicago and other points in 1914 because they were given to understand that the eastern members would reciprocate and vote for San Francisco in 1915.

The West is the most fertile and undeveloped field which is open to the poultry breeders of America today.

You will meet with a most cordial welcome from the exposition authorities and from the Western members of the American Poultry Association.

A large majority of the members of the American Poultry Association will want to visit this great exposition any way, why not do this and attend the A. P. A. convention while on the same trip?

This being a national organization, the members of the association and the poultry breeders of the western coast are entitled to at least one meeting of the American Poultry Association in every 40 years.

A visit to the Panama-Pacific International Exposition is worth four years' training in an agricultural college or university, or is equal to a trip round the world if you will but take time to study the most wonderful collection of exhibits ever shown at one exposition.

We cordially invite you to hold your Fortieth Annual Convention in San Francisco in 1915.

"POULTRY FOR PROFIT"

This is the title of a brand-new book on poultry published by that old reliable Cultivator Publishing Co., Los Angeles. The author, Jean A. Koethen, has really written a poultry book worth while. The different subjects are treated with a directness that is refreshing after reading so many books that say so much and mean so little. The book is intended for the beginner and farmer, but we commend it most heartily to anyone interested in poultry, whether for pleasure or profit; it is full of good things from cover to cover. The book is handsomely illustrated and well bound in cloth, and sells for one dollar. —Pacific Poultrycraft.

HE WAS MISTAKEN

"I asked your husband last evening if he had his life to live over again if he would marry you, and he said he certainly would."

"He certainly wouldn't."—Houston Post.

Tells why chicks die

E. J. Reefer, the poultry expert of 905 Main St., Kansas City, Mo., is giving away free a valuable book entitled "White Diarrhoea and How to Cure It." This book contains scientific facts on white diarrhoea and tells how to prepare a simple home solution that cures this terrible disease over night and actually raises 98 per cent of every hatch. All poultry raisers should certainly write Mr. Reefer for one of these valuable FREE books.

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Look for this name on every sack

If Your Dealer Can't Quote Prices Write Us Direct

A Natural Food Product For Hogs, Dairy Cows and Poultry

Contains 16.4% Protein
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Free Sample and a copy of our booklet containing valuable information on the subject of "Successful Feeding" sent gladly on request. Write today.

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Special Low Prices

R. I. Reds, Barred Rocks, Black Minorcas, White Leghorns, Brown Leghorns.

We can supply these in lots of 1000 or more of each kind any week. Special low prices in lots of 500 or more. Write us today. Pekin Duckings, Indian Runner Ducklings, Baby Geese, Baby Turkeys, etc. Write for prices. Free 66-page catalog.

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112 E. 8th St. Los Angeles
We manufacture the "Pioneer" Incubator, America's best Incubator.

PEERLESS CHICK FEED

PURE CHICK FOOD
Will Raise Every Well Hatched Chick.

PEERLESS CHICK FEED the "Pure Food" is the only feed containing the different grains and seed properly proportioned for growth and health —no grit.

Ask your Dealer or Write
Peerless Poultry Supply Co.
409 E. Third Street LOS ANGELES

BABY CHICKS and EGGS
We will book your order for Chicks or Eggs for future delivery.
WHITE LEGHORNS, BLACK MINORCAS AND R. I. REDS OUR SPECIALTY.
Our Chicks are hatched in the
BEST VENTILATED HATCHERY IN CALIFORNIA.
INSTRUCTIONS HOW TO RAISE CHICKS FREE.
Hicks Jubilee Hatchery, Route 2, Box 22, Petaluma, California

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Day and evening courses in auto repairing and machine shop practice. Vulcanizing, ignition, road lessons. Eight full-time instructors. Special building. Students do actual repair work on modern cars. Good environment. Address Y. M. C. A. Auto School, Los Angeles.

Don't Forget

That care in selecting the grain you are going to feed your baby chicks will save you lots of trouble and loss. The ingredients of

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Special Chick Food

are very carefully selected to give the best results.

Only strong wheat, sound corn, kiln dried steel cut oats and carefully selected seeds are used in its composition.

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Send for free book "Chickens" to

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For the service is excellent and the scenic attractions are very pleasing—through Nevada and the Rocky Mountain country. Our fast trains, the Los Angeles Limited and the Pacific Limited, run every day in less than three days to Chicago, over the Union Pacific Ry. with through Standard and Pullman sleepers and dining cars; also through sleepers to Denver, St. Paul, Butte and Kansas City.

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You certainly will be pleased if you go East over the

SALT LAKE ROUTE

Full particulars at all of our ticket offices.

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NOTE—Eastern Excursions commence June 14th. Low fares for the round trip.

Money Making Little Liners

Inserted in These Columns Under a Classified Heading. A Clearing House for Our Many Thousands of Readers
LINER RATES ARE 12c PER LINE PER ISSUE
No Ad Accepted for Less Than 36c Per Issue. Figure 6 Words to a Line

TREES

Lease Expires Next Spring—Must sell. Have left about 2,000 Eureka lemons, three-quarters inch and up, buds selected from trees producing heavy crops of fancy fruits. 2,500 Valencia Late five-eighths inch up, 2,000 Marsh Seedless grapefruit five-eighths inch up. These are stocky and especially adapted for desert planting. Will sell with loose roots or balled. Prices as follows for loose roots: Eureka lemon, three-quarters up, $16.00 per hundred; Valencia Late, five-eighths up, $15.00 per hundred; Marsh seedless grapefruit, five-eighths up, $12.50 per hundred. All information cheerfully given. E. J. Van der Sluis, Glendora, Cal.

For Sale—10000 VALENCIA LATE
5000 MARSH SEEDLESS GRAPEFRUIT
8000 EUREKA LEMONS
12000 WASHINGTON NAVELS
Softland trees, perfect in quality, grown by us. Lowest price. Will plant if desired. Consider some exchange—now is most favorable time to make contract for next spring planting. Write or phone today for prices. Phone 559. Ward Realty Co., San Dimas, Cal.

AVOCADO TREES
The Avocado is the most valuable of all fruits and the most important future industry before the people of California today. Vigorous, field-grown, budded trees of standard frost-resistant variety; from four to seven feet high, $2.00 to $3.00, according to size. Write for literature. W. A. Spinks, Duarte, Cal.

Cheap Reliable Trees—4,000 Phillips' Clings; also Tuscans, Fay Elbertas, French, and Imperial prunes, 10,000 Bartletts, 8,000 Gravensteins, Grafted Walnuts and other stock cheap. Write or wire for just what you want. Will save you money. Table Grove Nurseries, Healdsburg, Cal.

Eureka Lemons, Late Valencias, Washington Navels—⅝ up. Thrifty, clean stock, 20c open root, 25c balled. Quality considered, you can not beat it. Plant now. Call or write Wilbur K. Howard, Loraine avenue and Santa Fe crossing, Glendora, Cal.

For Sale—20,000 budded orange trees and lemon trees averaging one-half to three-fourth inches at 10c apiece as they stand. Will give plenty of time to remove trees. Also 150,000 sour seed bed stock at your own price. B. W. Bosbey, 2116 Cedar St., W. Alhambra, Cal. Phone 332-R.

Buy Fruit Trees Direct From the Grower—Phillips & Tuscan Clings, 4 to 6 ft., 14c; 3 to 4 ft., 11c. Rome Beauty, Winesap, etc., 5 to 10c; all choice. Best time for planting. Julius Mayr, Tree Grower, Hemet, Cal.

Two-Year-Old Eureka Lemons—Washington Navels and Valencia buds, A1 stock; 15c loose root, 20c balled. Harmon Avocado buds, 3 to 7 feet, $1.00, $1.50 and $2.00. A. Z. Lane, Glendora, Cal., Box 331.

Prices Reduced—Ganter and Harman Avocados, 4 to 7 ft., extra fine field grown trees with large, even heads; on rented ground and must be sold. Our prices will surprise you. Citrus also reduced. Magnolia Nursery, Whittier, Cal.

For Acacias, Avocados, Budded Loquats, Citrus trees, Evergreens, Feijoas, Palms, Roses and all kinds of trees, shrubs, vines, etc. Write for our new catalogue. Robertson Nurseries, Fullerton, Cal.

For Sale—2000 Late Valencia Orange trees, two years from bud. 1800 Washington Navel, one year from bud; A1 stock. Address H. H. Eshelman, Soldiers' Home, Cal.

The 1200-Acre Nursery, growers of 1500 varieties of trees and plants. OREGON NURSERY CO., Orenco, Oregon. Sales office, 522 Chamber Commerce, Los Angeles, Cal.

Budded Avocado—Select field-grown trees of standard varieties for the home or orchard. Sapota, Feijoa, etc. Catalogue free. Semi-Tropic Nursery, Monrovia, Cal.

For Sale—Finest Valencia and Washington navel trees in the country, 20c loose roots, 25c balled f.o.b. Small orders promptly filled. B. C. Dodson, Glendora, Cal.

Seedless Grapefruit—Limited number of fine trees, propagated from a tree brought from Florida. A superior type of Marsh's Seedless. Send for circular. G. W. Sherwood, Fullerton, Cal.

Very Fine Sweet and Sour Orange Seed-Bed Stock — PRICE REASONABLE. MIGHT TRADE FOR GOOD AUTO OR TEAM. ORANGE COVE NURSERIES, OROSI, CAL.

Eucalyptus—Orders filled by flat or carload. Correspondence invited regarding quantity and variety. Stratton's Nurseries, Petaluma, Cal.

A Bargain in first-class Navel, Valencia and Lemon trees. All strong, healthy, vigorous stock. Get my prices before ordering. A. G. Wright, Fullerton, Cal.

For Sale—Eureka Walnut Trees, budded on Native Black Walnuts. Choice stock. Order immediately. Don't delay. Wm. Holve, Fullerton, Cal.

100,000 Citrus Trees—Choice Seedlings and Buds. Wanted, a budder. Butler's Morning Side Nursery, Lamanda Park, Cal.

For Sale—Field-grown budded avocados, Harman, Ganter, Taft; 2 feet to 7 feet high, $1.00 to $3.00. Home Phone 444. A. B. Rogers, Glendora, Cal.

For Sale or Trade—Sour seed bed stock, 12 to 30 inches. Truman Cole, Montebello, Cal.

For the best Orange, Lemon and Grapefruit Trees write us. J. S. Killian, El Monte, Cal.

Before Planting Olives, Avocados, Feijoas, Rhubarb or Cactus, get my free booklet. Bishop's Nursery, Highland, Cal.

Cactus and Trees—Cash Nurseries, Sebastopol, Cal.

TREES

Rialto Seedless Lemon Trees—Write or phone for Brief History and it will be mailed to you. The coming Lemon for California. Also Seedless Grapefruit—Valencias, Washington Navels—Eureka and Villa Franca Lemon—Mexican Lime—Ganter and Harmon Avocado Pears. We are making special inducements to planters. Prices on application. We have first-class stock and can make deliveries from San Bernardino, San Diego and Los Angeles Counties. We are not jobbers but selling our own grown trees. Buds selected from the best bearing trees. 25 years in Southern California growing and handling citrus trees. Yours for good business.
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SELECT SEEDLING AND BUDDED AVOCADOS.

MAGEE BROS., R. D. 2, PASADENA.

For Sale—Navel, Valencia and lemon trees, three-quarters inch and up, 20c loose root, 25c balled. Budded Avocados, 4 to 7 feet high. Address Box 54, Glendora, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

Nurserymen—Pot grown conifers, palms, shrubs and ferns for lining out or potting. Ballou's Nursery, Pasadena, Cal.

SEEDS AND PLANTS

SUDAN GRASS SEED
U. S. Dept. of Agriculture highly recommends Sudan grass as a forage crop, especially for dairy purposes. Pure, reliable seed is worth $1.00 a pound. I have pure officially inspected seed to put out on shares. Write for particulars. Small or large acreages considered. Box 261, Venice, Cal.

Spineless Cactus—Plant now. Tremendous yield of our plants makes possible these prices: Per 100, $10; per 1000, $75. Special collection of 20 fruiting and forage varieties only $3. Parent stock purchased direct from Luther Burbank. El Dorado Cactus Nursery, Cupertino, Cal.

Spineless Cactus—Strictly first class. Very reasonable prices. The real thing—not slabs with the spines brushed off. You can save money by writing to me. Nick Kass, Lincoln, Cal.

Sudan Grass Seed—In 50-cent packages. One package plants 75 acres next planting. Enough to plant ten acres for five dollars. Jones County Seed Co., Anson, Texas.

$udan Gra$$ and Spineless Cactus—Plant these wonderful drouth resistant forages. Special offer, also Giant Winter Rhubarb. Black Bros., Nursery, 455 Lucas, Los Angeles.

Burbank Spineless Cactus—Hardiest varieties, "Melrose" and "Special." Strong, matured slabs. $8.50 per 100; $50 per 1,000. Labranza Ranch, Athlone, Merced Co., Cal.

Berry Plants, Rhubarb, Cacti—It will be worth your while to send me a postal right now if you are interested. Louis F. Scribner, R. 2, Pasadena, Cal.

For Sale—Genuine Luther Burbank Spineless cactus at reduced prices. Orders received now. Oscar Mauer, Del Mar, San Diego County, Cal.

Burbank Spineless Cactus—All the best varieties for forage and fruit. Guaranteed. Send for catalog and price list. G. D. Cummings, Los Altos, Cal.

See Our Cattle and Chickens Eat Luther Burbank and Mediterranean Spineless Cactus. Robinson Citrus Nurseries, San Dimas, Cal. R. F. D. 35-A.

For Sale—Yellow sweet potato plants, $1.50 per thousand F. O. B. Santa Ana, Cal. S. D. Teel, R. D. No. 3, Box No. 8, Santa Ana, Cal.

Attention Dairymen—Plant Sorghum for green feed or ensilage. Seed for sale in lots to suit. A. L. Sayre, Madera, Cal.

Pure Sudan Seed—Any quantity, 20 cents per pound. Money to accompany orders. F. M. Grundy, Lubbock, Texas.

Sudan—2,000 pounds. Pure. Best grade. $14.00 per hundred, prepaid. Jno. F. Turner, Lubbock, Texas.

Jersey Yellow Sweet Potato Plants for sale. A. Kennedy, R. 1, Box 61, Burbank. Phone Glendale 44 R-1.

MISCELLANEOUS

Free for Six Months—My special offer to introduce my magazine "INVESTING FOR PROFIT." It is worth $10 a copy to anyone who has been getting poorer while the rich, richer. It demonstrates the REAL earning power of money, and shows how anyone, no matter how poor, CAN acquire riches. INVESTING FOR PROFIT is the only progressive financial journal published. It shows how $100 grows to $2200. Write NOW and I'll send it six months free. H. L. Barber, 430, 28 W. Jackson Blvd., Chicago.

Free Illustrated Book tells of about 300,000 protected positions in U. S. service. Thousands of vacancies every year. There is a big chance here for you, sure and generous pay, lifetime employment. Just ask for booklet S-85. No obligation. Earl Hopkins, Washington, D. C.

"Smith's Pay the Freight"—To reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St., San Francisco.

WANTED

Wanted—Reliable farmer who can use hog ranch, Mendocino Co., cheap. 455 Lucas avenue, Los Angeles.

BEES AND HONEY

Beekeeping—Instruction book free—explains honey productions, profits, prices, supplies, bees and management without stings. Spencer Apiaries, Iris Avenue, Nordoff, Cal.

POULTRY

Just Out—The Cultivator Poultry Book, "Poultry for Profit," by Jean A. Koethen. Published by the Cultivator Publishing Co. Highly endorsed by experts. Over 200 pages, 50 illustrations. Contains simple methods of avoiding and overcoming difficulties. A guide to poultry success under Western conditions—it tells what to do, why to do it, and how to do it. Nicely bound in cloth. Price $1.00 postpaid, or with Cultivator one year, $1.75. Send orders to Cultivator Publishing Co., 115-117 North Broadway, Los Angeles, Cal.

Baby Chicks—As good as the best regardless of price, for April, May, June. White Leghorn, $8.00 per 100; $76 per 1000. Brown Leghorn, $10.00 per 100; $95 per 1000. Leghorn chicks shipped each week. Book to order. R. I. Red, Barred Rocks, Buff and White Orpingtons, Black Minorcas, White Wyandottes; 50% deposit, balance C. O. D., and chicks must be first class or we will refund deposit on return of chicks. Hawkeye Hatchery, Turlock, Cal.

The Everlasting Layers!—Brown Leghorns—My strain matures early, grow like weeds—and hardy. Give them feed and exercise, and the egg basket will pay the bills. Baby chicks, delivered, $9.50 hundred. I send only A1 Chicks. Guarantee safe arrival. Henry Stubbe, Campbell, California.

Baby Chicks—Rhode Island Reds and White Leghorns. My guarantee safe arrival, full count, strong, vigorous; fine bred chicks, Leghorns, $9.00 per 100. Will lay in five months. Reds, $11.00 per 100. Will lay in six months. J. W. Lyon, Gardena, Cal.

Barred Plymouth Rocks—Winners at New York and California's leading shows. Laying strain unequalled. Eggs for hatching from seventeen Champion matings. Eighteen years breeding Barred Rocks exclusively. Write for catalogue. C. H. Vodden, Los Gatos, Cal.

Baby Chicks—Golden Buff Leghorns from Eastern imported stock now $9.00 per 100—Choice White Minorca chicks—Buff Leghorn laying pullets, $1.00 each—Ancona pullets, $1.25—White Minorca hens, $1.25. Order now. Sandridge Hatchery, Kerman, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. National Poultry Co., 607 E. Third St., Los Angeles, Cal.

Eggs and Chicks from prize winning birds, Golden Buff Orpington and Barred Plymouth Rocks. Excellent winter layers at reduced prices. K. L. Kirby, Oakdale Poultry Farm, R. D. No. 2, Watsonville, Cal.

S. C. White Leghorn Baby Chicks and Hatching Eggs that are Top Notch. Write for particulars. Prices reasonable. Ten years in business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

Petaluma Hatchery—The one that's different. We challenge the hen, or anybody else. Don't compare prices, compare quality. Circular free. L. W. Clark, Petaluma, Cal.

Ancona Eggs—Select stock, $1.50 per 15, $6 per 100. Baby chicks 15c each. Mammoth Pekin Duck Eggs, $1 per 12, $6 per 100. Baby ducks 20c each, $17.50 per 100. J. P. Clough, 3980 Peralta Ave., Fruitvale, Cal.

Sicilian Buttercups—Beautiful fowls, wonderful layers. Eggs, $3.50 per 15 for balance of season. Limited amount of stock for sale. Dr. A. B. Woodhull, 101 S. Fifth St., Alhambra, Cal.

Safety First—Feed your baby chicks Croley's Dry Mixed Chick Feeds manufactured by Geo. H. Croley Co. Inc., 631-637 Brannan St., San Francisco, Cal.

Selected Setting Eggs—From fine ducks, hens and turkeys. Leading breeds Our ducks are wonderful egg machines. Black Bros., 455 Lucas, Los Angeles.

Wanted—Hens, frys, ducks, turkeys and pigeons. Ask for Berry, 1922 West Adams, Los Angeles. West 40, 71135. We buy any amount.

White Rock Incubator Chicks, $15.00 per 100. High class stock. Healthy, vigorous and splendid layers. The best all purpose fowl. Mahajo Farm, P. O. Box 597, Sacramento, Cal.

For Sale—Baby Chicks, Wyckoff White Leghorns, $9.50 per 100; $45 per 500; early delivery. Oswald Miller Robertson, THE ARLINGTON HATCHERY, Arlington, Cal.

White and Brown Leghorn Chicks—Good stock. Also Rocks and Reds. Prices reasonable. Write, James D. Yates, Poultry Judge, Modesto, Cal.

Trapnested White and Buff Leghorns, records 120-279 eggs per year. Eggs, chicks, stock. Arthur R. Schroeder, R. 18, Box 179-D, Mountain View, Cal.

Barred Rocks—Only eggs for hatching, $5.00 per 100; chicks, $12.00 per 100 in April. Send for circular. G. L. Hawley, Madera, Cal.

For Sale—Thoroughbred White Leghorn baby chicks, $8.00 per hundred. Lankershim Hatchery, Lankershim, Cal.

For Sale—Ground Chile Pepper, the finest grade, $5.00 per hundred. Any quantity. J. E. Hathaway, Norwalk, Cal.

For Sale—Barred Rock Cockerels, also Barred Rock, R. I. Red, Anconas, Buff and White Orpington chix. Enoch Crews, Santa Cruz, Cal.

PHEASANTS

For Sale—Chinese Ring Neck Pheasant Eggs—Also pair to exchange for good camera. 116 N. Spring St., Los Angeles. J. W. Salter.

Chinese Ringneck Pheasant Eggs $2.50 for 15. Powars Pheasantry, 935 S. 10th St., San Jose, Cal.

Pheasants—Ringneck and Golden. Also eggs. T. D. Morris, Agua Caliente, Cal.

MACHINERY

USED RANCH MACHINERY, PUMPS WINDMILLS, TANKS, ENGINES.
SPECIAL PRICES THIS WEEK ON HAY MACHINERY, PUMPING PLANTS.
SPECIAL: PRACTICALLY NEW 38 H. White Middleton engine and No. 5 two-step B. J. centrifugal pump with all frame, shafting, pipe, fittings, belt, pulleys, gates, 50,000 gallon redwood tank and 30 ft. stand; take entire plant for $1200; engine cost $1500, whole plant is practically new, or will separate.
60 H.P. Columbus, new $900
20 H.P. St. Marys, fine 900
10 H.P. Foos, excellent 135
2 H.P. Foos 45
6 H. I. H. C. complete mounted saw.
Other first class guaranteed engines.
WHY BUY NEW WHEN YOU CAN GET ENGINES LIKE NEW AT 1-3 NEW PRICE? BELIEVE WHAT YOU SEE.
PUMPS, PIPE, CYLINDERS
Horizontal, Vertical centrifugal, single, double acting pumps, rotary steam duplex, triplex pumps, all sizes, less than half.
FINE WAGON AND WATER TANK, $75
HORSEPOWER BALER, FINE, $90
SOUTHWICK POWER BALER, $350
WINDMILLS, TANKS
12 FT. STEEL AERMOTOR AND 50 FT. STEEL TOWER, $75.
8-ft. Aermotor tower, $25; 10-ft., $27.50. Others with or without tanks, pumps.
HAY MACHINERY
Mowers, Champion Binder, $75; Header, $90; Rakes, Whitman Empress Baler; Sprayer, harrows, potato, beet machinery, Fan Mill, Corn Sheller, Ensilage Chopper; small ranch tools.
ENGINES, PUMPS, BOILERS
Eighty H. Boiler, Smith Valle Steam engine 14x18 and Compressor 12x18, $1000, cost $6000. Absolutely cheapest serviceable material can be produced for. Pioneers in our line. DEMMITT CO., UPSTAIRS, 120 N. Main, Los Angeles. Yard, 816 Yale.

For binders, headers, reapers, mowers, rakes, hay loaders or stackers, write us for money-saving proposition. Why buy second-hand uncertainties when you can get absolutely new, dependable goods of highest quality, efficiency and economy at almost as low cost and much cheaper upkeep? Call or write us without fail when in need of agricultural implements, dairy supplies, road and grading machinery, gas engines, domestic water systems, wagons and buggies.
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Gas Engines, centrifugal and deep well pumps, motors, and everything pertaining to irrigation, for sale and exchange. If you want a complete plant or any part write us; we are experts in irrigation; advice and estimates cheerfully given. Will buy, sell or exchange. Reliable and responsible, everything guaranteed as represented. Machinery & Motor Exchange, Inc., 733-735 San Fernando St., Los Angeles. Main 6382, F-3433.

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Easy Running
RUMELY CREAM SEPARATORS
A disc type separator, accomplishing perfect separation with but 30 to 33 discs (referring to size) and at the very low speed of 6000 to 7000 revolutions per minute. Prices reduced—$45.00, $55.00 and $70.00. Write for Free Circular.
GERMAIN SEED & PLANT CO.,
326-328-330 So. Main St., Los Angeles.

We Carry—A complete line of irrigation machinery; consisting of engines, motors, pumps, clutch pulleys, belting, well casing, etc. These goods are first class and guaranteed to be satisfactory. Our prices will interest you. Let us know your requirements. New or second-hand plants furnished. Commercial Iron Works, 497 Fifth street, San Francisco.

For Sale—Used and new Gas Engines, 2 H. P. up, rebuilt and fitted with modern equipment. 22 years' experience enables us to repair and rebuild Gas Engines correctly. Get prices. Lloyd, 806-808 N. Main St., Los Angeles. F7020—Broadway 4103.

For Sale—1 H.P., 2 H.P., 5 H.P., 8 H.P., 12 H.P. and 24 H.P. gas engines; dirt cheap for cash; other machinery of every description bought and sold. Buttress & McClellan, 738 New High, Los Angeles. Broadway 8098.

For Sale—Largest size Hercules stump puller. Old veteran, too old to operate it. Will sell for about half price. Machine is practically new, 225 feet one inch, 30 ft. 1½ inch best steel cable. E. A. Turner, Gardena, Cal.

RABBITS

Leading Rabbitry in America—Flemish Giants a specialty. Prize winning and heavy weight stock. Scored and sold on their merits. Inquiry and inspection solicited. Catalogue on request. Empire Rabbitry, Empire, Cal.

Richey's New Zealand Red Rabbits are the ribbon winners. Improve your stock with a fine buck. $5.00 each. R. D. 8, Box 557, Los Angeles.

Belgians—Heavyweights. With or without pedigree; express paid. Old Hickory Supply Co., Dept. 4, Capitola.

Caldwell's Royal Red New Zealands scored and sold on merit. Catalog free. Caldwell Bros., Box 613R, Los Angeles.

For Sale—50 well-bred New Zealand hares and Sanitary Hutches. Apply 520 Mason Bldg., Los Angeles.

TURKEYS

Mammoth White Holland Turkeys—A few fine toms for sale. Also eggs in season from two very select pens. Orders given prompt attention. Prices on application. Address H. McKusick, Box 733, Calexico, Imperial County, Cal.

Turkey Eggs—From the largest and best flock of MAMMOTH BRONZE TURKEYS in the world. Can fill orders from ten to one thousand eggs. Write for special prices. Geo. A. Smith, Corcoran, Cal.

HORTICULTURAL PRINTING

Catalogues for the seed and nursery trade. The live stock and poultry industries are a specialty with us. Two thousand illustrations to select from. Write for prices and samples. The Kruckeberg Press, 237 Franklin St., Los Angeles.

LIVE STOCK

Billiken Herd—Pure bred, registered, O. I. C. Swine. The Big White kind. Sows now farrowing. Three herd boars used; new blood lines. Weaned pigs will be ready soon for shipment. Cholera immune; first class in every way. Make your reservations now for singles, pairs and trios. Write for my new circular. C. B. Cunningham, Mills, Sacramento County, Cal.

Pure Bred Duroc Jersey Boars—Raised by Peters and Lamson of Imperial Valley are offered for sale by B. D. Forbes and can be seen at the V. D. Reductions Companies ranch, Durbin station near Covina, or enquire at the office of the company, 722 San Fernando Bldg., Los Angeles. Cholera Immune.

Hogs—Forty head of BIG TYPE POLAND CHINA boars of any age. Sired by IOWA WONDER, who is a son of A WONDER, the greatest hog living or dead. No females to sell at present. On account of large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

For Sale—30 Toggenburg Doe Kids. All by registered, pure-bred sires and true to type. These kids will be sold according to their grade, from $15 upwards. They are all from big milkers and can be seen with their dams at Martyn Sanatorium, Pasadena, Phone Colo. 7930.

For Sale—Registered Tamworth swine—boars, sows and gilts of this famous bacon hog. This breed commands a premium on the market. Our original sows from the University Farm at Davis. Sweetwater Fruit Company, Bonita, San Diego County, Cal.

Blue Ribbon Herd Duroc-Jersey Hogs—Bred Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 firsts, 13 seconds, 6 thirds, 7 fourths, 1 fifth. Will show 1915. For prices, write Jno. P. Daggs, Modesto, Cal.

Grape Wild Farm Thoroughbreds—Guernsey Bulls of A. R. Breeding. BERKSHIRE HOGS. Finest herd in the state. All ages for sale. A. B. Humphrey, proprietor. Mayhews, Sacramento Co., California.

For Sale—Registered. Berkshires:. 25 choice pigs of best breeding from the best strains in America. For prices and description address H. L. Murphy. Perkins, Sacramento Co., Cal.

Blatchford's Pig Meal weans pigs easily and safely; no trouble; no milk. Write for free folder, "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

For Sale—At all times, Jacks and Stallions, driving and saddle horses. Price and stock guaranteed. Phillips and Kingsbury, 1112 T Street, Sacramento.

Cholera Immune—Registered Berkshires of all ages, both sexes, from large-boned pigs. Riccomi Bros., Mountain View, Cal.

Red Rock Ranch, Glen Ellen, Cal.—High-class Duroc Jersey hogs. Specialty registered pigs at weaning time. If interested write.

Berkshires—Pedigreed Boars ready for service. Bred sows, weanling pigs, both grade and thoroughbred, finest stock. C. H. Thompson, Novato, Cal.

Handsome Little Toggenburg Buck Kid—(Pure breed record) reasonable. Miss Wood, Swiss Goat Dairy, Pasadena, Cal.

Berkshires Registered—Young stock for sale at $10 each from fine blood. G. A. Casey, Box 7, King Road, San Jose.

Poland Chinas—Young stock; either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

Glenview Poland China—Stock for sale. Chas R. Hanna, R. F. D. No. 3, Riverside, Cal.

N. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale.

FARM LANDS FOR SALE

Money Making Ranch—86 acres near Watsonville, all rich sandy loam, 20 acres 11-year apples, 20 acres 10-year apricots, 10 acres 3-year apricots; 1914 6000 boxes apples, 75 tons apricots. Balance land good fruit soil; now in grain, corn, etc. New house of 6 rooms, modern, barn and ideal poultry and fruit farm equipment. Everything in personal property, stock, furniture, etc., included. Get full details and be convinced of this splendid buy. Price, $26,000; terms. E. Steinhauser, Watsonville, Cal.

VICTORIA, AUSTRALIA, WANTS SETTLERS

Special inducements; government land, railways, free schools; cheap irrigation; 31 years to pay for farms adapted to alfalfa, corn, grains, fruit, etc.; climate like California; ample markets; reduced passages; special excursion being arranged. Free particulars from F. T. A. Fricke, Government Representative from Victoria, 687 Market St., San Francisco, Cal., Box X.

For Sale—200 acres of land in Imperial Valley, 80 acres leveled up in crop of corn this year. Buyer gets one-fourth of crop delivered in sack at R. R.; 120 shares of paid up water stock. Good house on place. Price, $80 per acre cash. Might consider a trade to the extent of $3000 or $4000 in desirable property near Los Angeles. The balance in cash. Address George Thresher, Gridley, Route 1.

For Sale—16-acre apricot orchard, trees mostly two years old. Soil a fertile, sandy loam, not steep, no frosts or winds; small house; good spring. Situated one and one-half miles from town on County road. Price $3500.00. Terms $1500.00 cash, balance long time and easy payments. No exchange. Direct communications to J. J. B., Rural Route No. 2, Watsonville, Cal.

County Sectional Maps—Showing vacant government land, $2.50 any county. VERY PLAIN. Easy to see and select your choice. Booklet and circulars FREE. Write Joseph Clark, Searcher of State and U. S. Records, Sacramento.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

For Sale or Exchange—Ten acres planted to two year old Valencia orange trees, at North Whittier Heights. Will consider trade for vacant lots. Box 54, Glendora.

For Sale—Orange, olive, peach and rice land. Close in, on good terms. Fred Hart, Exeter.

FARM LANDS FOR SALE

For Sale—800 acres of fine valley land, situated in Santa Maria Valley near the town of Ramona. 30 miles from San Diego, 10 miles from a railroad. The soil is especially adapted to the growing of figs, olives, peaches, plums, grapes, oranges and many other crops; for particulars apply to owner. F. J. Etcheverry, Ramona P. O., San Diego Co., Cal.

For Sale—20 acres, Yolo County. Near State Farm at Davis. I will furnish alfalfa, beans and corn seed, also necessary farm implements. Plant now for the season's crop. See alfalfa and berries growing on the land. Dudley Moulton, 12th Floor First Nat'l Bank Bldg., San Francisco, Cal.

For Sale Or Exchange—Five-acre, frostless, foothill orange grove; income $2721.67 for one year. McGarry, 519 Union Oil Bldg., Los Angeles.

MOTORCYCLES

Order Your Motorcycle accessories and motorcycle parts direct by parcel post and save money, as we carry a complete stock, spring tandems, tires of all makes, lamps in all sizes, horns, and everything pertaining to motorcycle accessories, we have it. Also a fine selection of used motorcycles, consisting of the following makes: Excelsior, Indian, Thor, Harley and many other makes. We pay the freight on any motorcycle you buy from us. Write for a price list. Fred H. Bente, mgr. Excelsior Agency, 1550 Market St., San Francisco, Cal.

SCHOOLS AND COLLEGES

Telegraphy — Stenography, bookkeeping, English branches. Positions guaranteed. Mackay Business College, Los Angeles.

THE FOUR AGES OF HAIR

Bald,
Fuzz,
Is,
Was.

New York Sun.

TO EVEN IT UP

Johnny—Maw, I haven't got enough butter on my bread.

Mother—Well, then, put some of the bread back.—Boston Transcript.

When the donkey saw the zebra
He began to switch his tail;
"Well, I never," was his comment;
"There's a mule that's been in jail!"
—The Horse Lover.

When you mean to tell a thing on the housetops, it is wise to see to it that the thing is worth telling.—C. Hanford Henderson.

MOVED

The Redwood Manufacturers Company have removed their San Francisco offices from the Kohl Building to the sixteenth floor of the Hobart Building, Market and Montgomery Streets, San Francisco.

In conjunction with the parent corporation, the Caspar Lumber Company, they occupy the entire sixteenth floor of the tower of the Hobart Building, which gives them a suite of the finest offices on the coast. The view from their windows is unsurpassed.

Their friends are cordially invited to call on them in the new offices and take a birdseye view of San Francisco.

SOIL SENSE

The Dunham Company of Berea, Ohio, will mail on request a book which has a fund of information about soil culture in general and about soil culture with implements which this concern has to sell in particular. There are hints as to "Digging for the Truth." "For the man who is a thinker there is no better way to learn about soils and crops than to get out in the field and dig for the truth."

There are several paragraphs given to suggestions as to "How the Truth May Be Dug From the Ground," then there is another chapter on How Roots Grow, Making a Fine, Firm Seedbed, Soil Moisture, Storing Moisture in Soils, Getting Stored Moisture to the Plant, and numberless other hints with illustrations. The book is well worth requesting.

WHAT IS FABRIKOID

In the shortage which it is predicted will be still greater as to the live stock industry it is of interest to note that a manufactured leather is possible. Of course, it is hardly proper to call it leather, but it has practically all the wearing quality of the real article. This substance has been named Fabrikoid and it is used in upholstering furniture and automobiles, for wall coverings, for suit case manufacture, and many other purposes. A letter to the Dupont Fabrikoid Company, Wilmington, Delaware, with request for "How Many Hides Has a Cow?" will doubtless bring a pamphlet of considerable interest to those having occasion to use this new leather manufacture.

Mr. McAlister, manager of the coming sale of Holsteins to be held in Los Angeles, writes:

"It may interest your readers to note that one of the four-year-olds to be sold at the Schumacher dispersion sale has just made 20 pounds of butter in seven days and a junior two years old better than 18 pounds of butter in seven days. The latter, I believe, is one of the largest records ever made by a junior two year old in the state. There will be over 12 A. R. O. cows in this sale bred to the famous young herd sire, Tilly Alcartra Son, son of Tilly Alcartra, the only cow in the world to make over 30,000 pounds of milk in a year. Stop and consider what their calves will be worth."

Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Thin Shelled Eggs

Please advise me what to do for thin egg shells. Have unslaked lime. Would it be all right to feed them the softened air-slaked lime, scattering it on the ground?—Subscriber, Fairmead.

Lime in the form of old plaster is usually to be preferred to the thickened or cream of lime. In the absence of the old discarded plaster would use good fresh stone lime and mix with a liberal quantity of sharp sand, at least two or three times as much sand as lime. When this is set and dry it may be broken up and the chickens take to it readily.

Gum on Apricot Trees

Last year we set about 1000 apricot trees and this year find there are a number affected with a disease called gum disease. Do you know if there is anything we can do for it?—Subscriber, San Jacinto.

This gumming is probably caused by poor physical condition, especially some trouble with the sap of the tree. It is probably not of a fungous nature, but a perfectly safe treatment would be to remove the gum and treat the wound by painting with Bordeaux paste.

Asparagus Culture

I should like what information you can give as to proper soil and cultivation of asparagus. Can the roots be planted in white alkali soil if mixed with a rich loam? Also will the plants do well if planted in rich loam mixed with sand? Do the roots grow deep enough to allow cultivation sufficient to keep out salt grass? Do they need much water during the summer months?

Asparagus revels in alkali soil, in fact, in commercial gardens salt is often applied. Use a top dressing of stable manure. The rich loam should make a good asparagus garden. With thorough cultivation salt grass should be easily kept down. Water may be withheld during the summer months after harvesting is over.

Artichokes

Please give information regarding care and cultivation of artichokes. There are many suckers coming on them. Should they be used for propagating other plants—Subscriber, Arroyo Grande.

Propagation of these plants is by seed, though where a fine variety is developed it is propagated by using portions of the old plant or by dividing up the stools or suckers. Remove shoots with knife and take with them if possible some portion of the parent root. The rows may be four or five feet apart while three feet is the usual distance apart in the row. Remove flower buds as soon as they are formed and before the scales open.

Breeding of Milch Goat

I have a mlich goat which I was told was bred when I bought it. She has not kidded for two and a half years and is now four years old. Is it possible that having failed to breed for so long she has become barren?—Subscriber, Los Angeles.

This question is answered by Mr. Winthrop Howland, breeder of Swiss Toggenburgs at Redlands:

"Unless some organic condition was wrong with the doe she could be bred successfully provided she was in proper condition. My experience has taught that does may miss kidding a year and bear kids normally the following year. Sometimes does kept in corrals become too fat to breed, and it is best for such does to be turned out to pasture for a summer, where by fall this condition is so improved they should breed readily. I have known does to be bred three or more times successively and finally conceive after many such successive breedings. Other does were found to be infertile even after having once borne kids, but such cases are extremely rare. As a rule does are easily got with kid."

Cider

Does apple juice become cider as soon as it is expressed from apples; that is, sweet cider, or is sweet cider and apple juice the same?—Subscriber, Loomis.

Webster's definition of cider is: "The expressed juice of apples (or formerly of some other fruits) used for drinking, for making vinegar, and for other purposes. Hard or fermented cider contains from two to seven or eight per cent alcohol." Therefore we take it the moment it is expressed from apples the juice becomes cider.

Skin Disease

My colt rubs itself a great deal and has eruption of the skin. What can I do for it?—S. K. R., McFarland.

There are many skin diseases and while they all require the same general treatment, that is, they are benefited by antiseptic washes and by internal remedies which clear the blood, they are yet so diverse that materially different treatment may ultimately be required. Therefore, in the absence of more specific information would suggest to the inquirer; first, the giving of a laxative—a pound of Glauber's salts in three or four quarts of water or one and one-half pints of olive oil. Following this a couple of drams of bicarbonate of soda twice daily in the drinking water is helpful. As a wash for the skin use a dram of bicarbonate of soda and a dram of carbolic acid in a quart of water. Use this wash after a cleansing wash in tepid water. Be careful about feeding too liberally of grain or other heavy feed. In the meantime write your representative in congress—in your case Denver S. Church, Fresno,—and ask for "Diseases of the Horse," published by the department of agriculture. In the chapter treating on diseases of the skin practically all skin diseases are described so you can quickly determine as to which is the best treatment.

Squirrel Poison

Kindly give formula for mixing the squirrel poison referred to in your issue of March 11.—Subscriber, San Marcos.

The regular formula recommended by the federal service, which made so effective a campaign in California, is whole barley, 20 pounds; starch paste, one pint; strychnine sulphate, one ounce; saccharine, one dram. The barley is placed in a receptacle large enough to permit thorough stirring (as a wash tub). One pint of water is then brought to a boil and sufficient laundry starch (about two tablespoons dissolved in a little cold water) is slowly added to form, when well cooked, a paste about the consistency of cream. The strychnine, (first powdered if in crystals) and the saccharine, are now added to the hot starch paste and the mixture well stirred until dissolved. While still hot this is poured over the barley, mixed well, and the whole put aside for several hours before using. Scatter a teaspoon of the poisoned grain along the squirrel trails on hard places near the holes. The poison should not be placed in heaps on the soft mounds at the mouths of the holes. It will probably be found most efficient if scattered early in the morning between the hours of three and seven a. m. Poisoned grain should not be placed in wet weather. Its destructive properties will not deteriorate with age so long as the grain is kept dry and free from moisture.

Interesting and Instructive

We invite the public to see just how Ghirardelli's Chocolate and Cocoa are made in the Ghirardelli Building at the P. P. I. E. The ponderous machines, the pure ingredients, the extreme care as well as the process are fully explained.

Delicious Hot Chocolate made of the famous Ghirardelli's Ground Chocolate served day and evening. Be sure to try a cup.

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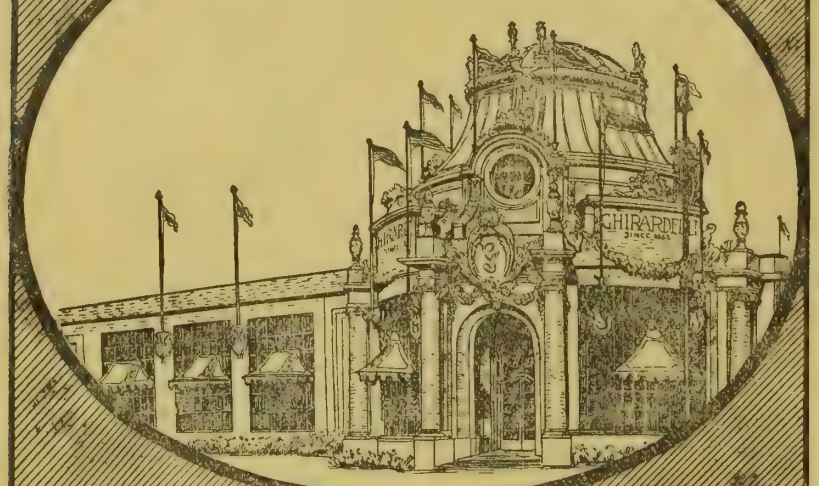

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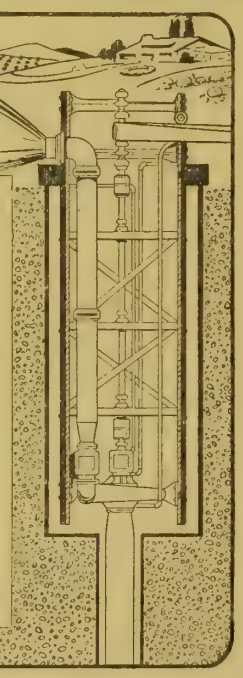

Krogh Pumps will give you the most reliable service in your irrigation—they have proven by test to lead the field. That's why they were selected to supply all the water to the big San Francisco World's Fair. Write for information.

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PIPE

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NEW Threads and Couplings
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No Matter What Crop You Grow

YOUR SOIL MUST BE RIGHT ALWAYS

California's great soil need is Phosphorus. The most economical and logical source of Phosphorus is

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United States Phosphate Co., 495 Marsh-Strong Bldg. Los Angeles, Cal.

The Household Department

THE BROWN-SEED BABIES

Asleep in a pretty pink cradle one day,
Swung to and fro on a slender stem,
Some little seed-babies safely lay,
And the soft pink petals sheltered them.
The honey bee hummed a lullaby,
And the wind rocked the cradle as it swept by.

But the pretty pink covers paled in the sun,
They shriveled and drooped beneath its ray.
Then a wild young breeze in boisterous fun
Snatched the brown babies and bore them away.
A rough nurse was he, without any care,
For he tossed them and scattered them everywhere.

Some fell on the river and whirled with its tide
Past island and town to lands afar.
The birds bore some up the green hillside,
Or let them fall where deep forests are.
But the seed-babies were wide awake now,
And wherever they went they knew how to grow.

Their brave little faces looked up to the sky,
Their brave young feet stood fast in the ground;
They took no time to fret or to cry,
But each did his best in the place he found.
Kissed by the sun and bathed by the shower,
Each baby grew to a beautiful flower.

—Kate W. Hamilton.

HOUSEHOLD QUERIES

Bottled Orange Juice

I would like to secure a recipe for bottling and keeping orange juice, to be used for making punch or as a cold drink in summer?—Subscriber, Mecca.

We have no recipe for preserving orange juice, but give below recipes for bottling lemon juice. No doubt orange juice could be prepared and kept in the same manner. Will be glad to hear from subscribers who have had experience in preserving orange juice for later use.

Lemon Syrup

Extract the juice from half a dozen lemons, add a pint of sugar and an ounce of tartaric acid. Pour into a pint of cold water and boil till thin syrup. Put in a sealed jar or bottle, and when needed pour a little of the syrup in a glass and add water and ice.

Lemonade Syrup

Boil together four cups of water and two cups of sugar for five minutes; add the juice of six lemons and the grated rind of one. Bottle in sterilized jars while still boiling, and set away to be diluted with ice water when wanted. The juice of one fresh cut lemon, added at the time of serving, will emphasize the acid taste, but it is not necessary. A teaspoon of lemonade syrup in any fruit beverage is an improvement.

Coffee Cake

I would like a recipe for a quick coffee cake, something I do not have to use yeast in.—Subscriber, Mecca.

The following recipes for "coffee" or breakfast cakes require no yeast:

Dutch Apple Cake

Two cups flour, half teaspoon salt, two teaspoons baking powder, quarter cup butter, one egg, one cup milk (scant), two teaspoons sugar, four sour apples. Sift dry ingredients together and work in shortening, gradually add beaten egg and milk mixed together. Spread one inch thick in pan, slice apples over top and sprinkle with sugar and cinnamon. Bake 30 minutes.

Fruit Rolls

Two cups flour, five teaspoons baking powder (level), half teaspoon salt, two tablespoons sugar, two tablespoons butter, two-thirds cup milk, one-third cup stoned raisins (finely chopped), two tablespoons citron (finely chopped), one-third teaspoon cinnamon.

Mix same as baking powder biscuit. Roll to one-fourth inch thickness, brush over with melted butter, and sprinkle with fruit, sugar and cinnamon. Roll like a jelly roll; cut off pieces three-fourths inch in thickness. Place on buttered tin and bake in hot oven 15 minutes.

Rich Coffee Cake

One cup butter, two cups sugar, four eggs, two tablespoons molasses, one cup cold boiled coffee, three and three-quarters cups flour, five teaspoons baking powder, one teaspoon cinnamon, one-half teaspoon cloves, one-half teaspoon mace, one-half teaspoon allspice, three-quarters cup raisins, seeded and cut in pieces, three-quarters cup currants, one-quarter cup citron, thinly sliced and cut in strips, two tablespoons orange juice.

Measure dry ingredients and mix and sift baking powder and spices with flour. Separate yolks and whites of eggs. Work butter to a cream with wooden spoon, add sugar gradually and continue beating. Add yolks of eggs beaten until light, orange juice, gradually the flour, baking powder and spices sifted together. Add stiffly beaten whites of eggs the last thing, folding in lightly. Bake in deep cake tins.

HELPS FOR THE COOK

Buttering bread or cracker on which cheese is to be toasted improves the flavor.

By first scalding the milk and setting it aside to cool, a baked or broiled custard will be perfectly smooth.

The simplest way to rid brown sugar of lumps is to put it in a bowl over hot water for a few minutes. This softens the sugar so the lumps may be quickly rubbed out.

Practical Culinary Hints

Invaluable Suggestions to the Particular Housewife

Today the busy housewife desires results in everything she does. Sometimes her cooking and baking is not what she would like it to be, notwithstanding the fact that she gives plenty of attention to that important part of household duties. The fault generally lies in the selection of poor ingredients. Use the very best articles and you will gain surprisingly better results. The critical housewife has found that in making cakes, delicate desserts, candy, preserved fruits or anything where considerable sugar is required, she can always obtain good results by using Karo. Candies made with part Karo and part sugar are more creamy, and will keep fresh longer than when sugar only is used. Karo does not have that cloying sweetness of ordinary sugar syrups, but it gives a delicate flavor which is well liked. Marion Harland highly recommends Karo, giving it preference above any other syrup. It is as clear and sweet as honey and is absolutely pure in every sense of the word.

Order a can from your grocer today and see how well and quickly your culinary ability will improve. There are dozens of ways Karo can be used—all of which are fully explained in a little book of recipes which your grocer will give you on request. Ask for it today.

CANNING RECIPES

(Continued from Page 515)

work more rapidly. It is absolutely necessary for the scalded fruit not to be delivered to the peelers until all the previous supply is skinned.

Peeling: Always remove the core first, using a knife with a short, narrow blade, holding it in such a manner that the point will reach near the center of the tomato and slanting the blade at the stem sufficiently to cut out the harder portion of the core, but not enough to cut into and open up the seed cells. If the seed cells are cut, even slightly, a solid pack cannot be made.

Drain off the surplus juice and after filling the can solidly with fruit top it, or press down the tomatoes with a "slop" stick made just large enough to allow for the expansion during the exhaust and process. At this point it is advisable to test the cans and see that they are averaging the standard weight. When properly filled and tipped, wipe the cans, cap, and if cold packing, tip. If exhausting (hot pack), cap and exhaust No. 3 cans 10 minutes, either in water at 212 degrees, or, which is preferable, in a continuous steam exhauster for the same time.

Processing:

For Cold-Packed Tomato Process

No. 2 cans, 12 minutes at 240 degrees; 35 minutes at 212 degrees.

No. 3 cans, 15 minutes at 240 degrees; 40 minutes at 212 degrees.

No. 10 cans, 30 minutes at 240 degrees; 75 minutes at 212 degrees.

For Hot-Packed Tomatoes

No. 2 cans, exhaust 8 minutes at 212 degrees.

No. 3 cans, exhaust 10 minutes at 212 degrees.

No. 10 cans, exhaust 15 minutes at 212 degrees.

For Hot-Packed Tomatoes Process

No. 2 cans, 8 minutes at 240 degrees; 25 minutes at 212 degrees.

No. 3 cans, 10 minutes at 240 degrees; 30 minutes at 212 degrees.

No. 10 cans, 20 minutes at 240 degrees; 60 minutes at 212 degrees.

Tomatoes, Whole

Select firm, solid tomatoes of canhole size, wash carefully and place in No. 3 cans, fill with cold brine (salt, 1 lb., water, 12½ gals.). Cap, tip and process 35 minutes at 212 degrees.

Chicken in Jelly

50 lbs. chicken, 1½ lbs. onion, chopped, ½ ounce bay leaves, ½ ounce whole mace, 1½ lbs. salt, 6 ounces gelatin. Draw and clean the chickens, cut each in 11 pieces, place in kettle and cover with meat jelly, adding the salt and onions and spices in a bag; bring to a boil and simmer until tender; remove the chicken and carefully skin and bone; add the gelatine, which has been soaked in cold water for an hour, to the liquor in the kettle and stir until dissolved, then strain; if the liquid is not clear, clarify with white of egg.

Place the chicken in cans, cover with the liquid, cap, tip and process at 250 degrees:

1 lb. cans, 55 minutes; 2 lb. cans, 65 minutes.

Meat Jelly

Place 50 lbs. calves' feet with 6¼ gals. water in kettle and add 1 lb. sliced onions, 1 lb. sliced carrots, 2 ozs. each of whole black pepper, celery seed and green pot herbs contained in a muslin bag, turn on steam, bring slowly to a boil and simmer 8 hours, adding water to make up loss by evaporation; draw off liquor and strain; when it jells, skim grease from top and return to kettle, adding ½ pint of lemon juice or ½ ounce tartaric acid; turn on steam and heat to 180 degrees. Mix 1 quart white of egg, free from yolk, with an equal bulk of water, crush the egg shells and add thereto; stir this thoroughly in the melted jelly, bring to a boil and strain through flannel bag previously wet with water.

Processed Beans With Pork

Select and clean pea beans of recent growth, place two bushels in a 50-gallon barrel and nearly fill with a solution of 2 lbs. salt in 12½ gallons water; soak 12 hours, then drain off surplus liquid.

Old beans will require a soak of 18 to 24 hours, and usually an increase in process time.

If the cost of the finished product will allow, place one bushel of beans in a 50-gallon barrel, nearly fill with brine and soak 4 to 8 hours; then drain off and replace with fresh brine and soak 4 to 8 hours; draw off this brine and cover beans with fresh water, soak four hours and drain. This removes much of the rank flavor and improves the finished goods. Slice salt pork thinly and place in bottom of cans; ¼ ounce in No. 1 cans, ⅜ ounce in No. 2 cans; ½ ounce in No. 3 cans; then fill cans ⅞ full of the soaked beans and hot dip in—

2½ lbs. salt.

3 lbs. sugar.

½ lb. ground white pepper.

½ pint caramel (burnt sugar coloring).

12½ gallons water.

Cap, tip and process:

No. 1 cans, 2 hours at 240 degrees.

No. 2 cans, 2½ hours at 140 degrees.

No. 3 cans, 3 hours at 240 degrees.

With 212 degrees allow double the time. If a thick sauce is desired, thicken with 2½ to 3½ lbs. corn starch.

CORNSTARCH

The Food Product With a Thousand Uses

There is probably no food product in general use today which serves more purposes in the hands of the up-to-date housekeeper than cornstarch.

She uses it for thickening her gravies and sauces—which is the secret of their rich, creamy consistency, and the smoothness of taste that can be acquired in no other way; she uses it to obtain the fine texture of her bread, biscuits and cakes; for making her pie crust perfect and flaky; for sherbets, ice cream, custards, short cakes, waffles, chocolate eclairs and a thousand and one other things too numerous to mention.

But there is a great difference in cornstarch, and the whole effect desired may be lost by using inferior kinds. No less an authority than Emma Churchman Hewitt, for many years associate editor of the Ladies' Home Journal and other national magazines, says: "I found that the experience of up-to-date housekeepers everywhere was the same as mine—those who had the greatest success with cornstarch recipes depended upon Kingsfords."

This brand is carried by all good grocers everywhere and costs no more than inferior kinds. If you want to obtain the best results insist on Kingsford's. Try it once and you will use it always.

DAISY FLY KILLER placed anywhere, attracts and kills all flies. Neat, clean, ornamental, convenient, cheap. Lasts all season. Made of metal, can't spill or tip over; will not soil or injure anything. Guaranteed effective. Sold by dealers, or 6 sent by express prepaid for $1.

HAROLD SOMERS, 150 DeKalb Ave., Brooklyn, N. Y.

Rid Your House of Ants

Something Every Woman Should Know in Regard to This Pest

There is no annoyance with which the housewife has to contend more aggravating than ants. They get into the pantry and infest the sugar, jams and other foods in a manner that is almost uncanny.

Women everywhere, therefore, will rejoice to learn that a remedy has been discovered—something that will not only exterminate all the ants in the house, but that will do it quickly. This remedy is the result of long experimenting on the part of a baker and candymaker, who was on the verge of being driven out of business by ants.

The preparation proved so efficacious that it has been put up for general use under the name of Kellogg's Ant Paste. It is provided with a patent rattle cap, which assures the purchaser that it is the original brand, and provides a warning right and day that the contents are poisonous.

Get a bottle of Kellogg's from your druggist today and your ant troubles will be at an end.

The Great Home Builder

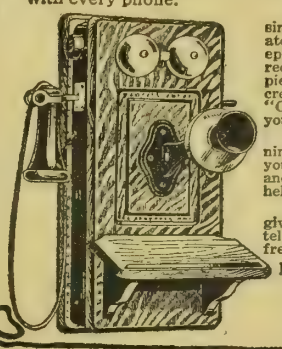
WHAT after all is more worth while than bringing comfort and safety into the home? Think what the telephone has done to tie the country house to the town and the town to the city. Don't be isolated. Get into touch with the voice of the big outside world. Know the prices that rule on farm products. Know about the party at your neighbor's house. Bring to your whole family the safety that comes with the knowledge that in the time of illness or fire the whole community is within call.

Kellogg Telephones

have won their way into homes all over America because of the quality of service they give. Did you know there is a big difference in telephones? There is. Kellogg phones have to undergo an inspection more rigid than other makes. They pass through 37 distinct tests before they leave the factory. That means dollars and cents to you.

As a matter of fact, it is not uncommon for the repairs to cheaper telephones to cost in a few years more than the first cost. Kellogg instruments go on year after year carrying the most delicate sounds perfectly without repairs.

Kellogg Transmitter is guaranteed for five years. A Kellogg lightning protector goes with every phone.



Every part of the instrument is strong, simple and durable. Big, powerful generator that will ring efficiently with 40 telephones on the line. Unbreakable receiver and transmitter mouthpiece. Long life batteries. Secret service push button to ring "Central" without ringing your neighbors.

Let us help you in planning your line. We can tell you how to avoid mistakes and save money. Our expert help costs you nothing.

Literature and bulletins giving the latest ideas about telephone construction sent free.

Kellogg Switchboard & Supply Co.
Mission & Third Sts.
San Francisco, Cal.

Send for Bulletin No. 24

National Oil Engine

An engine which will burn fuel costing three cents per gallon, and at the same time is an engine with 90 per cent less parts, is the engine for the rancher to buy.

A LETTER FROM A USER OF THE NATIONAL OIL ENGINE

Kingsburg, Cal., Dec. 19, 1913.

National Steam Pump Co.,
Los Angeles, Cal.

Gentlemen:

I bought the first NATIONAL Oil Engine sold in this State. Any one wanting an engine let them come and see my 15 H. P. pulling a 6-in. centrifugal pump lifting thirty feet throwing two cubic feet moving one foot per second, using low grade fuel. I will answer any letter.

Truly yours,
(Signed) L. E. HURLEY.

We guarantee the saving in fuel expense and purchaser's own judgment will tell him that in doing away with 90 per cent of the small, delicate and complicated parts, springs, gears, etc., that he is getting away from engine trouble when he invests in a National. 1915 catalog now ready.

NATIONAL STEAM PUMP COMPANY

Upper Sandusky, Ohio

Address California Representative, J. C. WIGHT,
4927 Budlong Ave., Los Angeles, Cal. Phone Vermont 2485

The Stephenson PATENT COOLER

NO ICE REQUIRED

Perfect Ventilation. Absolutely Sanitary.

Awarded first prize wherever exhibited. If not for sale at your dealer's, write for particulars and prices.

L. ANDERSON CO., Mfrs.,
Martinez, Cal.

FOR FIGHTING FIRE USE

GARSTANG GRASS BURNER

For the city lot owner, or rancher. Designed solely for fighting dangerous and useless brush and weeds. Clears off city lots or vacant acreage. Kills the seed of weeds and rank vegetation at the right season. Safe, inexpensive and an efficient safeguard against accidental fires. Burns oil, distillate or gasoline. Prices on application.

Richard Gartang, Patentee, 224 W 30 St., Los Angeles

STEAM PRESSURE CANNING OUTFITS

Can your Fruits, Vegetables, Corn, Meats, Fish, etc., for home use and for sale at a big profit. Outfit more than pays for itself the first year. 11 different sizes. Book of Canning Recipes free with outfit. Tells how to can everything. Write for Catalogue B.

Built by

Henninger & Ayes Mfg. Co.

47 First Street PORTLAND ORE.

EUCALYPTUS SEEDS

In large or small quantities, 40 species to select from. Write for free pamphlet, "Eucalyptus Culture." It tells you how to sow the seed, raise the plants and plant out in the field. Also describes all the leading kinds, gives their uses, etc.

Trial packets 15c each, 4 for 50c. Write for prices in quantity.

THEODORE PAYNE

345 S. Main St., Los Angeles, Cal.

JAMES R. TOWNSEND

Solicitor of American and Foreign **Patents** Copyrights Trademarks and Labels registered. Suite 711 San Fernando Bldg. Los Angeles. Phones:- Home A4615; Sunset Main 347

Add the thickening to gravy below the boiling point to prevent lumps forming.

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, April 28, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade 3 to 4 cents above following quotations:
Creamery Extras 22
Firsts 20
Country 19
Ladle 18

CHEESE

Prices to trade, 1 and 2 cents higher:
California Fresh ....13½@14
Cheddar ....19@20
Domestic Swiss ....20@21
Eastern Daisy ....18½@19
Oregon Triplets ....17@17½
Longhorn ....19@19½
Imported Swiss ....30@32

EGGS AND POULTRY

Prices to trade, 3 cents higher than following quotations:
Fresh Ranch, case counts....22
Candled ....24@26
Petaluma—Santa Rosa....23

Prices to producers:
Hens, lb. ....15@18
Roosters, old 8
Broilers, lb. 30
Fryers 25
Roasters, lb. 20
Turkeys ....17@20
Ducks 19
Geese 16
Squabs, doz. 3.00

LIVE STOCK

The following quotations are f. o. b. Los Angeles on all stock:
Hogs, 175 to 200 lbs., per cwt....8.25
Hogs, 175 to 200 lbs., per cwt....8.00
Prime Steers ....7¼@7½
Heifers ....6¼@6½
Calves, lb. ....8½@9
Sheep—
Ewes, head 4.50
Wethers 5.00
Lambs, head ....4.50@4.75

POTATOES

Wholesale selling prices:
Idaho Russet 2.35
Idaho Rurals ....1.90@1.95
Highland Burbanks 1.90
Sweets, lug ....75@85
New Early Rose, lug ....1.00@1.25
Northern Burbanks, cwt....2.00
Salinas 2.25
Lompocs ....2.35@2.50

ONIONS

Wholesale selling price:
Australian Brown, cwt....1.00@1.25
Bermudas, crate ....1.35@1.40
Crystal White, crate ....1.45@1.50
Oregon Globes ....1.35@1.50
Yellow Danvers ....1.25@1.50
Sets—
Yellow 10
White 12
Garlic ....22@25

VEGETABLES

Wholesale selling price:
Asparagus ....6@10
Artichokes, Northern, doz....15@60
Brussels Sprouts, lb....15@20
Beets, doz. ....30@35
Beans—
String 6
Green ....6@7
Wax ....4½@5½
Kentucky Wonders 10
Cabbage, sack ....90@1.00
Carrots, doz. ....30@35
Cauliflower, doz. ....1.10@1.25
Celery, crate ....3.35@3.50
Chicory ....35@40
Cucumbers, doz. ....75@1.75
Egg Plant, lb. ....18@25
Escarole, doz. ....35@40
Horseradish, lb. ....10@12
Leeks, doz. ....35@40
Lettuce, crate ....65@75
Mint, doz. ....35@40
Mushrooms ....35@40
Onions, Green, bunch....15@20
Oyster Plant, doz. ....35@40
Parsnips, doz. ....35@40
Parsley, doz. 15
Peas—
Telephone ....5@6
Small ....4@5
Peppers—
Bell, lb. ....35@40
Chili, lb. 30
Pumpkins, lb. ....1¼@1½
Radishes, doz. 15
Rhubarb—
Crimson Winter, box ....65@75
Strawberry ....75@90
Giant ....70@75
Spinach, doz. ....15@18
Squash—
Cream, lug 60
Hubbard, lb. ....2¼@2½
Summer, crate ....75@90
Tomatoes, Mex., crate ....2.75@3.00
Turnips ....30@35

FRESH FRUIT

Wholesale selling price:
Apples—
Rome Beauties ....1.75@2.00
Pearmains ....1.75@.185
Avocados, doz. ....6.00@10.00
Bananas ....4@4½
Berries—
Strawberries, basket ....3@4
Blackberries ....10@12
Raspberries ....18@20
Cherries, lb. ....18@22
Cherimoyas, lb. ....20@25
Loquats, lb. ....6@10
Pears, Winter Nelis, lug 1.50
Pineapples, lb. ....8@9

CITRUS FRUIT

Wholesale selling price:
Lemons ....1.00@2.00
Grapefruit, Seedless ....1.75@2.75
Navels ....1.50@2.25
Tangerines, half box ....1.25@1.50
Limes, basket 1.00

DRIED FRUITS

Wholesale prices to retailers are:
Evaporated Apples, Fancy, lb.
boxes ....7¼@11
Apricots ....9½@11
Nectarines 12½
Peaches ....6¾@7¾
Pears ....10@11
Prunes ....7@13
Plums 10

HONEY

Wholesale selling price:
Comb, Fancy, Water White....14
White 12
Light Amber 12½
Extr. Water White 7
White 6½
Light Amber 5½
Beeswax 32

NUTS

Prices named by California Walnut Growers' Association are:
No. 1 ....16½
Budded Walnuts 20
Jumbos 19
No. 2 12
Culls 9

Prices fixed by California Almond Growers' Exchange, f. o. b. California.
Almonds—
Nonpareil ....21@22
I X L ....20@21
N P U ....19@20
Drake's Thinshell ....17@18
Pecans 17
Peanuts—
California, Raw 6
Japan 7½
Eastern 7½
Rice Corn ....5.00@5.25

RICE

Wholesale selling price:
California ....4.75@5.00
Broken ....3.75@4.00

BEANS

Wholesale selling price:
Producer's price not far from one dollar under these quotations:
Limas 6.00
Bayous ....6.00@7.00
Lady Washington ....5.90@6.00
Pinks ....5.00@5.10
Black Eyes ....6.75@7.00
Lentils ....13.00@14.00
Small White ....5.90@6.00
Garbanzos ....9@10

HAY

Prices to producer f. o. b. Los Angeles:
Barley Hay ....9.00@13.00
Wheat Hay ....8.00@11.00
Tame Oat ....9.00@14.00
Alfalfa ....8.00@11.00
Volunteer ....5.00@7.00
Straw ....5.00@6.00

GRAIN

Wholesale selling prices f. o. b. Los Angeles:
Corn, Yellow 2.20
Corn, White 2.30
Wheat ....2.50@2.55
California Red Oats....1.85
Oats, White 2.15
Oats, Hulled 2.55
Egyptian Corn 2.20
Barley Seed 1.60
Barley, Hulled 2.00
Milo 1.90
Rye 2.30
Sunflower Seed 7.50

FEED STUFF

Wholesale selling prices f. o. b. Los Angeles:
Bran, Heavy 1.80
Alfalfa Meal 1.15
Alfalfa Molasses. per cwt.... 1.20
Beef Scraps 3.00
Beet Pulp 1.25
Cracked Corn, cwt. 2.25
Cracked Wheat. cwt.... 2.65
Cotton Seed Meal 1.90
Bone Meal 1.95
Meat Meal 3.00
Bone, Green 1.65
Charcoal 2.00
Oil Cake Meal 2.50
Fish Meal ....3.15@3.25
Rolled Oats 2.20
Middlings 2.10
Rolled Barley 1.55
Feed Meal 2.30
Scratch Feed ....2.20@2.40

San Francisco Market

SAN FRANCISCO, April 27, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade, 4 cents above following quotations:
Extras 23
Prime Firsts 22½
Firsts 22

CHEESE

Wholesaler to retailer.
Oregon Y. Am....14
Young America 12½
California Flats ....8@11
Cheddar 20
Oregon Twins 14½

EGGS AND POULTRY

Prices to trade 3 cents higher than following quotations:
Extras 22
Firsts 19½
Select Pullets 19½

Price to producer:
Hens, lb. ....16@19
Fryers ....26@28
Broilers ....30@32
Roosters, Young ....23@27
Old ....10@12
Broilers ....32@36
Squabs ....2.50@3.00
Ducks ....15@17
Geese ....2.50@3.00
Belgian Hares, lb....7@8
Dressed ....13@14
Turkeys, live ....16@18

LIVE STOCK

San Francisco prices. gross weight:
Steers ....4@7
Cows and Heifers....3@6¼
Calves, lb., live weight....6@9¼
Hogs ....5@8
Wethers ....6½@7
Ewes ....6@6½
Milk Lambs ....7¾@8
Shorn stock ¾@1c less

POTATOES

Wholesale selling price:
Idaho ....1.40@1.60
Idaho Russet ....1.60@1.90
Delta Burbanks ....1.40@1.70
Salinas Burbanks ....1.50@1.75
Oregons ....1.50@2.00
Shimas ....1.00@1.40
New Potatoes, lb. ....2@3
Sweets, cwt. ....1.75@1.90

ONIONS

Wholesale selling price:
Onions, cwt. ....75@1.00
Australian ....3.75@4.00
Oregon ....90@1.00
Garlic, new ....20@25

VEGETABLES

Wholesale selling price:
Asparagus, box ....1.25@1.90
Beans—
String ....6@8
Wax ....5@7
Brussels Sprouts, lb. ....3@5
Celery, crate ....1.50@1.75
Cucumbers, Hothouse, box ....1.75@2.00
Lettuce—
Southern, crate ....75@1.00
Local, doz. ....10@15
Egg Plant, lb. ....8@12½
Peas—
Small ....2@3
Large .... 3@4
Peppers—
Bell, lb. ....25@30
Chili, Mexican ....3@5
Rhubarb—
San Jose ....65@75
Alameda ....50@60
Squash, Summer, crate....65@1.00
Tomatoes, Mexican, lug....3.00@3.50

FRESH FRUIT

Wholesale selling price:
Apples—
Newton Pippins ....1.00@1.25
Bellflowers ....25@50
Berries—
Strawberries—
Southern, crate ....75@1.25
Fresno, crate ....75@1.00
Watsonville, chest....6.00@10.00
Banner, chest ....5.00@7.00
Longworths, chest ....7.00@9.00
Other varieties, chest....6.00@8.00
Bananas, Hawaiian, bunch....1.25@2.00
Cherries, box ....1.75@2.00
Pineapple. doz. ....2.00@3.50

CITRUS FRUIT

Wholesale selling price:
Grapefruit, Seedless, new crop.1.25@3.00
Lemons ....1.50@2.50
Lemonettes ....1.00@1.50
Navels ....1.50@2.25
Limes, case ....4.00@5.00
Tangerines, halves ....75@1.75

DRIED FRUITS

Wholesale prices are:
PRUNES—1914 crop, bulk basis: 30-40s, 5½c; 40-90s, 4½@5c; 90-100s, 4@4½c. The above are for both Santa Clara prunes and stock from outside sections.

Other Fruits. 50-lb. boxes—	Standard	Choice	Extra Choice	Fncy
Ev'p'd Apples.		7¼c	7½c	8 c
Peaches	4 c	4¼c	4½c	5¾c
Apricots	9 c	9½c	10 c	11 c
Pears	7 c	8 c	9 c	10 c

RAISINS

The following prices are f. o. b. Fresno, as given out by the Associated Raisin Company, for immediate shipment, and are guaranteed against a decline till June 1st:

Fancy seeded, 16-oz., 7½c; 12-oz., 5⅞c; bulk, 6c; choice seeded, 16-oz., 6⅞c; 12-oz., 5⅝c; bulk, 5½c; Thompson seedless, No. 1, 16-oz. pkgs. 7c; 12-oz., 6¼c; 50-lb. cs., 6½c; loose, Muscatels, 1-crown, 5½c; 2-crown, 5½c; 3-crown, 5⅞c; 4-crown, 6c; Sultanas, 50-lb. cs., 5¾c; bulk, layers, 50-lb. bxs., $2.75; in 20-lb. boxes, 6-crown, $2.75; 5-crown, $2.25; 4-crown, $1.60; 3-crown, 5-lb. bxs., $1.50; on all bulk stock, 50c additional. Cartons—Clusters, 20 to cs., No. 1, $1.70; No. 2, $2.10; No. 5, 4 to cs., $2.25. Local representatives of the Associated are asking about ¼c higher, while several of the largest independent packers are quoting ½c under these figures.

NUTS

ALMONDS—Prices fixed by Almond Growers' Exchange to the trade, f. o. b. California:
Nonpareil 2
I X L 2
Ne Plus Ultra 1
Drakes 1
Wholesale selling price:
Peanuts—
Unpolished ....5@
Polished ....6@6
Shelled, Jap ....6¼@6
Italian Chestnuts ....6½@

BEANS

Wholesale selling price:
Limas ....5.30@5.3
Pink ....4.20@4.2
Black Eyes ....6.00@6.2
Cranberry ....5.00@5.
Small White ....5.25@5.
Garbanzos ....6.50@6.7
Large White ....5.15@5.
Bayou ....5.30@5.
Manchurian Speckled Bayous...3.90@4.
Manchurian Butters ....4.50@4.
Red Mexican ....5.30@5.
Red Kidney ....6.00@6.
Horse Beans ....3.50@4.

HONEY

Wholesale selling price:
Comb, Water White....
Light Amber ....10@
Amber ....7@
Extracted White 6
Light Amber ....3½@4
Dark Amber ....
Beeswax ....27@

HOPS

1914

Wholesale selling price:
Sacramento Valley ....12½@
Sonoma-Mendocino ....12½@
Oregon Clusters ....12½@

HAY

Under date of April 24, Scott, Magn[er] & Miller say:

Receipts of hay for the past we[ek] were 2989 tons, the preceding we[ek] 3471 tons and the week before 2[...] tons. These receipts have taken ca[re] of all demands on the market and [al]though a fancy car of any variety ha[s] at times sold in excess of our top qu[o]tations, yet the market as a rule [re]mains about the same as heretofore [al]though somewhat of firmness has [de]veloped the latter part of the week c[aus]ing to a rumor of sale for export.

Several lots of hay offered fr[om] country districts have changed ha[nds] during the week and a slightly bet[ter] feeling is to be noted both in coun[try] districts as well as the city marke[t].

The weather has been most favora[ble] and new crop prospects are of the b[est] up to this time. Cutting of new alfa[lfa] on the river as well as interior [dis]tricts has commenced and unless [we] have heavy showers the latter par[t of] this month to damage same, it sho[uld] be of a very good quality.

There is no change in straw to n[ote].

We quote the average wholesale p[rice] of hay in carload lots on today's ma[rket] as follows:

Fancy Wheat Hay (light

WEATHER CONDITIONS

April 24, 1915.

Report from the various stations of the United States Weather Bureau by George H. Wilson, director, San Francisco.

	Rainfall Data			Temperature Data —Past Week—	
	Past Week	Seasonal to Date	Normal to Date	Maximum	Minimum
Eureka	.04	40.03	41.79	56	46
Red Bluff	.06	31.88	22.93	76	44
Sacramento	.01	14.07	18.71	72	44
San Francisco	.01	23.93	21.08	62	50
San Jose	.65	19.80	15.88	68	46
Fresno	.05	9.47	8.70	80	46
Independence	.00	2.93	8.56	78	....
San Luis Obispo	.90	24.73	19.06	76	46
Los Angeles	.26	15.61	14.96	66	48
San Diego	.56	13.55	9.44	66	50

bales)	11.50@12.50
o. 1 Wheat or Wheat and Oat	9.00@11.00
lo. 2 Wheat or Wheat and Oat	7.00@9.00
hoice Tame Oat	11.00@12.00
ther Tame Oat	6.00@9.00
arley	5.00@8.00
Vild Oat	6.00@8.00
lfalfa	6.00@9.00
tock Hay	4.50@5.00
traw, per bale	30@45

GRAIN

lfalfa Seed	16½
Vheat, Cal. Club	2.30@2.32½
orn, Egyptian White	1.75@1.80
orn, Eastern Yellow	1.74@1.75
arley, Feed	1.30@1.35
ats, Red, Feed	1.52½@1.60
ats, White Feed	1.80@1.85
illet	2½@3¼
laxseed	5@5½
ye	2.00@2.25
unflower	5@5½

FEED STUFF

Wholesale prices.

lfalfa Meal, car lots	14.50@15.50
ran, ton	27.50@28.50
eed Cornmeal	39.50@40.00
racked Corn	39.50@40.00
olled Barley, ton	28.00@29.00
olled Oats, ton	37.00@37.50
iddlings	32.00@34.00
horts	29.00@30.00
ilcake Meal	38.00@39.50
ocoanut Oilcake Meal	24.00@25.00

Citrus Fruit Market

LOS ANGELES, April 28, 1915.

Eastern weather has been so warm hat demand for oranges is not so keen s last week. Sales have been very eavy, however, and the situation is enerally good.

The warmer weather has induced eavier consumption of lemons and verything offered has been cleaned up t slightly better prices than formerly.

hipments

Shipments of oranges from Southern alifornia to date since November 1, 914: 19,421 cars, lemons 2,608, total 2,029. To same date last season; or- nges 21,569, lemons 1,192, total 22,761. rom Tulare County this season; or- nges 5,214, lemons 191, total 5405. To me date last season; oranges 4674, mons 30, total 4704. From Northern ounties; oranges 628, lemons 1. To me date last season; oranges 398, mons 5.

NEW YORK, April 26.—Forty-four cars avels, four budded, one bloods, one na- els and navelencias, five navels and oods, one sweets and bloods, and two mons sold. Navels strong generally, ith prices slightly higher. Lemons un- hanged. Weather fair.

NAVELS—	Avge.
uclid, Growers Ft. Co.	$2.90
planders, Growers Ft. Co.	2.75
osemont, Growers Ft. Co.	2.25
olden Oval, Growers Ft. Co.	2.15
uclid, Growers Ft. Co.	2.85
planders, Growers Ft. Co.	2.80
osemont, Growers Ft. Co.	2.45
rchard, imp., National O. Co.	2.95
andard, National O. Co.	2.70
rchard, National O. Co.	2.60
andard, National O. Co.	2.35
olden Cross, O. K. Ex.	3.00
olden Star, O. K. Ex.	2.70
NAVELENCIAS—	
lendora Heights, A. C. G. Ex.	$2.90
volution, A. C. G. Ex.	2.60
onogram, O. K. Ex.	2.80
BLOODS—	
eyser, O. K. Ex.	$2.90
lyer, O. K. Ex.	2.65
hittier, S. T. Ex.	2.70
LEMONS—	
an Patch	$1.75
ony	1.45
og Cabin	2.05
illside	1.80
hittier	2.65
ico	2.15

KANSAS CITY, April 26.—Attendance ood. Fair and warm. Demand good for anges and lemons. Three cars sold by ansas City Fruit Auction Company.

NAVELS—	
ell	$2.08
old Bear	2.10
SWEETS—	
odjeska	$2.44
LEMONS—	
umclass, Stewart Ft. Co.	$2.22
olano	2.10

BOSTON, April 26.—Thirty cars sold. arket unchanged on oranges and lemons.

NAVELS—	Avge.
lain Wraps, S. T. Ex.	$2.45
arrot, S. A. Ex.	2.40
awk, S. A. Ex.	2.20
arrot, S. A. Ex.	2.35
onopole, A. C. G. Ex.	2.05
olunteer, S. A. Ex.	2.75
ornell, S. A. Ex.	2.25
tork, S. A. Ex.	2.75
arrot, S. A. Ex.	2.70
tork, S. A. Ex.	2.85
LEMONS—	
ft. Lowe, A. C. G. Ex.	$2.25
Questa, Q. C. Ex.	1.45
Pet, S. D. Ex.	2.15
Greyhound, S. D. Ex.	2.15
Pride of San Fernando	1.70
Brownie	1.15
SEEDLINGS—	
Pachappa	$2.15
JAFFAS—	
Gold Plume	$2.25
BLOODS—HALVES—	
Crafton Special	$1.40

PITTSBURGH, April 26.—Seventeen cars sold. Market firm on good fruit; higher on lemons.

NAVELS—	Avge.
Naralimo, Sparr Ft. Co.	$2.60
Circus, Sparr Ft. Co.	2.65
Monopole, A. C. G. Ex.	1.95
Cougar, Covina Ex.	2.15
Violet, D. M. Ex.	2.80
Jasmine, D. M. Ex.	2.75
Greyhound, S. A. Ex.	2.35
Green and Gold, S. A. Ex.	1.85
LEMONS—	
Lemonade, Or. Ex.	$2.10
Las Fuentes, Crocker-Sperry Co.	2.10
Montecito	1.75

CINCINNATI, April 26.—Nine cars sold. Market slightly lower on oranges; strong on lemons.

NAVELS—	Avge.
Hawk, S. A. Ex.	$2.60
King, S. A. Ex.	2.60
Hawk, S. A. Ex.	2.50
Oriole, F. C. Ex.	2.25
LEMONS—	
Golden Rule, Riv. Ex.	$2.35
Golden	1.15
Arab, S. D. Ex.	2.45
Pup	2.45
Naralimo, Sparr Ft. Co.	2.50
Circus	2.35
Del Oro	2.00
SWEETS—	
Cactus	$2.25

ST. LOUIS, April 26.—Eight cars sold. Market is strong.

NAVELS—	Avge.
Newsboy, R. H. Ex.	$2.35
Carrier, R. H. Ex.	2.30
Garibaldi, R. H. Ex.	2.10
Belt, R. H. Ex.	2.60
Searchlight, Or. Ex.	2.70
S. S., Or. Ex.	2.25
Lochinvar, R. H. Ex.	2.70
Belt, R. H. Ex.	2.60
LEMONS—	
Buckeye, C. C. Ex.	$1.70
Victor, O. K. Ex.	2.60
Crest	2.45
Blue Jay	2.35

PHILADELPHIA, April 26.—Market is strong. Twelve cars sold.

NAVELS—	Avge.
San Antonio Blue, S. A. Orch.	$2.75
San Antonio Red, S. A. Orch.	2.45
Pansy, Colton O. G. A.	2.25
Tiger, S. B. Ex.	2.75
Floral, S. B. Ex.	2.45
Tiger (oranges)	2.80
Floral (oranges)	2.65
Parrot, S. A. Ex.	2.10
LEMONS—	
Mt. Wilson, A. C. G. Ex.	$2.90

CLEVELAND, April 26.—Eleven cars sold. Market steady on oranges, strong on lemons.

NAVELS—	Avge.
Blue Globe, Riv. Ex.	$2.60
Pepperleaf, Riv. Ex.	2.25
Green and Gold, S. A. Ex.	2.45
Trail, A. C. G. Ex.	2.40
Canyon, A. C. G. Ex.	2.70
Balboa, Or., S. T. Ex.	2.35
Carmencita, S. T. Ex.	2.85
Colombo, S. T. Ex.	2.15
Gold Buckle, R. H. Ex.	2.80
Lochinvar, R. H. Ex.	2.90
LEMONS—	
Mt. Lowe, A. C. G. Ex.	$2.95
Reliable, S. T. Ex.	2.95
Carrier, R. H. Ex.	2.35
Blue Bell	2.25
Red Bell	2.20

CHICAGO, April 26.—Navel oranges are firm, and there was a fair sale of medium-sizes. California seedlings are selling well because they are of a desirable size. Quotations: California navels, boxes, depending on size, 2.40@2.90; seedlings, $2.25 @2.50. Lemons quiet, boxes, California, 300 count, depending on quality, 2.40@ 2.75; 360 count, 2.25@2.50; Messinas, 2.25 @2.05. Kumquats, 10@15 quart. Apples, western, boxes, 1.00@2.50. Artichokes, boxes, California, 2.00@2.50. Asparagus, boxes, California, 12 large bunches, 75@ 2.00.

THOUGHTLESS

"Your honor," said the arrested chauffeur, "I tried to warn the man, but the horn would not work."

"Then why did you not slacken speed rather than run him down?"

A light seemed to dawn upon the prisoner. "That's one on me. I never thought of that."—Huston Post.

LEGAL QUERIES

(Continued from Page 520)

person claiming the estray shall appear and pay all costs, the estray may be delivered to him. The costs are filing and publication of the notice, 30 cents a day for the care of the horse or other large animal. If nobody appears within the 30 days, taker-up of the animal must notify the constable in writing, who proceeds to sell the animal at public auction, paying his own costs and costs and charges of the party taking the animal up.

Water Right

A and B own a pasture of 1500 acres. C has a homestead in said pasture. He has been getting water here for nearly five years, but since A and B bought the pasture and water three years ago they have forbidden him to use it several times, though he still gets it. Can he hold a water right after this notice or can we fasten the gates and keep him out?—Subscriber, Orange Cove.

To be entirely safe, you should bar your gates for at least a day once a yea:.

Maintaining Canals

Our irrigation company maintains the main canals and claims that the individual owner must keep up any lateral ditches that pass over his land. My neighbor on the east wishes to put a ditch along the front of my place for irrigation purposes. Question is "Will I have to clean and maintain the ditch? Is this matter regulated by state law or does the local water company control? Also if water leaks from the ditch through gopher holes and drowns crops is the water company liable or the man that uses the water or do I have to stand the loss?—Subscriber, Lanare.

You can obviate all your difficulties by making contract with your neighbor wherein provision could be made that your neighbor keep the ditch clean and hold you harmless for any gopher holes. If the irrigation company accepts the ditch which your neighbor put in it might be responsible, but under the provision which you state in your letter, that would be questionable.

Speaking of canners, especially home canners, as we are this week, it is most fitting to call attention to the catalog issued by Henninger & Ayes Mfg. Company of Portland. It gives a list of steam pressure canning outfits manufactured by the concern and in addition has a world of information regarding canning practices. If the Cultivator is mentioned a letter to the concern will secure a copy of this catalog.

Grafted Walnuts on Black Roots

Wholesale and Retail

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Price 25c

Burbank's Crimson Winter and Wagner's Giant plants for sale. Best stock obtainable. Write for prices and terms

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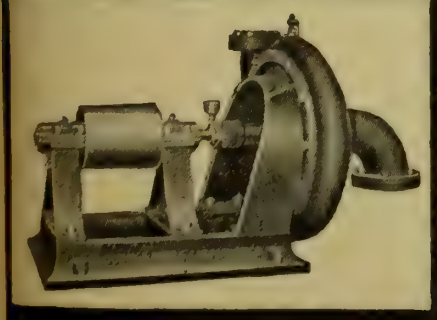

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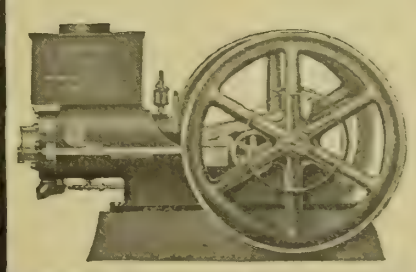
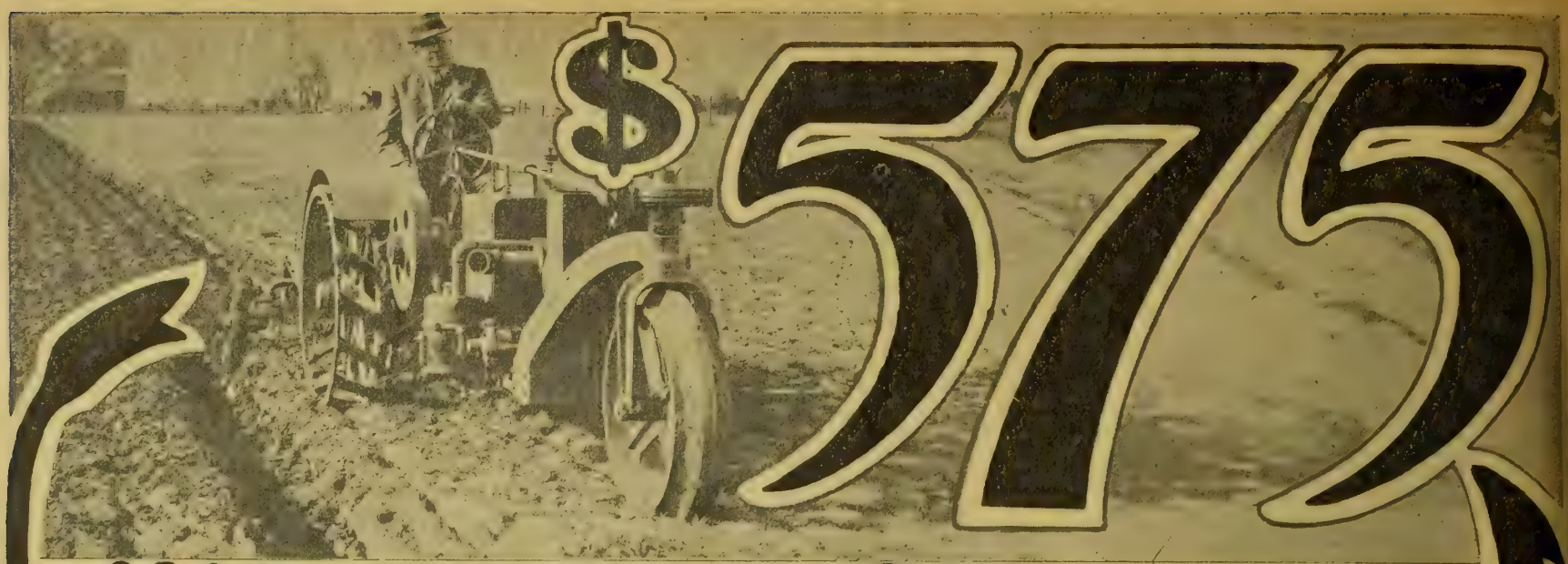
W. & L. PNEUMATIC WATER SUPPLY SYSTEMS

Pipe, Pipe Fittings, Brass Goods, Tanks, Wind Mills.



Send for our large No. 36 Catalogue Mailed Free. GASOLINE ENGINES Inquire of your Local Dealer for full particulars.



"the price of harness and two good mules"

Is the price of the small Samson Sieve-Grip tractor. It will do the work of four to five good horses. It is built of the best crucible steel made in our own crucible foundry. The gears are vanadium steel. Even the Sieve-Grip wheels are high carbon steel and fitted with roller bearings. The eight to ten brake horse-power motor is the counterpart of the same size motor we have built for fifteen years for stationary work. Completely equipped, the whole machine weighs but 3,500 pounds. It is so compact, so nicely balanced and so perfectly constructed that it may be pushed along by hand by one man on smooth surfaces.

Samson quality, Samson reputation, "the strength of Samson in every part," the name we have so carefully protected for fifteen years is built into every part of this little machine.

How often have you heard at Fairs and Traction Shows, "There's the Samson. Isn't that a well-built little machine? See how well protected and strong it is?"

SAMSON SIEVE-GRIP

Our stationary and marine motors from two and one-half to two hundred horse power are in use over the entire Coast. Our centrifugal pumps, some with 50,000 gallons a minute capacity, are found wherever you go in the West. Our tractors, the first of which (built over thirteen years ago) placed us among the pioneers of the industry, have always delivered the best of service.

We now offer you the small Samson tractor, designed for the farmer or grower with either a small or large acreage and sold at a price within reach. Yet the price is not so small that we must slight or scrimp any necessary part. From steering wheel to transmission we have given everything the needed strength. And, while small tractors have been built before and are now built, the Samson comes to you with a reputation back of it for promises always fulfilled.

SIZE AND SPECIFICATIONS

Forty inches in height, 10 feet long and 1¾ tons in weight, the small Samson Sieve-Grip marks a new era in tractor building. It is the long-sought-for small tractor. It will do the work of the four or five animals on the average farm or orchard, at a first cost no greater than the two or three horses and their equipment usually owned. And in maintenance, labor and operating cost no comparison exists. The small Samson uses but one gallon of distillate per hour. At 7 cents a gallon this is an average daily fuel cost of 70c. But one quart of lubricating oil is needed in a day and one man can operate tractor and plows. Depreciation is very light. The simple and durable construction and the added fact that the tractor is small and the parts consequently inexpensive places depreciation at its lowest point.

THE SIEVE-GRIP WHEEL

The Samson Sieve-Grip wheel is patented and owned exclusively by us. It is the result of long and painstaking effort to provide good traction. It is a success. It can't pack any soil, it does not slip. It will operate on any soil whenever plowing or cultivating is practical. For traveling over asphalt or valuable roads removable road bands are provided. They can be attached or removed in five minutes. There is no complication, no up-keep cost, nothing to wear out, nothing to break down. The whole wheel is a single high carbon steel casting. It is dependable and economical, as a small tractor should be. We guarantee it to do all that we claim for it and to do **your** work to **your** satisfaction.

SEND FOR BOOKLET

We want you to know more about the small Samson Sieve-Grip tractor. You should know more about it. We have a new catalogue giving a complete and minute description of the entire mechanical construction of the machine. Operating costs, factory facilities, responsibility of the manufacturers, are all explained in detail. Get it now. Sign the coupon and send it in. Tell us, too, how many acres you are farming and what you grow. It will help us to give you the right information. Send it now!

SAMSON IRON WORKS

STOCKTON, CAL.

CLIP THE COUPON

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STOCKTON, CAL.

Please send the catalogue describing the small Samson Sieve-Grip tractor and any additional information you may have. No obligation.

I have

——— acres truck farm
——— " alfalfa ranch
——— " orchard
——— " vineyard
——— " grain

I am also interested in the tractor's

Hauling capacity
Stationary power
Upkeep cost
Cost of operation
Hill climbing ability
Terms of sale
(Check the information you want)

Name .....

Address .....

E

CALIFORNIA CULTIVATOR

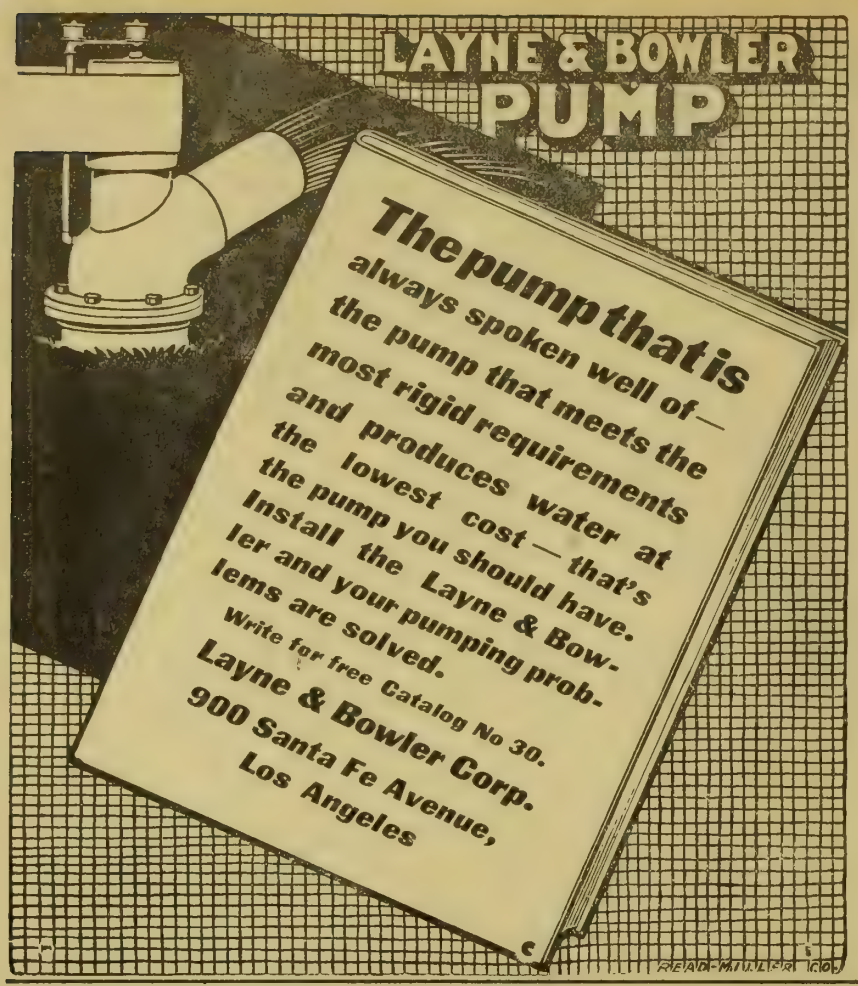
Rural Californian combined with California Cultivator

An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES May 6, 1915 SAN FRANCISCO

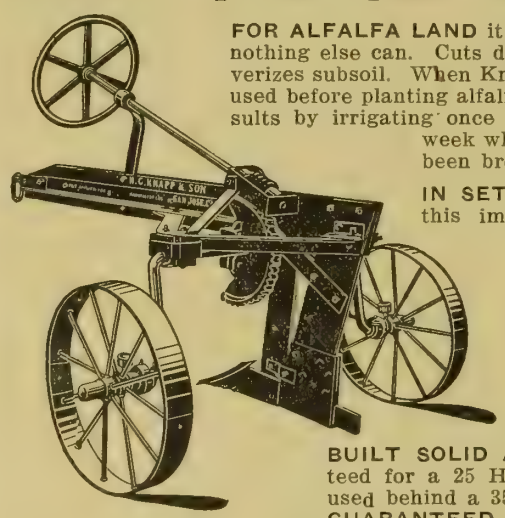
Corn and Hogs in California

Sacramento Valley does produce some, as do various other portions of California. In fact, production per acre in California exceeds that of the older corn states. The gentleman holding the other on his shoulder is Eugene Grubb, potato specialist and all round farm expert. See W. S. Guilford's article on next page.



Knapp's Sub-Soiler and Ditcher

Breaks Up Hardpan and Plowpan



FOR ALFALFA LAND it makes ready the soil as nothing else can. Cuts down deep and fairly pulverizes subsoil. When Knapp's Subsoiler has been used before planting alfalfa, you can get better results by irrigating once in 60 days than once a week where the hardpan has not been broken up.

IN SETTING FRUIT TREES—this implement makes digging the holes the easiest of tasks. Where trees are already planted it breaks up the plow-pan and allows the moisture to get down to the roots. Breaks a strip of ground from 3 to 4 feet wide.

BUILT SOLID AND STRONG—Guaranteed for a 25 H. P. pull—and has been used behind a 35 H. P. machine.

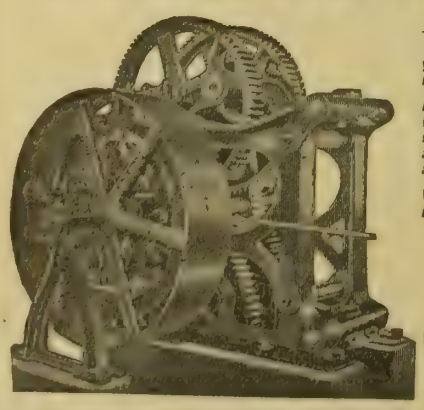
GUARANTEED BY KNAPP—and that means a lot. Knapp's plows are known all over the Pacific Coast, wherever good plows are used.

DITCHER ATTACHMENT—With this attachment you can ditch as you sub-soil, making at ditch 2 feet deep and 4 feet wide.

WRITE FOR MORE PARTICULARS—Ask us anything you want to know about the sub-soiler and ditcher—and for names of those who are using it.

H. G. Knapp & Son, 1022 S. FIRST STREET SAN JOSE, CAL.

Pomona Deep Well Pumps



—built and sold in California for over 12 years. Hundreds of buyers will tell you they are always reliable and economical.

For deep lifts, as well as shallow lifts, combined with high heads above surface and through long pipe lines. No auxiliary pump needed for forcing water above the surface.

Write for catalog 103 with valuable information on irrigation.

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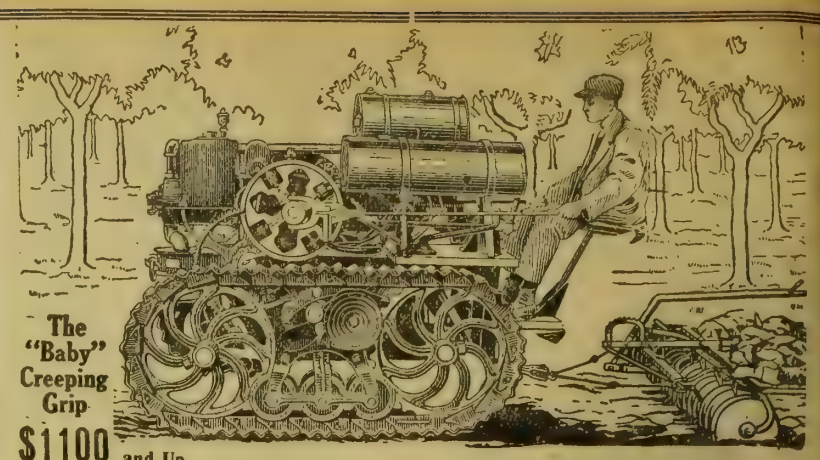

The "Baby" Creeping Grip
$1100 and Up
F. O. B. California Common Points.

Cultivate with a "Baby" Creeping Grip Tractor

Here's the tractor that you have been looking for to handle your ranch work.

This Baby Creeper was designed for the small rancher, particularly the fruit rancher. It delivers 16 Brake and 10 Tractive H. P. and does the work of 6 good horses or mules.

It is low, gets under the trees, turns in its own length, its fuel consumption is very low and it does not require an expert operator.

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STILETTO steel goods on the farm or in the garden—cutlery in the house or shop—tools on bench or in factory—all prove to be the very best of their kind—and thus in the hearts and minds of their satisfied owners there is bred STILETTO confidence.

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ALL ENGINES ARE BRAND NEW.

Write us for descriptive literature and price list. We have only nine engines left on this BARGAIN LIST.

Don't Delay. Write Today

GENERAL MACHINERY AND SUPPLY COMPANY
Formerly Compressed Air and General Machinery Company
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Giant Winter Rhubarb

NOW BEST TIME TO PLANT. Should return from $1,000 to $1,500 per acre first year. If interested in Rhubarb, Berries or Cactus, write J. B. Wagner, Specialist, Pasadena, Cal.

Advertisements in California Cultivator are Guaranteed
See Announcement at Head of Editorial Page

California Cultivator

Rural Californian combined with California Cultivator

Vol. XLIV No. 18 LOS ANGELES: THURSDAY, MAY 6, 1915 One Dollar Yearly

Hogs and Corn

W. S. Guilford Writes for Cultivator Readers of Conditions Which Are Favorable to Swine Production in the Sacramento Valley

AN Illinois farmer who spent most of the winter in the Sacramento Valley, and who was a bit disappointed that there were not more roses and sunshine (he had pictured California as mostly these two things), would sometimes reluctantly state that California might be all right if Indian corn could be grown here. When told that it can and is being grown every year, and that it has been grown all the years that California has been known, he would peevishly come back with the first prize foolish question of every new country, "Well, if it can be grown, why don't people grow more of it?" The answer to this is, "Why are there not more prunes grown, and why is not every acre of land in the valley irrigated, and why are there not ten million people here." His question can only be properly answered with another perfectly good question.

It is really remarkable that there are so many people who do not think that Indian corn can be grown successfully in the Sacramento Valley and many more who think that without corn the hog business is not on the basis it should be. Hogs can be profitably grown with alfalfa and barley, Egyptian corn or any other grain, but they can also be finished on Indian corn if the people who own thousands of acres of the best lands in the valley want to grow it. But some there are who who will scarcely believe that corn can be grown even when they see the fields.

In the course of the conversation with our eastern friend I made the remark that I did not doubt I could go within two miles of a farm in the Sacramento Valley on which crops of Indian corn of from 60 to 90 bushels per acre have been grown on the same piece of land for six or seven years and ask some citizen who has been there all that time if this is much of a corn country and that the answer would be an emphatic "no." In a few days I was in this neighborhood, and recalling the conversation did ask this question and received the expected negative opinion without hesitation on the part of the person addressed.

And yet corn and hogs have been among the principal sources of revenue on this place ever since it has been developed. The photograph on cover page was taken on the farm referred to.

Right now is the time to be getting some corn planted. I know some that is three inches high now (April 22). Some prefer to plant later and others do plant as late as in July, and it all makes mature corn.

There is no place in the country where corn can be grown so easily as in California, and no place where it can be made into pork so cheaply. With alfalfa pasture and access to the corn fields, a part at a time so as to clean it up as they go, hogs will "hog down" and harvest corn from the time it gets ripe until the rains have made the soil so wet that it is unwise to permit stock to tramp over it. There are some who claim that hogs will waste too much Egyptian corn if it is fed in that way, yet these same farmers will frequently harvest the corn, thresh it, and feed it out to hogs in muddy pens during the winter with much more waste and under far worse conditions than could ever prevail in the open field. I know of one ranch where corn was fed both ways during the past season, and the result was so favorable to hogging off the corn in the field that the plan for this year is to let the hogs harvest all of it this way except enough to carry through the winter rainy season.

We will wake up some day to find that a "prophet" has discovered that the Sacramento Valley is a great corn and hog country. And then, perhaps, some of those who would now dispute it will rise up and say "We always knew it."

University Farm Picnic

Annual Event Which Attracts Thousands to the University Farm at Davis. More Generally Attended Than Any Preceding Year. Live Stock Parades and Exhibits of Farm Stock. By Cultivator Special Contributor

ANOTHER success was scored by those in charge of the affairs of the Davis farm of the University of California, the event being the annual picnic.

The people of central and northern California, particularly those within easy automobile distance from the Davis Farm, look forward with a great deal of interest and pleasure to this big "get together" event, and each year brings about an increase in the importance of the function. Various estimates placed the attendance this year at from 2500 to 5000.

A feature of the pricnic this year was the live stock parade and other events that were entirely in charge of the students. They fitted the stock, made and decorated the floats, invented and perfected the clown costumes and other comic features, and everything was a grand success. All breeds of live stock and poultry, feeding devices, horticultural practice and other vital agricultural problems were demonstrated in a very clever and attractive way. The university herds and flocks are increasing in number and quality every year and are now a credit to the animal husbandry department and the state.

Accommodations in the open-air amphitheater on the bank of Putah Creek were inadequate for the accommodation of those who attended the speaking exercises. Jiro Harada, commissioner for Japan at the Panama-Pacific International Exposition, delivered an address in which be commended California for its support of the agricultural college and urged all possible assistance to the producers on the land because it is upon the production of crops that the success and perpetuation of any nation depends. On behalf of his people now in California he asked that they be helped to work for the welfare of the state and the nation. The ecomic and trade relations between Japan and the United States must always be friendly, said Hirada. He was very much interested in the live stock department and dictated copious notes to his secretary from the statements made concerning the different breeds, feeding, etc., by Professor Gordon H. True, in charge of this department.

Another very able address was delivered by Mrs. Adda F. Howie, one of the most remarkable women and one of the ablest farmers in America today. She breeds Jersey cattle at her home farm in Wisconsin, has been connected with farmers' institutes in various states for years and is now in charge of the Wisconsin building at the Panama-Pacific Exposition. She is also one of the board of directors of woman's work at the fair. Mrs. Howie urged higher ideals and better and more attractive homes for American farms.

People began to arrive at the farm early in the morning and showed great interest in the inspection of the stock, buildings and appliances, in the speaking, sports and music and other entertainment until the close of the shirt waist dance in the evening.

Proud parents of the students were in evidence everywhere, and they must have been more than pleased to find their "young hopefuls" busy with practical affairs, not only learning how to handle farm operations but to have a hand in the management of things.

They are an earnest, energetic, thoughtful lot, these lads at the Davis farm, and are destined to be a great influence for agricultural betterment and advancement in California during the next two or three decades.

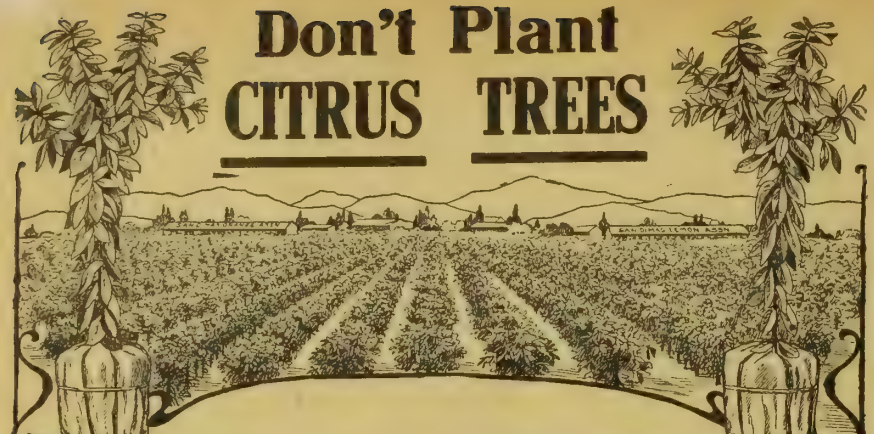
The hog barn was thronged with visitors all day long and Professor J. I. Thompson and his assistants were busy answering questions and giving helpful advice about breeds, feeds and management. There are over 200 hogs in the herd now, Berkshire, Poland-China, Duroc-Jersey, Chester-White, Yorkshire and Tamworth. The average number of pigs per litter this year has been nine. One Duroc-Jersey sow from the Slocum herd on the Sacramento Valley Irrigation Project at Willows farrowed 17 and raised 12 good pigs.

There are good representatives of the mutton and wool breeds of sheep—Shropshire, Southdown, Oxford, Hampshire, Cotswold and Merino. One Cotswold ram was declared to be the best individual of the breed in America by the man who judged him at Portland and who had also judged the breed at the International stock show at Chicago. A lot of 100 grade sheep are being fed various combinations of alfalfa silage and grain, and some valuable data should be available from these experiments before long. The animal husbandry department is to be congratulated on having a cheap, practical and sensible barn or open shed for this sheep experiment, one that is adapted to California conditions, is within the means of any sheep man and is all that is required or warranted for any one. More sheep are

(Continued on page 542)

A Daughter of Otsego Segis Burke—An Offering at the Shumacher Sale

Don't Plant CITRUS TREES



until you can meet the five essential requirements of success. Here they are: **Sufficient Water Supply; Quality Trees; Safe Thermal Conditions; Good Care; Good Soil.**

These five things are fundamental and he who ignores any one of the five invites failure.

Good fruiting trees are good revenue producers, and if you have the requisite water, location and soil—true citrus land—you cannot afford to miss the opportunity to

Plant Citrus Trees

Place your order NOW for Spring delivery. You will perhaps never have another chance to buy QUALITY TREES at so reasonable a price. Even the so-called CHEAP TREES which might better be called EXPENSIVE TREES by the man who expects to receive an adequate return on his investment) are quoted the same or very little less.

We were founded twenty-five years ago, and have been improving the grade ever since. Buy TEAGUE QUALITY TREES, embodying vigor and symmetry of root, body and top—and in the selection of buds, which will not only be true-to-name in the general acceptance of the terms, but true to the best type of the varieties to which they belong as well.

Write today for prices and particulars. No orders too large or too small to fill. All correspondence promptly answered.

Our booklet "CITRUS CULTURE" sent to any address on receipt of 25c.

THE OLD RELIABLE

San Dimas Citrus Nurseries, Inc.

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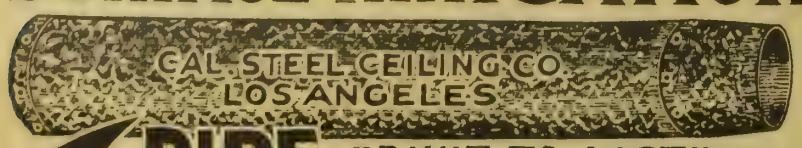

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Citrus and Tropical Fruits

ORANGE GROWERS' AND RETAILERS' PRICES

Written for California Cultivator
By J. G. Berneike

A CAREFUL analysis of retailers' prices (as per schedule in Cultivator of April 22), and comparison with prices received by orange growers here reveals some remarkable facts that should become fruitful not only of thought but of action.

A grower said to me a few days ago: "I have received 22 cents net per packed box for my navels." By this he did not mean 22 cents net profit over and above expenses. He meant that he had received 22 cents for producing a packed box of fine navel oranges. Since the association packing houses are extremely careful in culling, and this spring culled out as high as 25 per cent, it is evident that his "packed" box was superior fruit, and no culls. The retailer in New London, Ohio, received from the consumer from $2.66 to $3.60 per box. Out of this amount there came back to the grower the magnificent sum of 22 cents. This case is typical, at least of every grower who was in the same association pool with him. Other pools may have received more or less. And because his case is typical it is worthy of careful analysis.

This grower received from 6 to 8½ per cent of the money paid by the consumer. The balance of 92 to 94 per cent paid for picking, packing, shipping by freight and express, transfers, a chain of middlemen, the grocer's expense and a profit to him of six to seven cents a dozen. How much did the grower get per dozen for producing these oranges?

Grower received per dozen: Size 324, 22-27 cents; size 216, 1 2-9 cents; size 150, 1 5-6 cents; size 126, about 2 cents; size 80, about 3 cents. Consumer paid: Size 324, 12 cents; size 216, 20 cents; size 150, 25 cents; size 126, 30 cents; size 80, 40 cents.

It will be admitted that the retail price was not prohibitive. Customers probably thought: "Oranges are cheap." Did any one of them in the least suspect that the producer received only about four-fifths of one cent for the dozen for which he paid 12 cents; less than two cents for the 25 cents a dozen size; only 3 3-10 cents for the 40 cents a dozen? How long can the orange industry of California last when the grower does not make expenses? Has he a kick coming? Yes, he will kick over the traces soon. He does not propose to be left stranded and starving on the rocks. The California orange grower is too intelligent to play the part of "the man with the hoe." He will not weep silent tears. He will demand that the cooperative machinery which he has created for his good shall now serve him another good turn in abolishing the army of middlemen that devour him. He will replace 10,000 of them by 1000 that will do his bidding. The 9000 which are only leeches can go to work thereafter.

Nor will the grower longer accept the shallow explanations, viz., tariff, decay, aftermath of frosted fruit of three years ago. He has counter questions to ask these philosophers, i. e., does the tariff change every few weeks or months? Does it account for the recent better prices? As to decay: Do we not cull more closely and pick and pack more carefully than ever before? As to frosted fruit aftermath: Has not our fruit been of superior quality the last two years, and is the consumer so slow in finding it out? Does the thought of decay or frost ebb and flow from month to month?

But well may I be asked: "If you blame the middleman, is he not also a steady, not a fluctuating quantity, as much so as the tariff?" True, annotating the Scripture phrase: "The poor (the middlemen) ye have always with you." Yet he is after all of variable quality. It is at least not unreasonable to suppose that occasionally he puts his ear to the ground to learn if the rumble of the earthquake that will bury him is growing more ominous in volume.

With an improvement in prices the grower may forget for a while that the permanent evil is the unnecessary middleman, and the permanent remedy is the abolishment of him. The grower will become fully aroused one of these days and demand in no uncertain tones the overthrow of a system which is robbing him.

LEAF GUMMING OF CITRUS TREES

Written for California Cultivator
By J. Eliot Coit

Judging from the unusually large number of specimens being sent in, leaf-gumming is for some reason particularly common this year. The photograph shows an orange leaf with the reddish brown spots so typical of this trouble. The spots or streaks nearly always occur on the under side of the leaf and near the outer edge. To the uninitiated these red spots or pustules appear as scale insects or as a rust of some sort. As a matter of fact, they are nothing more than blisters between the cuticle or outermost

Reddish Brown Gum Blisters on Underside of Lemon Leaf.

layer of cells and the spongy tissue beneath. These blisters are filled with gum which gives them their reddish brown color.

Leaf gumming was until recently thought to be due exclusively to sunburn brought about in any one of several ways. The writer has recently discovered, however, that a light hoar-frost may have the same effect.

When citrus trees are allowed to get too dry the leaves will curl and expose the undersides to the sun. Often an extra vigorous shoot will produce such wide heavy leaves that they will lop over and expose the lower side. Occasionally in very hot situations small blisters will form on the upper surfaces of the leaves. Sometimes when irrigation takes place on a very hot day the reflection of the sun from a pool of water close beside the tree may strike the undersides of a few leaves and acting together with the sun from above, cause blisters.

It is common for citrus trees to put out late in the fall a few vigorous

shoots bearing large, limber leaves which lop over. These may go into winter insufficiently hardened, and when an otherwise harmless white hoar-frost falls on the undersides of these tender leaves, typical gum blisters are formed.

Leaf gumming does very little or no harm and may safely be ignored. It is not a contagious disease or insect pest. It never affects more than a very few leaves on any one tree. It may or may not indicate a lack of care in irrigation at some previous time.

CORRECTION

On page 486 of the issue of the Cultivator of April 22, in giving the formula copied from label on containers of cyanide of potassium, an error appeared in that one extra figure was allowed to remain in referring to "Inert substance." The line read "Inert substance 4.0%—22.0%. It should have read "Inert substance 4.0%—2.0%."

FROST AND FROST PROTECTION

We have received from the weather bureau of the United States department of agriculture a reprint of "Papers on Frost and Frost Protection in the United States." The original articles appeared in the Monthly Weather Review.

These are articles by Prof. W. J. Humphreys, Dr. Ford A. Carpenter, Local Forecaster, Los Angeles; J. W. Garthwaite, Corona; J. Warren Smith, Columbus, Ohio; Chief of Bureau Charles F. Marvin, Charles F. Von Herrmann, Atlanta, Ga.; J. F. Voorhees, Knoxville, Tennessee; Alfred H. Thiesen, Salt Lake City; E. A. Beals, Portland, Oregon; A. J. Mitchell, Jacksonville, Florida; R. R. Briggs, Phoenix, Arizona; M. Sprague, Houston, Texas, and Joseph Cline, Dallas, Texas.

The articles make up a very exhaustive treatise on many of the scientific questions connected with frost fighting.

GAS ENGINE BOOK

Harper's "Gasoline Engine Book, How the Engine Is Made, How to Use it at Home, In Boats and Vehicles, and Elsewhere, and How to Keep it in Order," by A. Hyatt Verrill, published by Harper Brothers, $1.00 net.

This is one of the Harper series of "New Books for Younger Readers," and we imagine the boy who has seen or who has access to a gasoline engine, an automobile, or any mechanism driven by gasoline will revel in this book. It will surely be a case for midnight oil for it is intensely interesting.

"The modern gas motor is the simplest, strongest, and most compact power-producing device known to man, and yet not one person in a thousand has but a vague idea of its principles or operation.

"The purpose of this book is to serve as a simple, practical, and complete guide for all those who own, use, or operate gas and gasoline motors. In its preparation every effort has been made to do away with technical terms and names and to adapt the book to the requirements of those who possess little or no knowledge of engineering or mechanics. While intended primarily for boys it will prove of equal value for older readers as it is more complete and exhaustive than any book on the subject hitherto published, aside from strictly technical works. The author, who has had many years' experience with gasoline motors of all types, has substituted facts for theories and has included a vast amount of useful information, handy hints, and valuable suggestions which have proved of actual practical value in connection with gas-engine work."

There are five parts to the book, Part I touching upon the gas engine, what it is, four-cycle motors, keeping motors cool, what makes power, electrical equipment. Part II touches upon motor anatomy, single and multiple cylinder motors, special forms, size and power; Part III upon marine and stationary motors; Part IV, the vehicle motor, automobiles, clutches, transmissions, etc., and motorcycles.

Perhaps the best of all is Part V, which has to do with troubles and repairs, how to prevent, tools and supplies.

It is a well printed, well bound book of nearly 300 pages.

Here Are the Facts

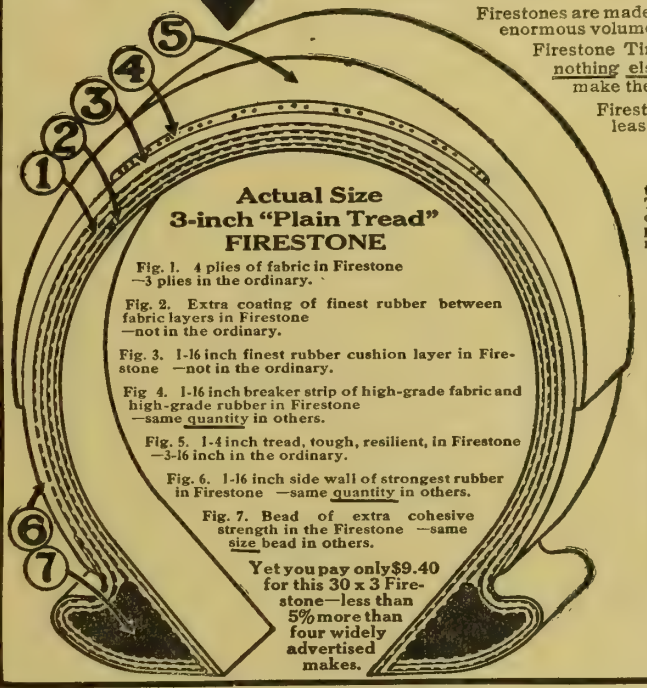
The high quality and low price which have made Firestone Tires so widely popular — are here shown in plain black and white.

Here Are the Figures

Proof—the section showing actual goods built into the tire, and the price list showing that Firestones cost no more than ordinary tires.

The Firestone "extras" built into every tire are not only the result of experience and "know-how"—they mean plain, straightforward "good-measure" building. Not only the world's finest rubber but more of it than in any other. Not only the highest-grade fabric but more plies of fabric. Count them—we show the proof in this 3-inch section. And there is the same relative value in all sizes of Firestones.

Firestone



Actual Size 3-inch "Plain Tread" FIRESTONE

Fig. 1. 4 plies of fabric in Firestone —3 plies in the ordinary.

Fig. 2. Extra coating of finest rubber between fabric layers in Firestone —not in the ordinary.

Fig. 3. 1-16 inch finest rubber cushion layer in Firestone —not in the ordinary.

Fig 4. 1-16 inch breaker strip of high-grade fabric and high-grade rubber in Firestone —same quantity in others.

Fig. 5. 1-4 inch tread, tough, resilient, in Firestone —3-16 inch in the ordinary.

Fig. 6. 1-16 inch side wall of strongest rubber in Firestone —same quantity in others.

Fig. 7. Bead of extra cohesive strength in the Firestone —same size bead in others.

Yet you pay only $9.40 for this 30 x 3 Firestone—less than 5% more than four widely advertised makes.

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Firestone marketing methods get the tires to you with least handling and expense—another saving for you.

Free Firestone Offer

To the car-owner sending the name of his dealer and the make of tires, we will send free, a fine waterproof Tube Bag. Just the thing to keep your tubes in prime condition. Ask also for new book on the "Care and Repair of Tires" No. 36. Write today. There is a dealer near you who will supply you.

Study the Facts and the Figures—It Won't Take You Long to Decide on Firestones.

Firestone Net Prices to Car-Owners

	Case Round Tread	Case Non-Skid	Crey Tube	Red Tube
30 x 3	$ 9.40	$10.55	$2.20	$2.50
30 x 3½	11.90	13.35	2.60	2.90
32 x 3½	13.75	15.40	2.70	3.05
34 x 4	19.90	22.30	3.90	4.40
34 x 4½	27.30	30.55	4.80	5.40
36 x 4½	28.70	32.15	5.00	5.65
37 x 5	35.55	39.80	5.95	6.70

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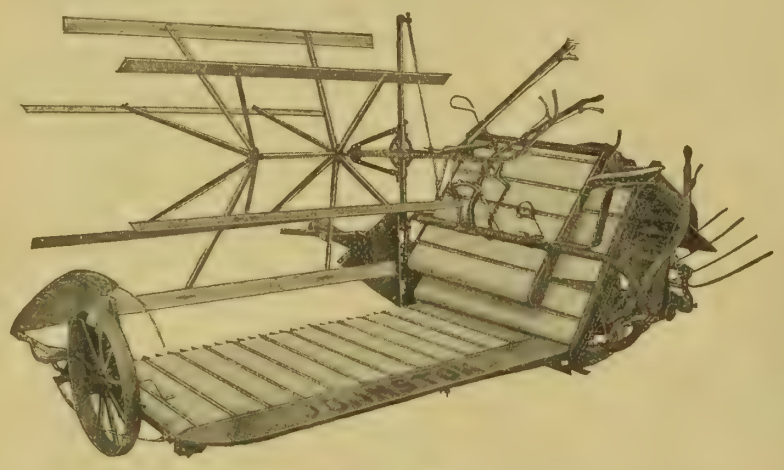

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An Overproduction of Apples ?

The present demand for apples in the United States, including those used for export, is placed by the Department of Agriculture at 55,000,000 barrels. If that many apples were raised in this country there would be no overproduction. Figures from the Department of Agriculture show there has been an average annual decrease of 25 per cent in the apple production during the last nine years. The serious shortage that exists for apples is attributed largely to the dying out of the old orchards and the insufficient plantings of new ones.

The Yucaipa Valley, eight miles from Redlands, altitude 2400 to 3000 feet, is the place to plant an apple orchard, and this is the time of year to visit Yucaipa and see what you would have if you had planted four years ago. It is not too late to make a start.

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See Announcement at Head of Editorial Page

Deciduous Fruits

CHERRIES RIPE

ORANGE growers have learned the lesson that green fruit injures the market and causes more loss than is made up by the high prices which the earlier shipped fruits often bring. Grape growers are learning the lesson, in fact, it has been taught to them so severely that we may say the lesson is well learned, yet there is always a temptation to secure exceptionally long prices for out-of-season fruits, so the cantaloupe grower—even the strawberry and small fruit man— and now the cherry grower, has attempted to crowd the season. A year ago we received from a Kansas City subscriber, Mr. Albert Young, an attorney, a communication touching upon green cherries offered in that market. Now comes Mr. Young with another letter, as follows:

"I had occasion about this time last year to write you in regard to the shipment of green cherries from California to this market. Some seemed rather resentful that objections should be made to such practices. Now here comes along the same small, unripe cherry from "the Musser Ranch," Vacaville, at least that was marked on the box which was exhibited in the window of a prominent grocery store today. Several persons stopped to gaze at this fruit and I heard two women who stopped say 'Those are green, don't buy them.'

"It is a disgrace to the fruit interests and to the consumers that such things are allowed and that growers are so greedy that they cannot wait for the ripening of their fruit. Those cherries if ripe would be almost twice the size and luscious. As is usual, there will be cherries from this time on from California in this market. but there will not be a ripe one for 30 days. I know that from what happens every year. People buy them at 60 cents a pound and of course are disgusted. If the United States government can stop the shipment of green oranges, why not green cherries?"

We wished to trace this to see where the blame belonged so we wrote to Mr. Millard Sharpe, a large fruit grower of Vacaville, and asked for his opinion as to where these green cherries came from. Mr. Sharpe is vitally interested in the reputation of Vacaville cherries and we knew he would give the matter immediate attention. We are glad to see that there is no such ranch in the Vaca Valley as the Musser ranch to which Mr. Young refers. However, this is a matter that perhaps should call for full investigation. Mr. Sharpe writes:

"The copy of the letter of Mr. Albert Young received and in respect to his complaint relating to California green cherries I will state that I never have heard of a ranch here by the name of 'Musser Ranch' but in order to be certain I called on all of the shipping firms here and the nearest I could get to the name is the L. J. Mowers Ranch from which a box of Belle d' Orleans was shipped about that date and consigned to Kansas City. The Belle d' Orleans is a small, sweet, light colored cherry and it may be that owing to their very light color Mr. Young presumed them to be green.

"It is a little difficult to understand just what he means by a green cherry for no cherry can be shipped until fully colored, in which condition it is edible, although, as all horticulturists know, with the exception of a few varieties no fruit reaches its highest development of flavor unless allowed to ripen fully on the tree and at that stage it would be unfit for Eastern shipment. If his complaint had been in relation to some other varieties of fruits I would not be surprised as there is no doubt in my mind that a great deal of diciduous fruit is shipped too green but if Mr. Young only knew the quandary that a fruit grower is in during shipping season, he would be more inclined to sympathize than to criticize, for it seems impossible to know at just what stage of ripeness to ship. For example, a grower will ship a variety of plum which you are sure is too green and will not bring the price of the freight and you will hold yours, thinking it will reach the consumer at just the proper degree of ripeness. He may get a fancy price and you may be the one who pays the freight or it may happen as you thought it would. Then again, a great many men who are growing fruit do not know when it is ready to ship, especially in the newer districts, and for Mr. Young's benefit you may tell him that our last legislature has passed a law which if properly enforced by competent inspectors at every shipping point may do away with a great deal of the green fruit shipments, dishonest packs, etc., at least we sincerely hope so.

"Another point in regard to cherries: Growers sometimes pick them a little closer than they should, owing to the danger of rain in April which will ruin ripe cherries for shipment. Also some of the earlier varieties are naturally very soft and must be shipped a little harder, though fully colored, than some of the later kinds which are firm when fully ripe.

"One of the leading commission houses here is going to take this matter up with the Kansas City agent and if this criticism is just the matter must be remedied.

"As to the greediness of growers, I would say the remedy for green fruit lies directly in the consumer's hands. Let him study the different brands and refuse to buy any except what he knows to be first class fruit. This would soon bring 'the greedy grower' to time. For in a land with as mixed a population as California, there is bound to be green fruit shipped, especially when the first shipped brings the money, but as I said before the standardization law may remedy this. I cannot see where Mr. Young is justified in criticizing the cherries though my knowledge is confined to Vaca Valley alone. However we are glad to get just criticism for through it we are enabled to better conditions."

EIGHT NUTS IN A CLUSTER

Mr. William Cooper, who has a walnut ranch in the El Monte section, exhibited a twig from one of his walnut trees containing a cluster of eight nuts. He says it was one of many clusters on the same tree, nearly every tip of which has six and seven to eight nuts. This must be an exceptional tree and we trust it is an indication of an exceptionally large crop this year for if the war continues it is possible the French will need to conserve all their food within their own country and in that case it is our duty to supply America with nuts.

OTHERS HAVE NOTICED IT

Two negro men came up to the outskirts of a crowd where Senator Bailey was making a campaign speech. After listening to the speech for about ten minutes, one of them turned to his companion and asked:

"Who am dat man, Sambo?"

"Ah don' know what his name am," Sambo replied, "but he certainly do recommen' hisself mos' highly."—E. V. Cole.

REAPERS

Send to us for catalogue before buying. Interesting information on request.

Arnott & Co., Inc. 112-8 S. Los Angeles St. Los Angeles

Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Peach Trees From Pits

If one plants Muir peach pits can he expect Muir peaches or would they run back to some other stock?—Subscriber, Kenwood.

There might be some which would be equal to the tree from which the pits were taken. However, as a rough guess we would say that 99 out of each 100 would be inferior, or at least no better, while the 100th might be choice stock. The only way to secure fruit of known quality is to bud or graft and that is the invariable custom with commercial orchards.

Silage for Hogs

Regarding silage for hogs, in answer to a query along this line we recently stated: "We do not know of silage ever being provided as a part of the ration of hogs on an exclusive hog farm." We now have a communication from a subscriber calling attention to the fact that there is a large hog farm at Winters with two 14x36 foot silos built exclusively for feeding hogs. These silos were filled with green silage. We hope to have information as to the results of feeding silage to hogs in an early issue.

San Jose Scale

When spraying for San Jose scale, can one be certain he has killed them? How may he know it as they remain on the tree?—Subscriber, Vacaville.

If the spraying is done with lime sulphur solution at the rate of about 1 to 10 when the trees are dormant reasonably sure work is accomplished. The best way is to spray so thoroughly that no examination is necessary. However, after two or three weeks if the weather has been warm and dry the least touch with a pin or fine knife point should cause the scale to flake up and fly away light as a feather. The color of the dead scale is also somewhat darker than that of live scale. When the scale are alive they are reasonably sure to be soft and more or less "juicy."

Poisoned Hens

In the last few weeks we have lost four hens. They seem to have a diarrhoea, their combs turn black and they live about two days after I notice they are sick. They run loose on ranch and pick up all their living around stable and orchard. Do not know of anything they pick up that causes the trouble. An answer would be greatly appreciated.—Subscriber, Ducor.

If your hens are required to pick up all their living about the place it is more than likely they have picked up something which would not be classed as clean, wholesome food. Foul drinking water, putrid meat or decaying food of any sort might induce dysentery such as you describe. So might the eating of paint skins, lye, unslaked lime, salt and the arsenic and copper which are used in spraying mixtures. Suppose you confine them for a few days in a clean pen. Keep a hopper of dry mash before them, give cut alfalfa or other greens at noon and a feed of grain at night. Above all give them clean, fresh water at least once a day. As soon as you are satisfied that their range is free from any of the poisons suggested, let them out, but see that they have grain at night and mash where they can find it, and always, clean water. If they have good range, they will not eat much when they come in at night, but they should have the opportunity to eat if they wish.—J. A. K.

Canker

The hen with the cheese-like patches under her tongue and in her throat has what is generally called canker, but it is so closely allied to roup that it is often imposible to distinguish between them. If the trouble is purely local it can probably be cured by swabbing the patches with peroxide of hydrogen or with undiluted creolin. If there is a roupy condition as well you will not cure her so easily, but there is little you can do save to put her in a warm, sunny coop and swab the patches with some good, strong antiseptic, such as hydrogen peroxide, a permanganate of potash solution (16 grains permanganate to half pint water), or a boric-acid-borax solution consisting of 1½ ounces boric acid and one ounce powdered borax dissolved in a quart of water and applied warm. Examine the scratching litter for mold which is one of the commonest causes of canker.

Those roosters which are too fat inside and too thin outside have had too little exercise and a too-fattening ration. Barley is a good growing feed when used with other things but too fattening when used alone. The fact that the birds are under weight, however, is not attributable especially to their feed but rather to the parent stock. When breeding stock is under weight it is very difficult to bring their offspring up to proper weight. The hens are said to have the most important influence on the size of their young, but breeding from a male that is noticeably small has the same effect. Of course feed has its part. Birds that are to attain proper size must have bone meal, oats and other feeds for making frame, for you cannot build up a heavy bird on a light frame except by putting on fat. If you study your breeding stock and the ration your birds have had you will probably see why your cockerels are small.

Roosting too young or on crowded perches is often blamed for crooked breastbones, but they are without doubt congenital in many cases.

Cockerels are broilers at from 1½ to 2½ pounds (though most dealers do not care for them under two pounds) and fryers from 2½ to 3½ pounds.—J. A. K.

Sheep for Mutton

Am feeding cows on silage and alfalfa hay. Expect to sell cows and keep sheep. About how much of this ration fed the cows will it take to keep a sheep one year? How many sheep can be kept on the same amount of feed that it takes for a cow? Will sheep do well if confined in a corral? What is the best breed of sheep for mutton?—Subscriber, Escondido.

It is generally considered that ten head of sheep can be kept on the same feed as one cow. This is on the basis of a cow eating 30 pounds of hay with silage and perhaps some grain in addition, as against 10 sheep eating three pounds of hay and some other feed in addition.

Sheep can be kept in a corral if it is kept clean, but it is better if they have the range of some pasture.

The carcasses of the individuals of all of the breeds of sheep are sold for mutton, and the classification of the breeds is made on the character of wool produced. The fine wool breeds are the different sorts of Merinos, including the Rambouillet. These have been bred for generations with heavy fleeces of fine wool as the first consideration, although some individuals have good carcasses and a large part of the mutton produced on the ranges is from animals having more or less Merino blood. The long wool breeds. Lincoln, Leicester and Cotswold, are big sheep that produce heavy fleeces of long wool and a heavy fat carcass. The medium wool breeds, Shropshire, Hampshire, Southdown, Oxford, Cheviot, Dorset and Suffolk, are

(Continued on page 547)

The Portable Rake and Stacker

Here is a machine that you cannot afford to do without. A Buck rake and stacker combined. Rake up the hay, drive to the stack and hoist the load right onto the stack without any loss of time. Saves labor, saves time and saves first cost of equipment. A pronounced success. Another carload just received and partly sold. Write for completely illustrated circular or call and see it.

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Regular widths in 7 ft., 8 ft. and 8½ ft. lengths.

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Irrigation Pipe—of galvanized steel for surface use, made of 24 guage steel, 10 ft. lengths only; 4 in., per 100 ft., $14.40; 5 in., $18, and 6 in., $21.60.

These prices will give you some idea of the wonderful savings possible through ordering from us by mail. If you have not a copy of our wonderful new 1915 Catalog of Building Materials, use the coupon and send for it NOW. Everything that you need for building, fencing, tools, piping, etc., at "lower prices."

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10 in., Victor Brace, 75c.
10 in., Stanley N. P. ball-bearing brace, $1.90.
Stanley Levels, 12 to 18 in., 50c.
26 in., Disston saws, $1.50 and $2.
Buck saws, blade 30x1¾ in., 75c.
Pruning shears, 50c; saws, 45c.
Fence pliers, 75c; will drive and draw staples, cut, splice, straighten and stretch wire, 10 in. size.
6 or 8 in., Stilson wrenches, 75c.
Spading forks, 75c.
Manure forks, $1.10; with 6, 13 inch oval tines.
Hay Forks with 4, 15 inch oval steel tines, $1.
Square point, long handle shovels, 75c.
Garden hoes, 6 in. blade, 60c.
Coes' knife handle monkey wrenches, 6 in. size, 50c.
Agricultural monkey wrenches, 6 in. size, 25c.
Expansion bits, ½ to 1½ inches, 75c.
Large steel measure squares, both sides, 35c.
4½ in., try squares, 20c.
Coe soldering sets, complete, 40c.
12 oz. claw hammers, 25c

Builders Hardware

Inside door locks, nickel finish, 50c each; dull brass, antique copper, or sand blast, 45c.
Sliding door locks, with one bronze key, finished in dull brass, antique copper or sand blast, single, $1.40; double, $2.10.
Cupboard turns, cast brass, T handle, antique copper, dull brass, sand blast or nickel plated, each 40c.
Drop handle drawer pulls, same finishes as above, 20c each.
Flush sash lift, antique copper or dull brass, 7c; sand blast, 8c each.
Bungalow front door handles with plate and thumb latch but no lock, antique copper, dull brass or sand blast, $3.25, or complete with lock, $7.
Store door lock, very serviceable, cylinder lock, bolts and night latch with three bit keys, any of above finishes $5.75, complete with brass escutcheon.
French window locks, any of above finishes, $1.30 complete, a $1.50 value.
Genuine Yale night latches with three German silver keys, $3.50.
Pressed steel butterfly hinges, 10c pair, all finishes.
Pressed steel screen door hinges, japanned, 12c pair; antique copper or dull brass, 20c pair.
Standard House and Floor Paints, $1.50 per gal.
Standard makes of varnishes at 25% off regular prices.
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Everything in Paints, Wall Tints, Brushes, etc., at big savings to you.
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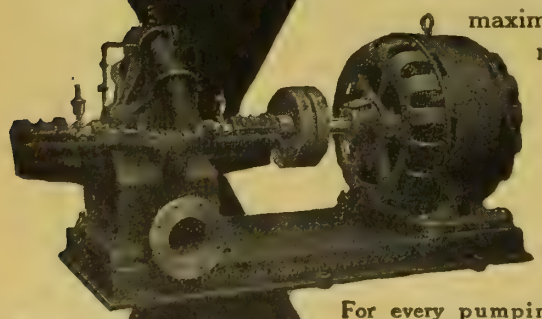

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Small Fruits Vegetables

THIS MONTH IN SOUTHERN CALIFORNIA

Written for the California Cultivator
By O. M. Morris

IF ONE requires any quantity of vegetables it is best to plant these in succession throughout the season. Of course, with some of the varieties one planting will be sufficent, especially those of the late maturing classes such as celery, Cabbage and tomatoes. Reports are pouring in that the late cold spell has greatly injured early planted vegetables, especially those of the tender varieties, including melons, pumpkins, squash, cucumbers, egg plant, peppers, celery, etc. These may be replanted at once.

This is the best month to plant all classes of beans. If beans already in have been in any manner affected by the cold it would be advisable to plow over and re-seed to insure strong, thrifty plants and secure best results. Crops now growing satisfactorily should be carefully watched, thinned if necessary, thoroughly cultivated and hoed.

Now is the season to plant onions, leeks, celery, egg plant, peppers and casaba melons. We have a number of new varieties of casabas on the market for the first time this season and for those who have space we would recommend a trial of these various sorts. The soil for melons should be very deeply plowed and thoroughly harrowed and made as soft and mellow as possible, especially where irrigation is not practiced during the summer. The best melons, as is well known, are grown without irrigation, and to make a success of them it is necessary that the soil be deeply plowed and thoroughly worked up to hold moisture.

Insects are causing growers a good deal of concern this season, the green fly or aphis particularly. It is a constant battle to keep this pest under check. The most successful preparation for its control is tobacco extract, with the addition of a small quantity of whaleoil sop, about one pound to ten gallons of water.

Potatoes may be planted up until June or July. Those planted now will ripen a little bit early, probably the last of this month will be the ideal time for planting. The later planted potatoes may be held through the winter while the earlier planted ones will not keep when stored.

The splendid rains will no doubt induce large plantings of corn, pumpkins and like crops. For these it is necessary to put the soil in best shape to hold the moisture.

GARDENING IN CALIFORNIA

"Gardening in California, Landscape and Flower," by John McLaren, Superintendent of Golden Gate park, San Francisco, published by A. M. Robertson, San Francisco, $3.75 net. This is a revision of the 1908 edition and touches gardening from a California standpoint and from the standpoint of the landscape architect.

McLaren's great work at Golden Gate park and in connection with the Panama Pacific International Exposition is such that it gives additional value to this work he has written. There are 22 chapters in the book, touching upon location and site for house and garden, planning grounds, preparation of ground, roads and walks, planting, lawns, trees and shrubs, climbers and twiners, bulbous plants, palms, ferns, bamboos and grasses, bedding plants, water garden, parlor gardening, conservatory, diseases and insects, ending with a calendar of operations. This calendar gives dates for both open garden and greenhouse work. There are many beautiful illustrations and lists of plants which have been tested under California conditions.

One feature not mentioned which is worthy of special note is Chapter five, the matter of which is almost entirely new in this edition. It has to do with transplanting large trees and is given from the wide experience of Mr. McLaren in moving many trees of immense size on the grounds of the exposition. His method of moving these is given explicitly, not only the actual work of moving but the work of preparing the tree for the ordeal.

The Lawn and Flower Garden

THIS MONTH IN SOUTHERN CALIFORNIA

Written for the California Cultivator
By O. M. Morris

THOSE who have not already planted asters should get them in the ground as soon as possible. Late flowering stocks. including Nice, Perfection and Brompton, should be planted now for fall and winter blossoming, also snap-dragons and all of the late summer and fall bloomers. For shade places nothing succeeds so well as Primula malacoides. It is as hardy as many of our California wild flowers and blooms practically the entire year through. It ranges in color from tan to rosy lavender and pure white. It grows about one foot to a foot and a half in height. The stevia and statice should have a place in every garden. These bloom at a season when flowers are scarce. Cut and tied in bundles they will keep for months and are the best of our everlasting flowers for bouquets. Solanum, commonly called Jerusalem cherry, is also an excellent flower to plant for decoration during the holiday season.

Bulbs are now ripening down and inquiries are coming in almost daily as to best method of handling these. The anual winter flowering bulbs such as daffodils, tulips, hyacinths and the class of bulbs commonly called Dutch bulbs, should be allowed to thoroughly ripen down, when they may be dug and stored in sand or in a cool shady place in the cellar and held in this shape until fall. If left in the ground keep perfectly dry or the bulbs are apt to "go blind" or fail to flower the next season. If properly handled most of these bulbs will increase and do well.

This month is the best time of the year to plant chryanthemums. If already planted they should be carefully watched and headed back close to the ground so as to make fresh new canes. As a rule best results with chrysanthemums are secured by planting from the 15th of May to the 1st of June.

KILL DANDELIONS IN THE LAWN

I saw an article in Cultivator about dandelions in lawn. I am using distillate. I use an oil can and drop a small amount in the center of each plant. If too much is used it kills the ground for some time and leaves a dead spot. It is a slow job and hard on the back, and may need to be done over several times. I believe it will do the work.—E. A. C.

THE PANAMA PACIFIC INTERNATIONAL EXPOSITION is the World's Greatest Beauty Spot. In its buildings and grounds will be found many things of vital interest to every agriculturist. DON'T FAIL TO GO and when there SEE THESE SPECIAL EXHIBITS.

SOMETHING DOING

This is not an especially noteworthy week but still there are scheduled a number of events for this and the following week which will add to the interest in various parts of the grounds. The movies are material factors in entertainment. Perhaps it would not be correct to say there are hundreds of moving picture attractions on the grounds but there are at least many. Every day there are two moving picture performances in the live stock building. These have to do entirely with live stock and methods of handling in different countries. The program is changed twice each week. There are also movie demonstrations in nearly all of the government exhibits and there is hardly a portion of the grounds but what one may run in and sit down and be entertained and instructed while resting. Literally thousands of reels will be shown and all will be of interest to agriculturists.

On May 10, 13, 18, 20, 25, 27 and 31 there will be Field Dog Trials. These Field Dog Trials will exhibit sheep dogs, man hunting dog chase, whiffle racing, war dog trials and parade of bench winners.

In the poultry building the candling of the eggs takes place every day at 4:30. Also in this building an exhibition of an electric brooder with live young chickens begins every day at 9 a. m. A lecture accompanies this demonstration. The Calf Way Milker in the live stock building is in operation every afternoon at 3 p. m.

Racing pigeons are now in training for the races this fall.

One hundred and fifty to 200 horses were received last week.

The American Ornithology Union will hold its annual session May 24-27.

The National Lumber Manufacturers' Association will hold its annual on the grounds May 18-20.

The University of California department of agriculture will hold a Cereal Conference May 24-27.

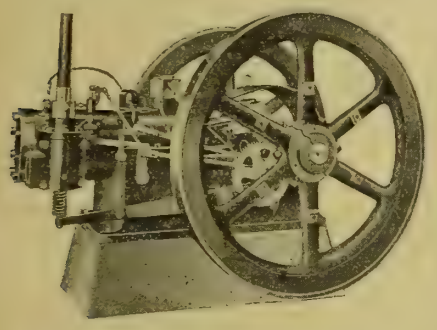
SEE THE BULB EXHIBITS

One exhibit which many will fail to notice because it is somewhat out of the way unless called to their attention is that of the Netherlands in the open space between the Palace of Horticulture and the Inside Inn. In fact, it is right near the Baker Street entrance Here are thousands of varieties of Dutch bulbs. There are also most interesting exhibits of formal pruning in which the Hollanders are experts. Trees are pruned in the form of birds, animals and urns, baskets and other objects. One could well spend a day in examining this interesting exhibit, which is one of the most extensive of the horticultural exhibits made by any European country.

FOUR THOUSAND DOLLAR TREE

One tree which is well worth seeing, and one which can easily be seen because of its nearness to the Avenue of the Palms which leads past the Tower of the Jewels and on past the buildings of the various states and foreign nations, is Thuya Obtusa, a tree brought from Japan by The Yokohama Nursery Company. In conversation with Mr. Seizo Suzuki, manager of the company and in charge of installation of the exhibit, he replied to a question as to the age of the tree that no one could tell but it was certainly 800 and possibly 900 years old. It has been grown and dwarfed until now at this great age it is but little higher than a tall man. It is gnarled and wrinkled and shows its age.

As to the value of the tree, we may say it is somewhat beyond the pocketbook of most of us for $4000 was fixed as about the price at which it would be sold. We doubt not a little could be shaded from this figure for spot cash. However, this is not an advertisement but is merely to call attention to this tree which is only one of many most interesting ones in the exhibit made by this company. American growers who have an ambition to grow 800-year-old trees should lose no time in starting the crop.



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For the benefit of those desiring to learn about a silo and its advantages by observation and demonstration we have erected on the Exposition Grounds two of our famous

Remco Redwood Silos

They are located on the main road leading to the Stock Exhibit, on the east side of the Dairy Building.

Our representative is always on hand and will take pleasure in explaining the many advantages which these silos have, and also profitable silo operation in general.

Make it a point to see this silo. For a pamphlet before going, write to the

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Many Types of IRRIGATION GATES

Made from Rust Resisting

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You are Invited to Inspect

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as displayed in our booth in the Agricultural Palace. Be sure to look over the Dairy Barn. It was designed and equipped by us. Do not fail to inspect the first completed working exhibit on the grounds.

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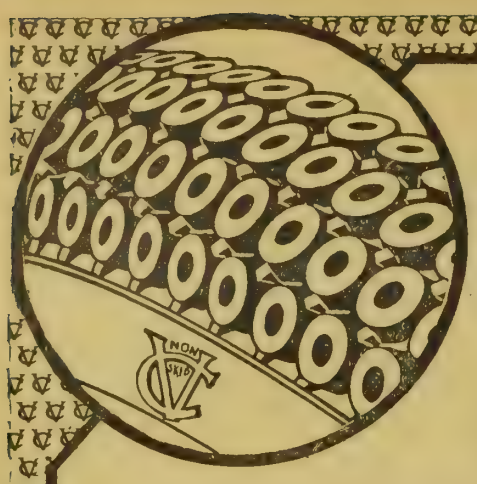

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The light car cannot begin to put the service qualities of these tires to the severe usage they encountered in the A. C. A. tryout.

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This mileage economy is made all the more pronounced by our substantial price reductions.

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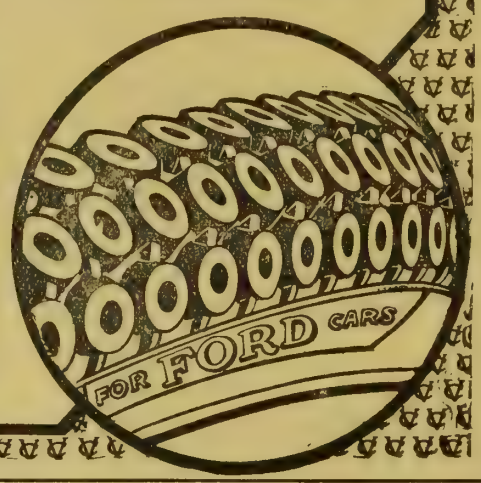

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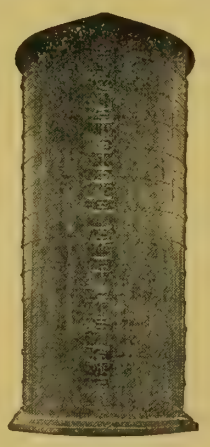

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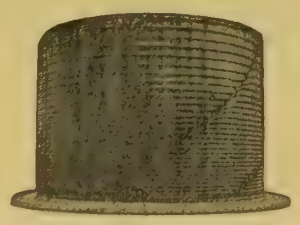

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Farm Bureaus

CERTAINLY our farm bureaus and advisers are getting busy and doing things. If you have not yet attended a meeting of the farm bureau center of your section, look up the next meeting date as given in these columns and give yourself the pleasure and profit of finding out what your neighbors are doing.

Yolo County, Niles P. Searls. Adviser, Woodland

Guinda and Rumsey at Guinda, Fruit Marketing, Tuesday, May 4.

Madison and Esparto at Madison, Organization Madison Unit, Wednesday, May 5.

Winters, Monday, May 10.

Davis, Wednesday, May 12.

West Sacramento, Friday, May 14.

Clarksburg, Monday, May 16.

Knights Landing. Wednesday, May 19.

Yolo, Wednesday, May 26.

Woodland, Thursday, May 27.

On Saturday, May 8, a meeting is planned of all progressive dairymen of Yolo County, when several things of importance will be taken up. The evening's discussion will have to deal with Cow Testing Association, Community Breeding, Better Care of Milk and Cream on the Farm, and the proposed Condensary in Yolo County. Good work has been done along the first two lines, and further support is to be asked for. A supper will be provided.

The Yolo County Hog Raisers' Association is making a cooperative fight against the promiscuous spread of hog cholera, the main items being quarantine, sanitation, and the early recognition of disease and prompt control measures. A code of ethics is signed by stock men, and if lived up to will do a great deal toward suppressing this disease. A board of control, with a member in each community, will keep in careful touch with conditions and will secure prompt aid in each outbreak in that community.

Kern County, R. R. Mack, Adviser, Bakersfield

Wasco, Director W. T. Fowler, Monday, May 3, 8 p. m.

Delano, Director R. H. Hiett, Wednesday, May 5, 8 p. m.

McFarland, Director P. M. Peterson. Friday, May 7, 8 p. m.

Rio Bravo, Director F. W. Haag, Saturday, May 8, 8 p. m.

Panama, Director A. B. Robinson, Monday, May 10, 8 p. m.

Rosedale, Director J. Waters, Wednesday, May 12, 8 p. m.

Tehachapi, Director L. T. Jenkins, Tuesday May 18, 8 p. m.

Muroc, Director C. E. Clark, Wednesday, May 19, 8 p. m.

Willow Springs, Director H. W. Mongold, Thursday, May 20, 8 p. m.

Arvin, Director R, Haven, Monday, May 24, 8 p. m.

Shafter, Director E. U. Combs, Wednesday. May 26, 8 p. m.

Bakersfield, Director M. J. Adams, Saturday, May 29, 2p. m.

Napa County, H. J. Baade, Adviser, Napa

Salvador, May 1.
St. Helena, May 3.
Coombsville, May 4.
Browns Valley, May 5.
Soda Springs, May 8.
Napa, Directors' Meeting, May 8.
Carneros, May 10.
Fly District, May 12.
Calistoga, May 13.
Soscol, May 14.
Wooden Valley, May 15.
Howell Mt., May 16.
Rutherford, May 17.
Rutherford, with Dr. Bryan, May 18.
St. Helena, May 19.
Mt. George, May 22.
Berryessa, May 26.
Pope Valley, May 28.

The subject of Modern Dairy Management will be discussed at these meetings. A stereopticon lantern will be used for illustrations. An attempt will be made in these lectures to show the farmers practical ways to keep even the smallest dairy perfectly clean and sanitary.

In answer to the Cultivator's inquiry as to community meat clubs and progress of the new cow testing association in Napa County, Mr. Baade writes:

"I might state that we have, temporarily. organized three meat clubs in our farm centers. The organization is nothing elaborate. They merely elected a secretary whose duty it is to inspect every animal before it is slaughtered. Each member of the club, who slaughters the animal, distributes the meat to its members, receiving cash therefor upon delivery. It is to be hoped that each center will have such clubs in the near future.

"We have enough cows in our Cow Testing Association to start testing. It is merely a matter of getting this into definite form and hiring a tester, which I hope will be done in the near future."

Alameda County, W. H. Nixon, Hayward

Hayward, Monday, May 3.
Castro Valley, Friday, May 7.
Murray Township at Livermore, Monday, May 10.
Oakland, Friday, May 14.
Irvington, Tuesday, May 18.
Pleasanton, Thursday, May 20.
Centerville, Friday, May 21.
Newark, Monday, May 24.
Niles, Wednesday, May 26.

Answering your question as to hog cholera, the disease broke out in one small herd of about 40 head of hogs. There has been no other loss and I think the disease has been stamped out.

Maricopa County, Arizona, Jas. A. Armstrong, Adviser, Phoenix

Higley, organization meeting, May 3.
Lehi, May 6.
Roosevelt District, May 11.
Gilbert, May 15.

Adviser Armstrong writes:

"Prof. G. W. Barnes and I have been trying to secure enough cows to warrant starting a cow testing association. We have been working around Gilbert, Mesa and Chandler but have only completed the Gilbert district, where we have secured the pledge of 289 cows. A minimum of 600 cows will be necessary.

"The following dairymen have subscribed to the contract: J. F. Appleby, 20 cows; J. S. Tuley, 10 cows; O. L. Stewart, 10 cows; J. O. Welch, 20 cows; Geo. W. Peterson, 10 cows; A. C. Ware, 10 cows; J. S. Peterson, 40 cows; Crawford & Davis, 20 cows; W. O Phelps, 20 cows; W. G. Worman, 15 cows; A. B. Millett, 10 cows; J. H. Norton, 10 cows; J. D. Allen, 10 cows; W. H. Bukey, 10 cows; A. A. Dewitt, 10 cows; H. M. Hall, 10 cows; G. H. Elsworth, 10 cows; H. H. Taylor, 20 cows; S. F. Hockinsmith, 14 cows; L. M. Sigman, 10 cows.

We expect to start work on our ant campaign about June 1. We will send out 5000 double post cards in a few days. on this card is the following statement:

"Whereas the harvester ants are responsible for an annual loss of $50,000 to the ranchers of this valley, and are known to be spreading, we have, therefore, undertaken a cooperative campaign against them.

Our plan is to encourage responsible individuals to contract to exterminate them for you at 15 cents per nest; five cents to be paid at the time of making contract and balance when exterminated. It is understood that said contractor will report weekly to his office on all work done, and that final payment will be dependent upon satisfactory reports.

"If you wish to do your own work, we will be glad to inspect your work from time to time, advise you where 'Tested' London purple can be obtained, special prices, etc."

WILL DISTRIBUTE SELECTED KAFIR

Selected black hulled white kafir seed will be distributed in limited quantities for experimental purposes and for seed production during the coming season by the extension service of the University of Arizona.

Farm Adviser Jas. A. Armstrong, Water Users' Building, Phoenix, Arizona, has a small amount of this seed and will give it out on certain conditions, the main ones being that the seed will be planted so that it will not mix with other sorghums; that the grain will be kept for seed, and that

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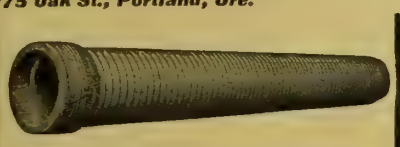

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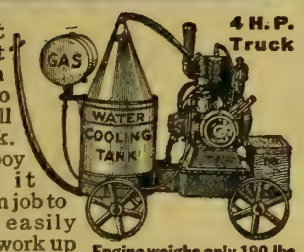

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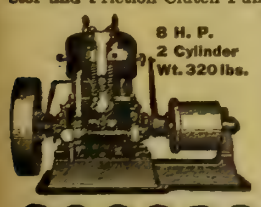

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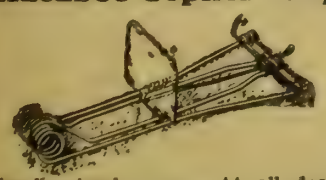

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Over 4000 visitors enjoyed the farm picnic at Davis.

HARVESTER ANTS HAVE FOUR LIVES

Interesting facts about habits of the "Great Pest" of Salt River Valley, by Farm Adviser Jas. A. Armstrong.

The fact that a harvester ant has four lives or stages of the same life accounts in part for the great difficulty experienced in their extermination. These stages are each separate and distinct from each other. and in each the habits are entirely different.

First Stage—Egg. It resembles all other eggs in being dormant until a sufficient time passes when it will hatch like other eggs.

Second Stage — Hatched egg or "worm stage," technically know as the larva. It is in this stage that it consumes all of the food necessary for its develoment to an adult.

Third Stage—Dormant or immature adult, known as the pupa. In this stage it is practically dormant. It can not move in this stage, and does not consume any food.

Fourth Stage—Adult ant as seen above ground. It consumes food and gathers food for the second or worm-like stage.

If a slow poison such as London purple is given the worker ants it will be carried to the larval stage and will kill both, but this will leave a great number of eggs and also a great number of the pupae or third stage, both of which do not eat, consequently cannot be poisoned.

If only one treatment is given a nest or a new entrance is made it does little good because some eggs will hatch immediately and some pupae will emerge as workers. These workers immediately start to feed the young which hatched into the worm stage and the colony is soon as strong as ever.

The only treatment which can be successful is one which will contnue until all of the third stage have been killed and none of the second stage have been allowed to develop into the third or dormant stage. At this time the second, third and fourth stages are all dead. Eggs which may hatch after this time can not mature because they cannot pass the second stage without worker ants to feed them, because they are helpless to feed themselves and moreover most of the stored food is probably also poisoned if the work has been carefully done.

COST OF KEEPING AN AUTOMOBILE

Automobiles are so generally kept by farmers nowadays that the following account of the cost to a farmer of keeping an automobile the first year, taken from a recent issue of Farm and Fireside is interesting:

"For the benefit of those who are thinking of buying an automobile, the following account of one year's run may be of some help in determining whether you can afford one or not. The first cost of my machine was about $950, including one extra casing and tube.

Chains (second-hand)	$ 2.50
Cylinder oil used	8.00
Grease	3.90
Gasoline (269 gallons)	44.36
1 Casing	18.00
2 Presto tanks	4.50
Chain repairs	1.56
Cement	.65
2 tubes (1 not used, other has one puncture)	7.00
1 casing and cover	18.45
Batteries	1.25
Insurance	18.00
1 set snubbers, rear	18.00
Vulcanizing 2 casings	7.75
Electric horn	10.00
2 tire-saving jacks	1.90
1 voltmeter	1.50
1 socket wrench set	2.10
1 flash light	1.25
Express on supplies	3.00
Repairs	.15
	$173.82

"The expenses given are cash; expenses do not include housing, depreciation, license nor taxes, which vary according to size and value.

"As to insurance, horn, clock and such things, they can be left off and cut down first year costs considerably. For myself, I believe the expenditure paid."

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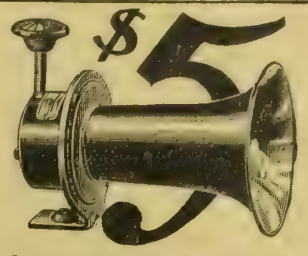

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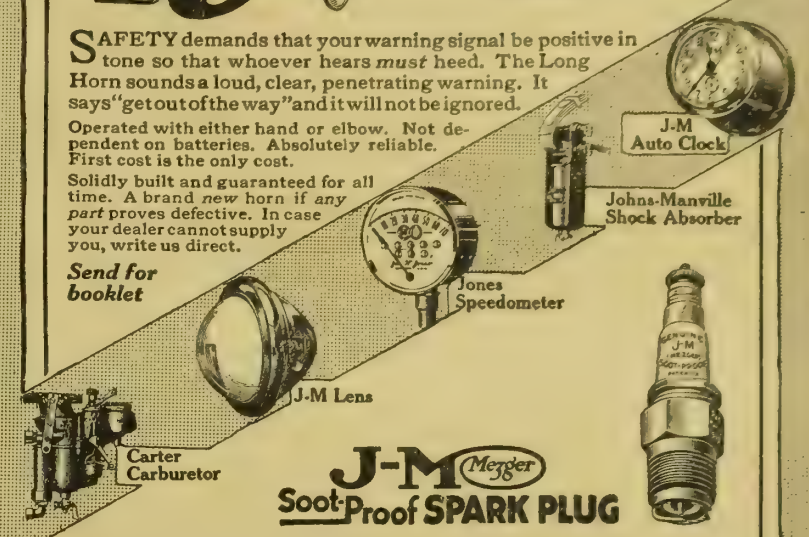

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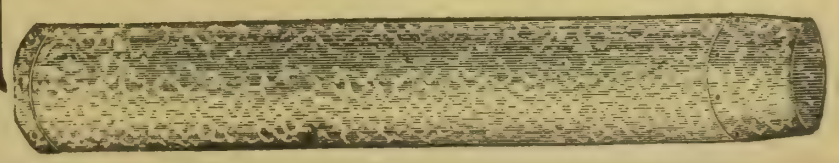

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The California Cultivator

Rural California Combined with the California Cultivator

A Journal of Horticulture and Agriculture

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Thursday, May 6, 1915

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

MEAT CLUBS

Farm bureau centers of Napa County have organized a series of meat clubs which are materially reducing the living cost and materially increasing farm comfort. The plan of the clubs as outlined by Farm Adviser H. J. Baade, is for the secretary of the club to make inspection of meat and give certificate of its freedom from disease. Then the meats are distributed to other members of the club. Another day another member of the club does the slaughtering and the meat is distributed as before. This results in more satisfactory prices for the meats used by the members.

CHERRIES RIPE

On deciduous page is a communication from a Kansas City subscriber and one from a subscriber in Vaca Valley in our own state. They seem to be somewhat at variance, but the Kansas City communication may draw attention to a practice of which Californians need to know. Mr. Young, who is an attorney in Kansas City, wrote us last year of the injury done the California market by green cherries. In his communication this year he says: "Now here comes along the same small unripe cherry from the Musser Ranch at Vacaville. At least that was marked on the box."

Before giving this place in our columns we wrote Mr. M. Sharpe at Vacaville and asked for information as to this Musser Ranch. As will be seen in his communication, there is no such ranch in the Vaca Valley. Is someone shipping inferior fruit to the injury of one of our finest fruit-producing sections and hiding behind a fictitious name? The matter is worthy of thorough investigation by California fruit growers.

CITRUS FRUITS

Some months ago we referred to the fact that Dr. J. Eliot Coit was working upon a book treating of citrus fruits, which would be published by the Macmillans in a very short time. Just as we go to press our first copy arrives and we have not time nor space for a review but announce that all who are interested in citrus culture may now secure this book through the Cultivator office. The business department will make announcement of clubbing price of the book with the Cultivator.

This book is one of the Rural Science Series, edited by Liberty H. Bailey. It is a book of 500 pages, well printed, well bound, beautifully illustrated, and filled with information as to all varieties of citrus fruits. Of course primarily it is cultural and practical. More information regarding it later.

PRODUCE MORE

Speaking of the value of fertilizer an eastern farmer states that he used 300 pounds per acre. This gave an increase of crop over and above the cost of the fertilizer per acre of $8.25. If farmers the United States over would make a similar increase, all the rest of the world could continue at war and still we would be able to feed it. This farmer says:

"In one instance, a 40-acre field from which we cut 25 loads of hay in 1907, last year cut 90 loads. Further than that, the land keeps improving year after year, because of better management supplemented with commercial fertilizers."

Taxes, the cost of cultivation, and interest on investment would be no greater; even harvesting expenses would be only slightly higher because of this increase. We are aware that the usual argument used against this method is that we are now producing more than we can get good prices for. Perhaps this may be true, but even then would it not be wise to dispose of half of the land and produce twice as much on the remainder?

EXPOSITION PAGE

On page 537 is an outline of some of the events scheduled at the Panama-Pacific Exposition grounds at San Francisco, also some information regarding many of the interesting exhibits on the grounds. In addition there are authorized announcements of some of the exhibitors whose names are familiar to Cultivator readers because of their having used the columns of the Cultivator for many years. We believe this will be an interesting feature for those who will attend the exposition. "Those" means practically everyone in California, for this great educational event is worthy of sacrifices being made to see it. Certainly every farmer will avail himself of this opportunity. When the immensity of the great Palace of Machinery is considered, it seems as if mechanics is given the greater attention at the exposition. But once one is in the Palaces of Foods, of Agriculture and of Horticulture and sees the scores of acres given over to live stock and poultry, it is plain that agriculture occupies a greater part of the exposition grounds.

THE WEATHER

We wish to assure our Eastern visitors that the streak of weather which has been given to California during the past few days is "exceptional." Fortunately we can prove our statement this time by the weather reports; they show that not for 33 years has there been during the opening days of May such heavy precipitation as has been given to us this year. Worse than all, the rainfall was preceded by a terrible wind storm. It did immense damage on the ocean and along the oecan front. Perhaps one of the worst sufferers was the little town of Redondo where estimated damage to the extent of $175,000 was done by wind and waves. Several fishing vessels have not been reported from the harbor of San Francisco and it is presumed they have gone down. As a rule the rainfall will be of greater value than damage. Some volunteer hay and alfalfa, in a few sections a very little regular crop barley hay, has been injured. By far the greater portion is yet to cut, and some late sown crops will be far heavier because of this rain. Orange pickers are losing because they cannot pick and cherries are injured.

California is nothing if not different, and this year of 1915 is different in many ways.

ORANGE PRICES

Commenting on prices quoted on this page a couple of weeks ago, Mr. J. G. Berneike of Santa Ana writes on citrus page this week of prices which are being received by the grower, and from the figures which Mr. Berneike takes as the basis of his argumen he makes a showing of a most serious condition for the producer of citrus fruits. But while Mr. Berneike's figures are true as to one man or one particular pool of one association they are far from true as to averages. For we know that hundreds of thousands of boxes sold since January 15 have averaged far above $1.00 f. o. b. In fact, from these sales it is seen that the average returns to growers have been in excess of 75 cents.

We believe it has cost the growers in excess of 75 cents to produce this fruit, therefore we would not present these figures to give the idea that the grower is receiving just compensation, but to reach an average conclusion we must take average returns.

It is perhaps true that the present condition of the market will cause an amount of thought on the part of producers which will result in a bettering of the market conditions. It cannot be claimed that they are perfect at the present time, but they are far nearer it than some of the methods which have been suggested by those who would see present marketing plans discontinued.

Regarding the figures given in the former Cultivator, they are the prices paid by consumers. We are glad to have additional figures this week from the city of Cleveland. These were secured by an entirely disinterested party, an attorney of that city, Mr. H. H. Johnson. He writes that the better grade department stores do not handle fruits. The five and ten-cent stores, of which there are three immense concerns, made an effort to handle oranges, but not having the proper facilities for handling, lost money on the deal and refused to handle any more. The popular-priced department stores handle them, and in the prices given below it will be seen that they are selling higher than in some of the smaller towns outlying. Prices given below were all secured on April 26.

Prices for Sunkist oranges prevailing at Chandler & Rudd Company, April 26:

Size 96, per dozen 55c; per box $3.75
Size 100, per dozen 55c; per box 3.75
Size 126, per dozen 45c; per box 3.75
Size 150, per dozen 35c; per box 3.75

Sunkist prices at W. P. Southworth Company:

Size 96, per dozen 45c; per box $3.50
Size 126, per dozen 38c; per box 3.50
Size 150, per dozen 34c; per box 3.75

Sunkist prices at Brandt's (Sheriff Street Market): (Buys at auction. No regular box prices. Profit varies from 10 to 60 cents. Aims to average 35 cents per box.)

Size 64, per dozen, 75c
Size 80, per dozen, 50c
Size 96, per dozen, 45c
Size 100, per dozen, 45c
Size 126, per dozen, 40c
Size 150, per dozen, 30c
Size 176. per dozen, 25c

The Matthew Smith Company's chain of 10 grocery stores and a like chain of Fisher Brothers sell mixed brands and use three sizes: 126's, 150's and 176's, average price of about $3.00, and varying prices from 25 to 40 cents per dozen. This probably will apply to grocers generally throughout the city.

The five and ten cent stores had one special sale at a low price, but not likely to have another owing to loss in handling without facilities for doing so.

Agricultural Notes

The American Association of Nurserymen will meet in Detroit, June 23-25.

To its slogan, "Safety First," the Pennsylvania Railroad has added "Courtesy First."

In Canada all passengers by railroad now have to pay a tax on both railroad and sleeping car tickets.

The United States weather bureau inaugurated a weekly weather forecast service. The forecasts will cover the week commencing Wednesday.

The fact that American cotton shipments totaling thousands of bales are being held up in European ports is giving cotton exporters great concern.

The jitney service, so popular in the United States, has moved east in Canada from Vancouver and Winnipeg and is now successfully established in Toronto.

The International Soil Products Exposition will be held at Denver, for two weeks, beginning September 27, in conjunction with the Dry Farming Congress.

Kansas, Wyoming, Nebraska, Oklahoma, Texas and Arizona have made state appropriations for displays at the International Dry Farming Congress at Denver.

The melon and cantaloupe acreage in Florida is 50 per cent short as compared to last season. The cold weather during February and March did much damage, destroying many acres which the growers did not replant.

The Illinois Central Railway has a catalpa plantation near New Orleans where it is growing cross ties. The trees are planted four feet apart. As they grow they will be thinned for fence posts, leaving the trees to be used for cross ties, 12 feet apart.

The latest business aid service instituted by the government is a wood-waste exchange. It enables lumbermen and manufacturers in the various wood-using industries to utilize each other's waste to mutual advantage, aiming to effect a large saving in forest material as well as in money.

The Wisconsin assembly has passed a bill prohibiting the giving or offering of any gratuity by patrons of any hotel, restaurant, barber shop or public service corporation engaged in the transportation of passengers. The penalty is a fine of from $5 to $25. The lower house of the Minnesota legislature has passed a similar bill.

Approximately 6000 potato distilleries are in operation in the German empire. The manufacture of alcohol for technical purposes, not for human consumption, is regarded as a necessary factor in general farming. The distilleries provide a market for Germany's potato crop, which is enormous; and the spent mash is returned to the farmers and used for feed for cattle, which in turn enrich the land and thus enhance productivity.

One farmer in a Central-Western state is reported to have refused to let the veterinarians go to his barn to inspect his stock until he had seen them fumigate themselves. His reason was that he did not want to take any chance on having foot-and-mouth disease or hog cholera carried onto his premises by these veterinarians. The latter refused to fumigate, and forthwith placed the farm under quarantine, without further investigation. The matter went up to the state veterinarian, and that official sustained the farmer, commending him for his caution.

Agricultural News Notes of the Pacific Coast

Northern California

The asparagus shipping season of the Delta section is over.

Nearly all of Sutter County's sheep are now sheared by machinery.

Sacramento Valley wool growers are selling wool around 20 cents per pound.

The state college of agriculture will hold a grain conference at Davis on May 16.

Stock raisers of Shasta County report spring grazing in exceptionally fine condition.

Gravenstein Day at the Panama-Pacific exposition is now being proposed by Sebastopol apple growers.

The Davis unit of the Yolo County farm bureau at its last meeting discussed brown mite and red spider.

Live Oak, Sutter County, recently marketed over 2,000,000 pounds of beans in the San Francisco market.

Articles of incorporation of the Mendocino Farmers' Club have been filed. Its principal place of business will be Mendocino City.

The Sebastopol (Sonoma County) Berry Growers' Association is receiving 2,880,000 baskets for handling berries which it will ship East.

Prof. Bioletti of the University of California gave a demonstration of the use of sulphur for mildew of grape vines at Reedley April 17.

The California Swine Breeders' Association held its annual meeting in the hall of congresses at the Panama-Pacific grounds Friday, April 23.

The Sutter County Cured Fruit Association has decided to organize a supply company with capital stock of $150,000. The former board of supervisors has been continued in office.

At the last meeting of the Davis unit of the Yolo County farm bureau all farmers present were requested to sign the hog cholera agreement which was framed by the Yolo County Swine Raisers' Association.

A sheep raiser at Los Molinos, Tehama County, has figured that it is possible to pay $65 per acre for land on which to raise sheep. He maintains that an acre of Sacramento County land will support 12 sheep.

A swine breeder at Fairoaks, Sacramento County, makes it his business to breed the youngsters and "farm out" to dairymen who feed and care for them on shares. When he takes them back it is on a basis of payment for the number of pounds increase.

The $500 appropriation made by the Lassen County supervisors toward the fund for having a survey made of the proposed Southern Lassen Irrigation project has been forwarded to the supervising engineer of the United States Reclamation Service in Portland, Oregon. The government will put up a like sum.

The Glenn County farm bureau has elected officers as follows: President, D. C. Cowan; treasurer-secretary, E. A. Kirk; directors, H. M. Giller, Bayliss; W. C. Saxon, Ord; S. C. Langford, Orland; O. L. Raper, Larkin; Guy Wait, Jacinto; T. L. Linville, Cordova. The directors at large are W. W. Forster, Princeton; James Mills, Hamilton City; E. A. Lindstrom, Orland; Frank Fox, Glenn P. O.

Central California

Stanislaus County will have a farm adviser after May 1.

Kern County estimates it will produce over 5000 sacks of rice this season.

The road to Sequoia national park has been cleared of snow and is now open to automobiles.

The Turlock farm bureau is encouraging farmers to make an organized fight against hog cholera.

Auto races were the principal features of the May Day celebration at Los Banos, Merced County.

Many peach growers of the San Joaquin Valley are urging on a united fight to stamp out Little Leaf.

Oakdale, Stanislaus County, is planting very largely of beans; one planter is putting in 100 acres of teparies.

The Modesto chamber of commerce is already organizing to make a fight for the $12,000,000 state road bond issue.

Merchants of Turlock are raising the final $6000 needed for completing the work of the Turlock Merchants' and Growers' Association.

Tulare County orange growers are sending organizers to Southern orange districts to aid in perfecting a new retail orange marketing association.

The California Associated Raisin Company has announced that the Bonner Packing Company at Fresno has ceased its affiliation with the Associated.

Grape growers of Wolters Colony recently met President Giffen of the Associated Raisin Company to discuss means of securing a larger acreage for the association in that district.

Orange growers of Tulare and Fresno Counties are planning for a great fight against gray scale. A mass meeting of growers was recently held at Orosi to perfect an organization to more effectively combat the pest.

The San Joaquin Valley is already organizing its forces to aid in the entertainment of the International Irrigation Congress which will be held in California September 13-20. Fresno hopes to entertain at least 3000 of the delegates on September 15 and 16.

A San Joaquin Valley newspaper is warning farmers of a traveling agent, who claims to be representing a poultry periodical, and in addition is inducing shipping of eggs to a concern which he assures the poultrymen will pay 30 cents per dozen the year around.

The raisin seeding plant of the California Associated Raisin Company in the horticultural building at the San Francisco exposition is proving a big attraction to sightseers. This exhibit has proved so popular that the Associated will install another seeding machine in the food products building.

The forest rangers of California have formed a mutual horse insurance association for the purpose of distributing the loss that occurs when their saddle or pack horses are killed or disabled. The scheme was given a trial last season with 177 rangers in the association. This season it is expected to enroll about 900.

Southern California

The walnut crop of Santa Barbara County is reported heavy.

The cotton gin at Blythe, Riverside County, has been closed for the season.

Southern California was visited by freak storms during the last few days of April.

Orange packing houses at Pomona, Los Angeles County, are running full-handed and overtime.

A company is being organized to put irrigation water on the mesa back of the Palo Verde Valley.

Palo Verde has over 100 tons of cotton seed which is unmarketable because of no railway facilities.

Citrus growers of Southern California are still agitating the problem of securing more livable prices for their fruit.

Pomona growers received nearly $30,000 as a result of one day's sales by the San Antonio Fruit Growers' Exchange.

Imperial County has 22,000 stands of bees and is considered one of the leading honey producing counties of the United States.

Bean growers of Ventura County are advised to trap wire worms by the use of potato bait. The cost is said to be not to exceed $3.50 per acre.

Santa Ana, Orange County, has an ordinance demanding full sized berry boxes. Los Angeles fruit shippers declare they will test its validity.

The Imperial Valley is making a test of a concrete automatic water gate. It will probably be installed generally throughout the irrigation system of the county.

Deputy State Horticultural Commissioner Weldon is in the Southern end of the state looking up matters in connection with the possible introduction of the alfalfa weevil pest from Utah.

The San Fernando Fruit Growers' Association packing house is sending out on an average of three cars of fruit a day, approximately half oranges and half lemons. The association is using 115 employes.

A new feature of bean culture in San Diego County is the use of nitrogen bacteria cultures. This idea was taken from Germany, where it is stated that last year over 5,000,000 acres were planted with inoculated seed.

Dairymen of Southern California met recently in Los Angeles and discussed the matter of prices now being paid by creamerymen of Los Angeles. A fee of one dollar is necessary to become a member of the dairymens' association.

Unless lima bean growers pool the crop of 50,000 acres for a period of five years with the Lima Bean Growers' Association before June 1 of this year the association will be discontinued. This was the decision reached by the board of directors at its last meeeting.

The Santa Paula Farmers' Club held its regular monthly meeting April 26 in the high school auditorium in conjunction with the Santa Paula and Saticoy farm centers. County Farm Adviser W. B. Parker gave a stereopticon lecture on the wire worm.

The Coast

Colorado apple growers are organizing cooperative marketing associations.

Thousands of Arizonans gathered at Roosevelt and celebrated the filling of that great reservoir.

Rooster Day in Arizona has been changed by the Arizona Poultry Association to May 22.

Some sales of mohair are reported in Portland at 31 and 32 cents, with a probability of higher prices.

Governor Hunt of Arizona has removed the quarantine against live stock from New Mexico, Texas and Colorado.

Cattlemen of Agua Fria, New River Country, Arizona, are putting up heavy hay crops and shoeing their ponies for the round-up.

A new evaporator has been installed at the Dalles, Oregon, which it is estimated will turn out at least 700,000 pounds of dried fruit and vegetables each season.

Arizona farmers are finding difficulty in obtaining crops from seed raised under conditions entirely different. An effort is now being made to secure acclimated seed.

Portland grain men are discussing the proposition of establishing public elevators. Voters will be asked at the June election to pass on a $900,000 bond issue to build same.

The Gridley Cow Testing Association is composed of 26 herds with a total number of 1200 cows. These are scattered throughout Butte County and parts of Yuba and Sutter Counties.

At the Moulton Irrigated Land Company ranch east of Colusa, there are eight engines and 400 head of horses and mules being used in getting the land in readiness for rice planting.

A convention was held at Spokane, Washington, on April 28 of various apple growing interests of the Northwest to decide on a standard for grade and pack of apples for the coming season.

The business men of Magdalena, New Mexico, have asked the members of the Southwestern New Mexico Cattle Growers' Association to meet with them May 12 to 14 for the purpose of perfecting a state organization.

The locals affiliated with the California Cured Fruit Association now number 26, with an aggregate membership of 1564 growers. The tonnage of fruit handled in 1914 was about 20,000,000 pounds, as against 12,000,000 in 1913.

Sheep men of the San Rafael Mountains of New Mexico report heavy losses of sheep the past winter due to unusually heavy snows. It is reported that one man has lost upwards of 5000 head, while others have lost from 2000 to 3000 head.

Pima County, Arizona, has a cattle population of 50,000 head, so says the Tucson Citizen. This has been estimated by a well known stockman who has spent several weeks in a very careful study of the situation. He figures the total valuation at $1,050,000. The figures do not include the cattle owned by the Papagoes.

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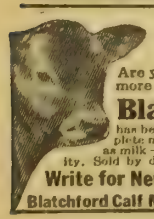

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THE DAVIS FARM ANNUAL PICNIC

(Continued from Page 531)

needed in California, and hundreds of farmers and fruit men could keep small flocks, the produce from which would aggregate thousands of high grade, well-finished carcasses annually.

The dairy stock is in better condition this year than ever in the history of the institution, and there are many young Holsteins, Jerseys, Guernseys and Ayrshires that are very promising. They are in splendid condition and are being well cared for.

One of the things that was of particular interest to stockmen and all interested in increased quantity and

AT UNIVERSITY FARM PICNIC
Baled Hay Archway at Entrance
The Hog Float
Listening to Addresses

quality of California grown beef was the improvement that has been made in the beef cattle division. In addition to a very representative lot of Aberdeen-Angus, Hereford and Shorthorn breeding animals a splendid lot of steers are being fed. Some of them are likely candidates for the highest honors at the Panama-Pacific International live stock show this fall.

The poultry department is a big division now with all kinds of appliances and breeds, and hundreds of fanciers and "just plain growers" of chickens visited the buildings and pens.

The interest in hog cholera was shown by the large number of people who attended the demonstration and lecture conducted by Dr. F. M. Hays of the University farm and Dr. Bert Cady of the United States department of agriculture.

A sick pig from a farm in Yolo county was killed and examined. It had a temperature of 105 and the red pin point marks characteristics of the disease were first found in the submaxillary glands at the point of the jaw. Examination of the lungs showed an infection of pneumonia which added to the lowering of the vitality of the pig which was very thin and weak. Characteristic hog cholera red spots were found on the kidneys after the capsule or covering was removed and a well developed ulcer was found on the lining of the intestines. Any or all of these lesions, in addition to the high temperature (normal is 101 to 103½ degrees Fahrenheit) proved the presence of the hog cholera germ.

Care was taken to keep the visitors at the demonstration from carrying the infection away with them, and two overcurious and interested people who walked across the drain into which some of the offal had passed were required to disinfect their shoes with a five per cent solution of liquor cresolis compositas.

Two pigs were immunized from cholera by administering the simultaneous virus and serum treatment—which was explained in detail, immunizing them for life. One question that interested many people was how young a pig can be vaccinated with a reasonable assurance for life. The answer was eight to ten weeks, or two weeks after weaning. An immune sow transmits protection to her pigs for about three weeks. If it is desired to protect the pigs for the period between the age of three and eight weeks they may be given a dose of serum alone. It was explained that nine out of every ten hog that die in the United States have cholera, so that the sickness of several hogs in a herd and the death of a few is ample reason for getting in touch with the veterinary department of the University.

After May 1 the cost of serum from the University of California is to be reduced to 1½ cents per cubic centimeter from two cents now charged; and it is understood that commercial serum manufacturers are planning to sell their product in California for 1¼ cents per cubic centimeter.

There were swimming races, field sports, ball games, catching the greased pig, a band concert, and other attractions to interest young and old during the entire day, and lunch baskets, sandwiches, meals, buttermilk and "made on the farm" grape juice—food and drink in plenty for all—were provided.

And folks go home from this picnic not only glad they came and determined to come again next year, but enthusiastic in urging their neighbors and friends to benefit by the instruction and entertainment of the next picnic.

Swine Breeders Annual Meeting

At Which Officers Were Elected and Business Transacted. Written for Cultivator

EXTENSION was the watchword at the meeting of the California Swine Breeders' Association in the Hall of Congresses during the Live Stock Show at the Panama-Pacific International Exposition in San Francisco, April 23, 1915.

A new movement was started to increase membership in the organization and this promises to be followed by greater activity all along the line for more and better hogs in California, and in addition to the present officers and directors of the association a vice president for each county in the state is to be appointed.

The meeting was well attended by representative breeders and growers, the program was of extraordinary merit, and the affairs of the association, with A. M. Henry as president and Professor J. I. Thompson as secretary, and an efficient board of directors, have progressed well during the past year. And greater progress is to be made during the coming 12 months.

California hog growers have much to learn from the Pacific Northwest—Oregon, Washington, Montana and Idaho—and one of the leading agencies in the upbuilding of the hog industry in that territory has been the educational and extension work inaugurated and fostered by the Portland Union Stock Yards. Hundreds and thousands of hogs—and lots of good hogs—are being grown in parts of that section where none were produced before.

In a very able address C. M. McAllister, special representative of the Portland Union Stock Yards, urged California breeders to hold shows and sales and to work to increase membership and production.

Mr. McAllister spoke about the stock yards situation, declaring that San Francisco should have an open live stock market where any one can ship any class of stock to be sold by commission men to the best advantage—the same as there is at Portland, St. Paul, Sioux City, Omaha, St. Joseph, Kansas City, St. Louis, Fort Worth, Denver and Chicago. The interests of the small producer are urged as the best reason for a stock yards, that in the competition of the open market quality alone counts and he is on an equal footing with the grower and finisher of larger numbers of animals.

It is contended by those who oppose yards for San Francisco at the present time that it would be a disadvantage rather than otherwise to the small man in that a big per cent of the stock

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We would say to all who buy it that it does not contain a particle of poisonous substance and therefore no harm can result from its external use. Persistent, thorough use will cure many old or chronic ailments and it can be used on any case that requires an outward application with perfect safety.

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marketed now in California comes from a few big concerns, and that if a small grower should be on the market with unsold stuff at a time when these big outfits would come in with big shipments, the market would be lowered because of the larger supply and the small shipper would suffer most because of the slump. Now he sells at home and gets his money before the stuff leaves the farm, and the prices on the San Francisco market are frequently the highest in the United States, quality considered, as in the case of hogs now. These same people contend that a stock yards is sure to come in time when the big ranges are cut up and when the bulk of the supply will come from small producers, and that it should be a cooperative yards controlled by the producer.

This stock yards proposition is now and will always be a live issue in California live stock circles.

J. L. Thatcher, recently manager of Iowanna arms, a big Holstein and Berkshire breeding establishment in Iowa, talked of the necessity for showing hogs at fairs and other advertising as a means of selling pure-bred animals. Mr. Thatcher is now located in California.

Professor W. J. Kennedy, formerly of the Iowa state agricultural college, but now president of a hog cholera serum company, talked of hog betterment, and Dr. Bert Cady, hog cholera expert of the United States department of agriculture, who is now doing extension work in California in connection with the agricultural experiment station, gave his illustrated lecture on hog cholera.

During the past year the California Swine Breeders' Association has published and sent out a booklet on the different breeds of swine.

All of the leading breeds were represented; Berkshires, Poland Chinas, Duroc-Jerseys, Chester-Whites and Yorkshires.

The following officers were elected: President, A. M. Henry, Farmington, breeder of Poland China; vice president, C. B. Cunningham, Mills, breeder of Chester-Whites; secretary-treasurer, Prof. J. I. Thompson, Davis; directors, J. L. Thatcher, Tracy, Berkshires; J. K. Fraser, Denair, Duroc-Jerseys; A. D. McCarty, Modesto, Yorkshires; A. B. Humphrey, Mayhews, Berkshires.

RAISING HEIFER CALVES

The records of two herds of dairy cows owned by two neighbors furnish a striking example of the utility of dairy records to the man who really wants to build up a good herd. The first man has been cow testing for four years and has selected his cows carefully, studying their various preferences and capacities, each one as an individual. He raises heifers from his best cows; four two-year-olds gave last year an average of 7,144 pounds of milk, while his herd of ten gave an average of 8,059 pounds of milk and 259 pounds of fat.

The neighbor considers it simpler to buy just what cows he can.

He does not raise any calves. Last year his nine cows, all upwards of six years old, except two heifers, gave an average of only 4,240 pounds of milk. This is only just about one-half as much milk per cow as in the first herd. The best cow gave only 6,355 pounds, less than the average of the four heifers in the first herd. He has nothing on which to start building up a good dairy herd, unless it be his judgment in "picking a winner," which judgment, by the way, does not appear to be of A1 quality. The owner of the first herd has the advantage of four years of dairy records, practically indispensable to the real dairy farmer, besides matured judgment in handling cows to better advantage. Cow testing pays.—C. F. W., Dominion Depertment of Agriculture.

Rye meal ranks a little below corn and about equal to barley meal as a feed for swine. Rye produces satisfactory pork, especially when it is fed with other grains. It is an extremely heavy, concentrated feed and will usually give best results when fed not to exceed one-third of a ration. In many sections rye is much esteemed as pasture, especially where the soils are rather light, and in such instances "hogging off" proves profitable.

Economy of Operation and Dependability

Are Two Very Important Features in a Pumping Plant

The Alpha Gasoline and Distillate Engine

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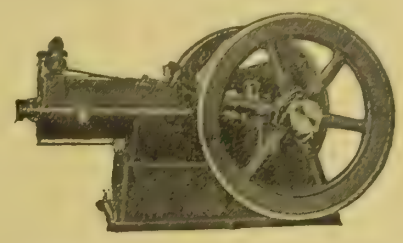

A Big Hot Spark

A Quick Start

Results

The Alpha Engine

has a built-in, gear-driven, gear-timed magneto, which is guaranteed for the life of the engine.

The Viking Pump

is not a deep well pump, but will raise water against a higher head with less expense than any pump on the market costing three times as much.

It can be used for any purpose for which a centrifugal is adapted, besides a great many others for which a centrifugal is not suited.

It is self-priming, requires no foot valve, is positive in delivery with low speed and high efficiency. Made in sizes from 1 inch to 8 inch, the latter delivering 1600 gallons at 230 revolutions per minute.

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Horse Collars

"Felt-Face" .....each $5.00
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This "Cushion" Collar is a combination of leather and canvas, guaranteed to cure sore shoulders and "stand the racket."

The "Felt-face" collar is all-leather, first-quality of oak-tannage, hand-thonged throughout. It has a facing of felt under the leather face, producing a soft yet firm surface against which the animal pulls.

It is natural for any manufacturer to say that his collars are "the best," but it is only about "FELT-FACE" collars that letters like this are written:

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Gentlemen:—I sold the Red Bands Orchard Co. two Felt-face collars about a month ago for two sore-neck mules which are all healed up now. They came in today and ordered one dozen. Please send me soon as possible 1½ dozen, from 17 to 22-inch. Very truly,

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SHEEP AS WEED ERADICATORS ON SALT RIVER PROJECT IN ARIZONA

THE use of sheep has not only decreased the expense of cleaning Johnson grass from canals and laterals, but packing of the banks has practically eliminated all gophers, and it is estimated that leakage and breaks from that source have decreased at least 90 per cent. The maintenance foremen have commented upon the small amount of work required to maintain the laterals when sheep are used for cleaning purposes as compared with the greater amount of work, trouble, and expense incident to cleaning the same laterals in former years. The attached cost reports show the cost of maintaining canals and laterals before and after the introduction of sheep.

Methods of Handling Sheep

Very little change was made in the method of herding and handling sheep this year. Two herders have handled from 400 to 500 sheep and they experienced only a small amount of trouble in keeping them out of cultivated fields. This number of sheep confined to a canal bank means a line from 50 to 100 yards long and if the number were increased above this amount it would bother two herders to control them. The use of dogs was suggested, but after a little experience along this line it was decided that it was not practicable unless the dogs were exceptionally good, because the sheep would bunch and travel too fast, and there is also the additional danger of crowding them into fences and down the ditch banks. As the season advanced the sheep had to be herded very carefully on account of the heat. They were driven out of the corral at daylight and allowed to graze until about 10 o'clock when they were allowed to rest in the shade until 3 p. m., and then grazed until dark.

Feed and Costs

Johnson grass is unquestionably an excellent feed when young and tender, and the sheep are also very fond of the seed. Its feeding value is very high and the sheep prefer it to any other plant excepting alfalfa. Sheep also relish the following plants that grow on the canal banks: Sunflower, milkweed, sour dock, sour clover, bird clover, Bermuda grass, salt bush, young cockle burrs, and most tree leaves, including the willows. They will not eat tree tobacco, thistles, fox tail when headed out, and water grass when large. The growth of Johnson grass varies as the season advances. The grass reached the maximum growth during July and August and the rotation of trips had to be shortened in order to hold it in check. This necessitated some man labor in a part of the territory, but the cost of this labor has been included in the attached cost reports.

Losses

With a loss of only a little over two per cent it is evident that the herding and grazing of sheep on the canals and laterals is not hazardous. A large percentage of the two per cent loss can be attributed to aged ewes, which could not thrive under conditions prevalent along the canals. Injuries, sores, poisoning, and bloating, together with old age, accounted for a large part of the loss, and only three were lost by drowning.

General Results

The result of the work of the government sheep on the project has developed the following facts:

That Johnson grass, the most dangerous pest on the project, can be controlled and eventually eliminated from the banks of canals and laterals by the use of sheep.

That use of sheep has decreased materially the cost of cleaning canals and laterals.

That sheep drive out gophers and thus cut the cost of repairing breaks and reduce the loss of water by seepage to a minimum.

That it is profitable for the farmer to maintain his farm ditches with sheep.

That Johnson grass will fatten sheep in 90 days.

That sheep can be pastured on the canals and laterals without damage to the banks.

The ditches that were badly infested with Johnson grass two years ago were examined on October 31, 1914, when it was found that 95 per cent of the Johnson grass roots were dead and the other 5 per cent in such weakened condition that it wil require a long time to recover. In this connection it might be well to state that the destruction of Johnson grass was not entirely due to close feeding. The action of the sharp hoofs of the sheep was responsible for a considerable part of the damage.

GUERNSEY BREEDERS' TO MEET

The American Guernsey Cattle Club will hold its annual meeting in New York City Tuesday, May 11. The evening session will be held around the banquet table. An address will be made by Dr. Joseph L. Hills, director of the Vermont experiment station.

TREATMENT FOR STOCK POISONING

Practical demonstrations in the treatment of cattle for larkspur poisoning will be made by forest officers on two national forests in the Sierra region this summer. The officers will be furnished with a standard equipment of syringes and medicines, and subcutaneous injections of physostigmin salicylate, 1 grain, pilocarpin hydrochlorid, 2 grains; strychnin sulphate, ½ grain, will be used on animals weighing 500 to 600 pounds, doubling the dose for large steers and cows weighing 1000 pounds or more.

Experiments with this treatment, which is discussed in Farmers' Bulletin No. 531 of the United States department of agriculture, have shown about 90 per cent of success; and the purpose of the demonstrations will be to acquaint national forest permittees with the merits of the treatment.

In cooperation with stockmen, the forest service will also grub out all the larkspur on one large range on the Stanislaus national forest. During the past two seasons the service has demonstrated the practicability of this method where larkspur occurs in patches and is not too widely distributed.

WHAT BAD ROADS HAVE COST

All this takes it for granted that the total products of American farms are hauled to market; but that is not true. To the frightful waste of transportation caused by bad roads must be added another sum, which represents products that never get to market at all. One of the most conservative and accurate American economists has shown by careful figures that American farmers lose nearly $1,000,000,000 each year because they cannot get what they have to sell within reach of the purchaser.

The throwing away of actual produce because of bad roads or no roads would build every year 40 permanent and perfect ocean-to-ocean highways. Astounding, is it not? So much that we produce, even with our poor methods of cultivation, never gets to market that this wastage, if saved, would build forty Lincoln Highways.

And not only would good roads throughout the nation save this billion dollars' worth of produce now wasted annually, but they would increase very largely the raising of all manner of foodstuffs and other products, because the ease of marketing would be a selfish incentive to more careful and productive cultivation. Good roads will do more to lower the high cost of living than most people think, just as bad roads have done more to create that problem than is generally supposed.—Albert J. Beveridge, in "Saturday Evening Post."

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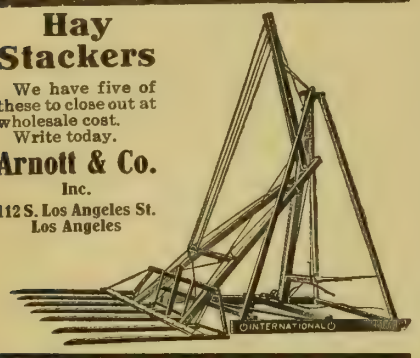

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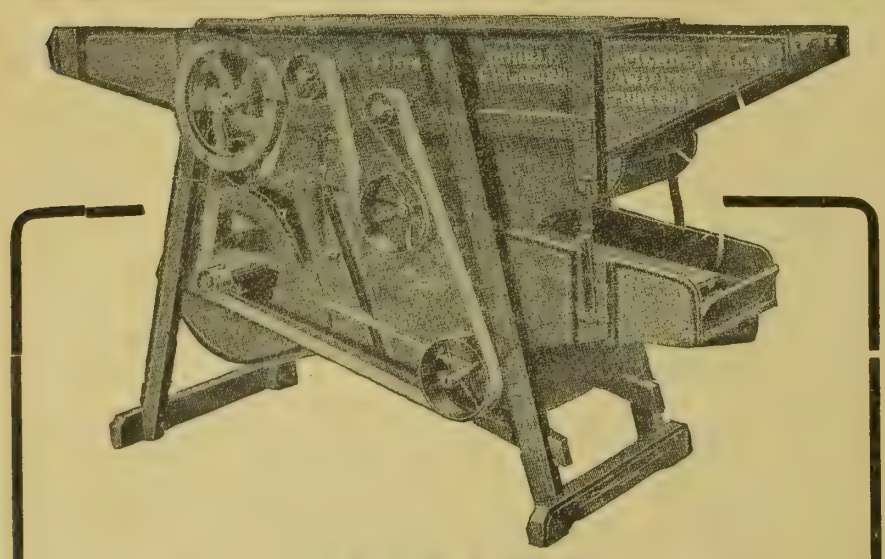

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Weak Stifle

What should be done for a young mule that is weak in the stifle joint? After a day's work he drags the leg and after a struggle brings it up in place with a snap in the stifle joint. He is worse in the morning following several days' hard work.—Subscriber, El Monte.

The ligaments that hold the kneecap or patella bone in place have been weakened by too hard work. The mule should have rest. Also shower the joint with cold water. If you have city water and a hose turn a stream on the joint half an hour at a time, morning and evening. After showering it rub it dry and wet it with turpentine. That will contract the ligaments and he will soon be all right.

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Poultry for Profit

A WAY OUT

Written for California Cultivator
By James R. Henderson

JUST now the poultry business, like many others, is below par. There is not much doing. Would-be buyers have little money, and would-be sellers want more for their foodstuffs than the poultry-keeper can pay.

The pessimist is the only man who is having a rarely good time. Let him enjoy it while it lasts; it will soon be over. An enormous amount of money is being earned by this country. She has suddenly become the market of the world, but the mighty inrush of dollars has not yet reached the ordinary channels of business because most of them are being used and used again to turn out the goods that Europe shouts for. When the rush is over and the bills paid, the wealth of the country will have vastly increased and all will benefit. If you throw a brick into the middle of a pond it will make a fine splash, but the ripples take time to spread all over the water. The ripple of dollars will come to the business people of the poultry world before long, they can rest assured of that. I say business people advisedly, for there are people in the poultry business who have no sort of business about them, and if dollars do come their way they won't stick.

But, until the dollars arrive, what is to be done? Well, when food becomes so dear that the cost of production practically equals the value of the egg output, a choice has to be made of: reducing stock, trying to increase the output, saving on the food bill at the risk of smaller returns, trying to maintain the output by the use of cheaper foods and by, perhaps, different handling.

Taking these in order, the first needs no comment. The second, in some cases, might bring better return from the present outlay. Of how many poultry-keepers can it be said that they are really doing justice to their business? As to the third, well financed concerns will probably adopt this course. They will quietly lie low and say nothing, keeping the pot, not boiling, just gently simmering, till the hour of profitable business strikes again. But when I come to the fourth, I am at once reminded of the proverb, "Necessity is the mother of invention." No matter how old a custom may be, days come that set it sternly aside.

Your hens may be divided into two classes, those that get all they want with little or no effort, and those that have to work hard for a living; and, in the hen's case anyhow, enjoy working for a living. Number one class hens have food before them all day long, asking to be eaten, dry mash. So easy is life made that even the exercise yards are kept as bare as a board, for fear, I suppose, lest the flock should exhaust its energies by too much scratching. Their energies are to be carefully nursed for the sole purpose of enabling the unhappy hen to swallow as much dry mash as possible. It is a loathsome idea, really, and reminds me of the way a goose is kept before a hot fire and made to drink all the water it can, so that its liver may be brought to the proper condition for making the delicacy known as pate de foie gras. Let some one suggest that the expense and frequent waste of unlimited dry mash might somehow be avoided, and the answer will be, "Oh, but we cannot possibly do without it." The answer reminds me of what Russia must have said just lately about vodka, and France about absinthe, "Can't possibly do without it!" But those great nations have done without it, and what is more their productivity has gone up by leaps and bounds since they took to more sensible forms of nourishment. I wonder how far this popular method of feeding is responsible for the number of poultry farms that are advertised for sale? Apart, however, from the cost, how can the best results be expected from pampered, overfed stock? If only you will get your birds going, teach them to work for their food and make them live creatures, they will not only save your money but start the egg factory working overtime. The hen can do without it, dry mash, very well.

"Oh, but we can keep so many more birds by this method." So you can, but the object of keeping many or few is that the birds shall keep you, not that they shall give you the opportunity of paying a lot of good money to the miller. Why keep a great quantity of stock if less, differently handled, will bring in as much money? You can use land, time and money to better purpose than in keeping unprofitable servants.

Start then to get your birds into condition, not by food, but by exercise and work. Make those gaunt bare yards work for you by turning them over in patches and burying deep any sort of waste grain that will germinate. Keep the birds off the patch for a week, then turn them on to it and get another patch ready. Your yards will surely be exercise yards then. Keep plenty of litter in the scratching shed and see that it never fails to yield something, however little, to the diligent seeker. After a week or two your birds will have quite a different view of life; and if, in these narrow times, you cannot give them the same quality of food as usual, it will not make much difference. The man who is doing hard, regular, healthy work can convert almost any food into the required energy. So can the hen.

Take the case of one of the cheaper foods, rolled barley. I have heard it described as the food you fall back on when business is bad. In good times it seems to be looked on as "no class."

During the past winter I have had some remarkably good egg results from the cheaper foods. Try this, for instance: For the morning meal, rolled barley which has been soaked over night in water containing a small quantity of first-rate fish meal. Dry off with bran one morning, alfalfa molasses (not meal) the next, and feed. At mid-day oat screenings in the litter and all the green food you can give them. At night a small handful of corn per bird. On a diet similar to this a pen of 12 White Rocks laid 217 eggs between November 20 and December 20, last. Not so bad? There was, of course, the patch of possibilities in the yard to give an interest to life and quicken the circulation.

Alfalfa molasses is a great addition to the hen's bill of fare. Good fish meal is, I believe, one of the most valuable foods we have, and if properly used it will not taint the egg at all. The analysis of a first-class brand will be an eye opener for many people and a help to all. It is not only rich in protein, but contains a large amount of bone phosphates and ash, substances that are essential to the raising and maintaining of strong, prolific and profitable stock.

In conclusion, those who have read Pickwick will remember Mr. Weller's warning to his son, "'Ware widders, Sammy, 'ware widders." To poultry folks, I would say, "'Ware dry mash, and more power to your bank account."

NATURAL FEAR

Mother—I am afraid Laura will never become a great pianist.

Father—What makes you so discouraged?

Mother—This morning she seemed beside herself with joy when I told her she must omit her music lesson and go to the dentist.—Judge.

PROVED

Mr. Snapp—Life is full of contradictions. Mrs. Snapp—And I say it isn't.—Boston Transcript.

Woodlake, Tulare County, observed May Day festival.

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Lease Expires Next Spring—Must sell. Have left about 2,000 Eureka lemons, three-quarters inch and up, buds selected from trees producing heavy crops of fancy fruits. 2,500 Valencia Late five-eighths inch up, 2,000 Marsh Seedless grapefruit five-eighths inch up. These are stocky and especially adapted for desert planting. Will sell with loose roots or balled. Prices as follows for loose roots: Eureka lemon, three-quarters up, $16.00 per hundred; Valencia Late, five-eighths up, $15.00 per hundred; Marsh seedless grapefruit, five-eighths up, $12.50 per hundred. All information cheerfully given. E. J. Van der Sluis, Glendora, Cal.

AVOCADO TREES

The Avocado is the most valuable of all fruits and the most important future industry before the people of California today. Vigorous, field-grown, budded trees of standard frost-resistant variety; from four to seven feet high, $2.00 to $3.00, according to size. Write for literature. W. A. Spinks, Duarte, Cal.

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Eureka Lemons, Late Valencias, Washington Navels—⅝ up. Thrifty, clean stock, 20c open root, 25c balled. Quality considered, you can not beat it. Plant now. Call or write Wilbur K. Howard, Loraine avenue and Santa Fe crossing, Glendora, Cal.

For Sale or Exchange—High class citrus trees. Marsh Seedless Grape Fruit, Eureka, Villa Franca and Lisbon Lemon, Navel and Valencias. Low prices. Will consider land, team or runabout automobile. John Shingler, Uplands.

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TREES

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For Sale—Registered Tamworth swine—boars, sows and gilts of this famous bacon hog. This breed commands a premium on the market. Our original sows from the University Farm at Davis. Sweetwater Fruit Company, Bonita, San Diego County, Cal.

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Grape Wild Farm Thoroughbreds—Guernsey Bulls of A. R. Breeding. BERKSHIRE HOGS. Finest herd in the state. All ages for sale. A. B. Humphrey, proprietor. Mayhews, Sacramento Co., California.

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For Sale—Thoroughbred Duroc Jersey Boars and Gilts, strong and vigorous stock. Fred Hart, Exeter, Cal.

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DISPERSION SALE

Sales Manager McAlister is mailing catalog and pedigree book of stock to be offered at the Schumacher sale at Ascot Park, Wednesday, May 12. This will be one of the greatest events in live stock circles on the Pacific Coast and is attracting wide attention. There are 75 registered animals to be sold.

QUESTIONS AND ANSWERS

(Continued from page 535)

bred primarily for mutton, the fleece bringing considerable revenue but not being the main consideration as with the fine wools.

The Southdown is the smallest of the medium wool breeds and is a compactly built, early maturing animal that produces a well covered carcass of high quality. Blood of this breed has been used in the improvement of many other breeds. They are not kept extensively in California or in the United States.

The Shropshire is numerically the strongest of the medium wool breeds and very popular because of its medium size, easy keeping and feeding qualities and the fact that when crossed on the Merino a good mutton lamb is produced.

Hampshires are larger than either Southdowns or Shropshires, are good grazers and produce large lambs. They are hardy and feed well.

Oxfords are the largest of the medium wools and not only a splendid mutton producer as a pure breed but particularly useful in crossing on flocks where an increase in size is desired.

Suffolks are black face sheep somewhat like the Shropshire but are not extensively bred in this country.

Dorsets are horned sheep that will produce lambs twice a year, have a good carcass and the ewes are particularly good milkers. They are much used in the East to produce "milk lambs."

Cheviots are not extensively grown in this country. They are adapted to hilly land and more rigorous conditions than some of the other medium wool breeds and produce a good carcass.

If more was known of the subscriber's problem it would doubtless be possible to give further information that would be of interest and use.—W. S. G.

Sun Dried Apples

Is there a ready market for sun-dried apples?—Subscriber, Kenwood.

Just at present the market on dried fruits is most uncertain. Sun-dried apples must of necessity be of exceptionally fine quality in order to command ready sale. They are staple, however, and presumably fine stock would find sale at a fair price.

Lemons in Santa Maria

We have in this section exceptionally fine climate though rather continuous spring winds from the ocean. Would lemons do well if sheltered from the wind? What variety is best? One in the yard which is sheltered from the wind is doing well.—Subscriber, Santa Maria.

No fruit tree does its best in strong winds direct from the ocean. Would suggest that the trees be protected by windbreaks. However, a trial may show them to be unnecessary. In the Santa Barbara section there are wonderfully fine producing lemon orchards without windbreaks on slopes looking directly down on the ocean.

Late Blooming Pears

Regarding late blooming pears, J. W. Mills gives the following: Doyenne Comice, two days later than Bartlett; Flemish Beauty, six days later than Bartlett; Beurre Hardy, four days later than Bartlett; Sheldon, four days later than Bartlett. These are from two to six days later in blooming than the Bartlett. As to their market value there is some question about planting them in any quantity.

Egg Eating

What is cause and cure of egg eating?—Subscriber, Terra Bella.

Egg eating nearly always begins with a broken egg. The egg may have been dropped from the roost at night; it may have been broken on the nest by two hens crowding on together; or it may have been merely cracked in the nest, and rolling from under the hen, have attracted her attention. Most hens like egg meat, and if they once get a taste will taste again. Sometimes a badly shaped nest is largely to blame. When the nest is flat instead of concave the eggs roll out, and the hen, having nothing better to do, pecks at them. If she finds a crack or the shell is very thin the mischief is done. As in many other things prevention is the best cure. The nests should be as dark as possible so that the hen will not notice the eggs if they should roll from under her. They should also be either just barely large enough for one hen, which is about 14 inches square, or so large that two hens may occupy them without crowding. Some experts have thought the latter size best. Sufficient litter to keep the nest in its proper rounded shape is an absolute necessity if this habit is to be prevented. Once the habit has been formed it may usually be broken by transferring all nests to a room so dark that the hens can barely see to enter the nests. If the guilty fowls are known, and they may often be detected by the egg-yolk on their bills, they may be put by themselves where they must lay in the dark. Some poultrymen recommend the use of a "doped" egg, that is, an egg filled with a mixture of whiting, mustard and pepper, or some other disagreeable substance, the whole being moistened with linseed oil to which a few drops of eucalyptus oil have been added, but the dark-nest method is best.

Breaking Up Turkey Hens

I have lost several hen turkeys just after being broken up from broodiness. They refused to eat and in a few days died. In no case was violence used; they were simply kept from their nests. I would like to know if it is a usual thing that a hen turkey will not survive being "broken up," and if it is the usual practice to let them set the first time they want to?—Subscriber, Arroyo Grande.

I never heard of such a case and I cannot help thinking there was some unsuspected disease which accounted in part at least for the death of these hens. So far from its being customary to set turkeys as soon as they become broody, the custom is exactly the reverse. The eggs of the first and second clutches are usually set under chicken hens, and the turkey hen is not allowed to sit until she has laid her third clutch. I would suggest that next time you have occasion to break up a turkey hen, instead of destroying her nest you confine her, either in a slatted coop, such as is used for chickens, or in a covered pen. See that she is well fed with what she likes best and keep her confined till she begins to lay again or you have other proof that the broody spell has passed. If she begins to droop let her go back to the nest and see what the result is. I do not know why a turkey should grieve because her nest is destroyed more than when she is kept away from it, but the case is very interesting and worthy of investigation. I should also look for lice and for any symptoms of a disturbed liver.—J. A. K.

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RESOURCES

Loans and Discounts	$16,113,613.55
Bonds, Securities, etc	1,486,289.00
U. S. Bonds to Secure Circulation	1,250,000.00
Premium on U. S. Bonds	None
Furniture and Fixtures	175,000.00
Cash and Sight Exchange	6,853,571.10
Total	$25,878,473.65

LIABILITIES

Capital Stock	$ 1,500,000.00
Surplus and Undivided Profits	2,524,342.88
Circulation	1,200,100.00
Reserved for Taxes, etc	46,365.50
Bills Payable	485,000.00
Letters of Credit	29,230.80
Deposits	20,093,434.47
Total	$25,878,473.65

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INTEREST PAID ON TIME DEPOSITS

I, W. T. S. Hammond, Cashier of the above-named bank, do solemnly swear that the above statement is true to the best of my knowledge and belief.

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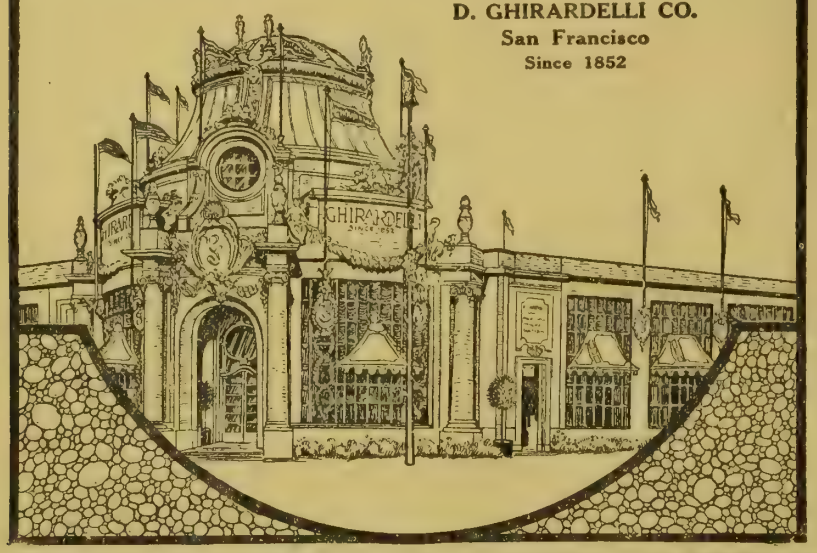

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See Announcement at Head of Editorial Page
Advertisements in California Cultivator are Guaranteed

The Household Department

THE SALUTATION OF THE DAWN

Look to this Day—
For it is Life, the very Life of Life.
In its brief course lie all the
Realities of your Existence:
The Bliss of Growth;
The Glory of Action;

The Splendor of Beauty.
For Yesterday is only a Dream,
And Tomorrow is only a Vision;
But Today, well lived, makes
Every Tomorrow a Vision of Hope.
Look well, therefore, to this Day
—Text from the "Sanskrit."

RAISIN RECIPES
Continued from April 22

Raisin Veal Loaf

One pound can of veal or two pounds of cooked veal; add minced onion, two beaten eggs, cup of dry bread crumbs, three-fourths cup of milk or cream, rounding teaspoon of salt, dash of pepper, and one cup of plump raisins, which adds very much to flavor. Mix thoroughly and press into oblong pan which is well buttered, bake 30 minutes. Serve garnished with parsley.—Miss R. Crawford, Pomona.

Raisin Pudding

Cook together one and one-half cups of raisins (Muscats with seeds in are better for this), two-thirds cup of sugar and two cups of water until the juice is thick and rich. Remove from fire and cool. Into a pan about five inches deep and eight or nine inches across put raisins with juice and sprinkle over them little chunks of butter, about a teaspoon in all. On top of this pour a batter made as follows. Two-thirds cup of sugar, one tablespoon of butter, one cup of sweet milk, one egg, two cups of flour sifted with three teaspoons of baking powder, beat as for cake, but do not use any flavoring as the raisins will flavor it. Bake in moderate oven about 40 minutes. This makes a very large pudding and for a small family may be served as a new dish for several days by changing the sauce served with it: Sweetened milk, whipped cream with chopped raisins, or cooked sauce like the following: One pint boiling water, one tablespoon of butter, one-half cup of sugar and one teaspoon of flour. Cook together two minutes. This will keep moist a week by keeping covered with a fitted lid after removing what you want each time.—Mrs. Reece Lambert, Whittier.

Raisin Whip

Whip one pint of heavy cream to a froth. Add two and a half ounces of powdered sugar. Dissolve three-quarters of an ounce of gelatine in a little warm water and strain it into the cream, beating it rapidly. Next add one cup of well cooked seedless raisins, mixing thoroughly. Place in molds and set in well salted shaved ice until set and partly frozen. Next place prepared raisins on oblong dish covering bottom and the already prepared mousse in center with a lady-finger at each end and decorate with whipped cream and raisins. This raisin whip is calculated to tickle the palate of any one.—Mrs. A. G. Unland, Hemet.

Raisin Whip

To the whites of three eggs beaten very stiff add one cup of seeded raisins chopped fine, fold into the whites carefully. To be served with a boiled custard sauce. Made from yolk of three eggs, one pint of milk, one-half cup of sugar, one level tablespoon cornstarch. When cold flavor with vanilla. To be eaten cold.—Mrs. M. A. Dennis, Lankershim.

Raisin Pudding

Take three cups flour, one pound raisins, two eggs, one and one-half cups of suet, two teaspoons of baking powder, one and one-half cups of sugar and milk enough to make a stiff batter. Tie loosely in cloth and drop in boiling water. Boil from one and one-half to two hours, or spread a cloth on a steamer, and pour the pudding on it. —Mrs. Birdie A. Jordan, Reedley.

Raisin Turnovers

Two cups flour, one cup seeded raisins, two teaspoons baking powder, one teaspoon salt, one tablespoon butter, two tablespoons lard, three-fourths cup milk; one-half cup granulated sugar. Sift flour, salt and baking powder into bowl, add lard and rub in lightly, add milk enough so it can be rolled out one-half inch thick, cut in four-inch squares, brush with melted butter and put two tablespoons raisins in each turnover in a three-cornered shape, brush top with milk and sprinkle with sugar, bake in moderate oven about 30 minutes.—Mrs. D. M. McPherson, Los Angeles.

Raisin Pie

Bake a rich under crust. For the filling, chop two cups raisins and bring to a boil in one cup milk. Thicken with two eggs beaten with two tablespoons sugar. Add one teaspoon vanilla. Fill crust and set in oven a few minutes till firm. When cool, cover with whipped cream.—Mrs. W. Piru.

Raisin Pie

Beat together one cup sugar and the yolks of three eggs until very light and creamy; add one cup sour cream, one cup seeded raisins, one cup chopped walnuts and a little salt; mix well, then fold in the well beaten whites of the three eggs flavored with one-half teaspoon lemon and one-half teaspoon vanilla. Bake with one crust until nicely browned. This will make two pies.—Mrs. H. R. Franck, Clovis.

Raisin Pie

One cup raisins, three-fourths cup sugar. one and one-fourth cup water, juice of one lemon, four crackers rolled fine. Put raisins on to cook in the water and when thoroughly done add other ingredients. Bake between two crusts.—Mrs. Henry C. Simkin. Pasadena.

California Cookies

Clean and wash two pounds seeded

FRUIT CAKE

A Simple Recipe That Is Proving Immensely Popular

One of the most favored desserts in general use is Fruit Cake. Yet very few are able to make as satisfactory fruit cake as they would like. This is probably due in many cases to some fault in the recipe, although a little change in some of the ingredients used often produces surprising results. For instance, most recipes for Fruit Cake call for the use of molasses to a greater or less extent. It has been found, however, that a much better cake can be made by using Karo Syrup instead. The next time you bake try the following recipe for Fruit Cake which has become the favorite with thousands of good cooks:

1 cup brown sugar; 1 cup butter; 1 cup milk; 2 cups Karo Syrup; 1 tablespoon each cinnamon and cloves; grated nutmeg; 4 eggs; 4½ cups flour; ½ cup Kingford's Cornstarch; 3 teaspoons baking powder; 1 cup each raisins and currants well floured.

Beat the butter, sugar and Karo to cream. Add the eggs, well beaten, the milk alternately with the dry ingredients sifted together and the spice. Turn fruit last. Bake in a very moderate oven one hour. The Karo Syrup and Kingford's Cornstarch can be found at all good grocers.

raisins, put through a coarse food chopper and set aside. Make a dough of two cups sugar, two cups lard, one and one-fourth cups water, four cups flour, three heaping teaspoons baking powder (more flour will be required for rolling out, but the dough must not be too soft.) Cut with cookie cutter and fill a baking pan. Cover each evenly with raisins and put on top another cookie. Flavor with lemon. These are well worth the trouble.—Mrs. B.

Cookies with Raisin Filling

Beat to a cream a cup of sugar and one-half cup of shortening. Add one-half cup of sweet milk, one egg and three and one-half cups flour with three teaspoons of baking powder. For filling, mix three-fourths cup of sugar and one tablespoon of flour. Add one cup of boiling water and one cup of chopped raisins, cook till thickened. Roll cookies very thin. Cut out, place in pans, put one heaping teaspoon of filling on each cookie; place another cooky on top and bake.—Mrs. W. H. Proctor, Laton.

Make Your Own Pastry Flour

A Simple Method of Insuring Delicious Pastry

A prime requisite in the preparation of satisfactory pastry is a perfect flour. It is not generally known that the housewife can prepare her own pastry flour by mixing cornstarch with regular bread flour in the proportion of one part of cornstarch to from three to five parts of flour—which can be regulated by the housewife herself according to the amount of gluten in the bread flour she is using. This varies very materially in different parts of the country, according to whether winter or spring wheat flour is used—and even these flours vary.

The addition of the cornstarch to wheat flour reduces the amount of gluten, and makes a soft, fine texture—eliminating the tendency to toughness in cake making, etc., where straight wheat flour is used.

In order to insure the best possible flour, however, it naturally follows that the best cornstarch obtainable should be used. Many thousands of successful cooks in all parts of the country are using Kingsford's Cornstarch in this manner with most satisfactory results.

No one can realize all the possibilities in good cooking without a thorough knowledge of the use of cornstarch. A little booklet on the subject has been gotten up by the manufacturers of Kingsford's Cornstarch. Ask your grocer for one of these books today and try some of its numerous recipes—but be sure it's Kingsford's.

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So efficacious did it prove that it has been put up for general use under the name of Kellogg's Ant Paste, and placed on sale at all good druggists. Failure is impossible with this remedy.

Try a package today and your ant troubles will be a thing of the past; but be sure it's Kellogg's.

Raisins and Prunes

Two heaping cups prunes, one level cup seedless raisins, one-half cup sugar, one slice of lemon. Wash prunes in hot water, put to soak in cold water for several hours or until they begin to swell, add raisins and sugar and lemon and cold water to cover fruit about one inch, stew until raisins are plump and tender. If fireless cooker is used, the prunes need not be soaked. Put all ingredients together, add water to cover fruit about one inch, bring to a good boil, and put in cooker over night. They are then ready for breakfast.—Mrs. J. H. Friend, Ontario.

Our Favorite Raisin Cake

This cake is without milk, butter or eggs. Put one cupful of water in a saucepan, add one cupful of brown sugar, one-third of a cupful of lard, two cupfuls of seeded or seedless raisins, one teaspoonful of powdered cinnamon, one-half teaspoonful of powdered cloves, one-quarter teaspoonful grated nutmeg, boil three minutes. Cool and add a pinch of salt, one teaspoonful of baking soda dissolved in two tablespoonfuls of warm water, two cupfuls of sifted flour and one-half teaspoonful of baking powder. Mix and turn into a buttered and floured cake tin. Bake in a slow oven.—Mrs. J. E. Dietrich, Kingriver.

Economical Raisin Cake

One cup of sugar, one cup of cold water, small half cup of fresh lard, one cup of seedless raisins, one teaspoon each of cinnamon and cloves, one-half teaspoon each of nutmeg and salt; put in a saucepan on stove and boil together four minutes. Then take from stove, set away to cool. When cold add one and three-fourths cups of flour in which has been sifted one level teaspoon baking soda. Mix well and bake in a loaf in a moderate oven. When cold frost with a boiled frosting. —Miss A. Strube, Elk Grove.

Raisin Bread Cake

Two cups of bread sponge, two eggs, two cups of sugar, one cup of melted lard, three cups of raisins, one teaspoon of cloves, one teaspoon of allspice, one teaspoon of soda, flour for a stiff dough. Mix the ingredients with the bread sponge in the order named, adding the soda last after sifting it twice with the flour. Let rise for an hour and bake in a slow oven.

This is delicious and in our estimation it is the equal of fruit cake. When cold, can be frosted with a white boiled icing, which gives it a nice finish.—Uradel A. Bruce, Dehesa.

Raisin Cream Cake

One cup sugar, one-fourth cup butter, two cups flour, two eggs, one-half cup milk, one teaspoon baking powder. Cream butter and sugar; add eggs and beat well. Add milk and then flour into which the baking powder has been sifted. Bake in two or three layers.

Filling

One-half cup thick sour cream, one cup sugar, one cup seeded raisins, chopped, one egg. Flavor with vanilla. Mix sugar and cream, add raisins and yolk of egg, and flavoring. Beat white of egg, add to mixture, and spread between layers. Cover top of cake with any good icing.—Mrs. E. S. Ross, Olive.

Raisin Cake

Three cups of sugar, three-fourths of a pound of butter, one pound of flour, one-fourth pound of citron, two pounds of raisins, two pounds seedless currants, ten eggs, two teaspoons of baking powder, one teaspoon each of mace, allspice, cinnamon and cloves. Beat the butter and sugar to a cream, then add the beaten yolks (whites beaten separately), stir in the flour, baking powder and then add the spices. Have the fruit all cleaned, dried, well mixed and floured, then add to the dough. Bake two hours or until well done. This will keep a year.—A. E. Escondido.

Fruit Cake

One cup of brown sugar, one cup of shortening, one egg, one cup of sour milk (or buttermilk), one cup of seeded raisins, one level teaspoon soda

(Continued on Page 551)

At the Exposition

When you visit the Panama-Pacific Exposition, look for the Exhibit of New Perfection Oil Stoves and Heaters in the Palace of Manufactures. Let the Demonstrator show you how efficient a good oil stove really is.

New Perfection Oil Cook-Stove

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It has abundant heat—always ready—like gas. It bakes, broils, roasts and toasts like a regular wood or coal range—but without dirt or ashes. No odor. Does not taint the food. Does not overheat the kitchen. Especially good for hot summer cooking. Made in several styles and sizes. Ask your dealer.

STANDARD OIL COMPANY
(California)
Los Angeles

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Write for Bulletin 24.

KELLOGG SWITCHBOARD & SUPPLY CO.
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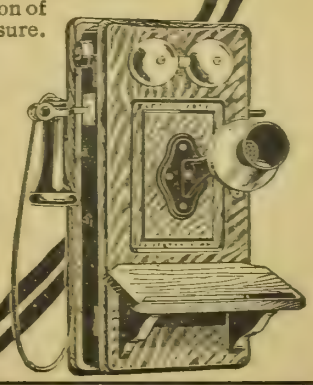

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Corrugated, V-Crimped, Standing Seam, and all standard patterns of Formed Roofing and Siding Products—specially adapted to all classes of farm buildings. Made from the well known APOLLO Best Bloom Galvanized Sheets. Sold by weight by leading dealers. APOLLO Best Bloom Galvanized Sheets are also unexcelled for Culverts, Silos, Tanks, Cisterns, etc. Our booket "Better Buildings" sent free.

AMERICAN SHEET AND TIN PLATE COMPANY, General Offices: Frick Building, Pittsburgh, Pa.

FRUIT GROWERS HEADQUARTERS

When in Los Angeles, stay at Hotel Clark. Ideal location. One-half block from Central Park. Close to all stores. Extremely reasonable rates. 555 rooms with bath. Excellent grill service—popular prices.

Hill Street Between 4th and 5th.

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, May 5, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade 3 to 4 cents above following quotations:

Creamery Extras 22
Firsts 20
Country 19
Ladle 18

CHEESE

Prices to trade, 1 and 2 cents higher:

California Fresh ....13½@14
Cheddar ....19@20
Domestic Swiss ....20@21
Eastern Daisy ....18½@19
Oregon Triplets ....17@17½
Longhorn ....19@19½
Imported Swiss ....30@32

EGGS AND POULTRY

Prices to trade, 3 cents higher than following quotations:

Fresh Ranch, case counts....................22
Candled ....24@26
Petaluma—Santa Rosa 23½
Northern Case Counts....................22½
Other Outside Stock....................20

Prices to producers:

Hens, lb. ....15@18
Roosters, old ....6@8
Broilers, lb. ....20@23
Fryers ....24@25
Roasters, lb. ....20@24
Turkeys ....16@20
Ducks ....15@18
Geese 16
Squabs, doz. 2.00

LIVE STOCK

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs., per cwt....................8.35
Prime Steers ....7¼@7½
Heifers ....6¼@6½
Calves, lb. ....8½@9
Sheep—
Ewes, head 4.50
Wethers 5.00
Lambs, head ....4.50@4.75

POTATOES

Wholesale selling prices:

Idaho Russet 2.40
Idaho Rurals ....1.90@1.95
Highland Burbanks 1.90
Sweets, lug ....85@95
New Early Rose, lug....................90@1.05
Northern Burbanks, cwt....................2.00@2.25
Salinas 2.25
Wisconsin Burbanks 2.00
Lompocs ....2.60@2.75

ONIONS

Wholesale selling price:

Australian Brown, cwt....................1.00@1.25
Bermudas—
Imperial Valley, crate....................1.35@1.40
Crystal White, crate ....1.45@1.50
Oregon Globes ....1.35@1.50
Yellow Danvers ....1.25@1.50
Sets—
Yellow 10
White 12
Garlic ....22@25

VEGETABLES

Wholesale selling price:

Asparagus ....7@12
Artichokes, Northern, doz....................15@50
Brussels Sprouts, lb....................15@20
Beets, doz. ....30@35
Beans—
String 6
Green ....4@5
Wax ....4@5
Kentucky Wonders 10
Cabbage, sack ....90@1.00
Carrots, doz. ....30@35
Cauliflower, doz. ....1.10@1.25
Celery, crate ....5.50@6.00
Chicory ....35@40
Cucumbers, box ....90@1.00
Egg Plant, lb....................18@20
Escarole, doz. ....35@40
Horseradish, lb. ....10@12
Leeks, doz. ....35@40
Lettuce, crate ....75@85
Mint, doz. ....35@40
Mushrooms ....35@40
Onions, Green, bunch....................15@20
Oyster Plant, doz. ....35@40
Telephone ....6@6½
Parsnips, doz. ....35@40
Parsley, doz. 15
Peas—
Small ....4@5
Peppers—
Bell, lb. ....35@40
Chili, lb. 30
Pumpkins, lb. ....1¼@1½
Radishes, doz. 15
Rhubarb—
Crimson Winter, box ....65@75
Strawberry ....1.10@1.25
Giant ....70@75
Spinach, doz. ....15@18
Squash—
Cream, lug 60
Summer, crate ....60@65
Tomatoes, Mex., crate ....2.75@3.00
Turnips ....30@35

FRESH FRUIT

Wholesale selling price:

Apples—
Rome Beauties 2.00
Pearmains 2.00
Avocados, doz. ....8.00@12.00
Bananas ....4@4½
Berries—
Strawberries, basket ....3@7
Blackberries ....8@10
Raspberries ....12@14
Loganberries, box ....12@14
Cherries, lb. ....12@15
Cherimoyas, lb. ....20@25
Loquats, lb. ....9@10
Gooseberries, lb. 12½
Pears, Winter Nelis, lug....................1.25@1.35
Pineapples, lb. ....8@9

CITRUS FRUIT

Wholesale selling price:

Lemons ....1.00@2.00
Grapefruit, Seedless ....1.50@2.75
Navels ....1.50@2.25
Tangerines, half box ....1.25@1.50
Limes, basket 1.00

DRIED FRUITS

Wholesale prices to retailers are:

Evaporated Apples, Fancy, lb.
Boxes ....7¾@11½
Apricots ....9½@11
Nectarines 12½
Peaches ....6¾@7¾
Pears ....10@11
Prunes ....6½@12¼
Plums 10

HONEY

Wholesale selling price:

Comb, Fancy, Water White....................14
White 12
Light Amber 12½
Extr. Water White 7
White 6½
Light Amber 5½
Beeswax 32

NUTS

Prices named by California Walnut Growers' Association are:

No. 1 ....16½
Budded Walnuts 20
Jumbos 19
No. 2 12
Culls 9

Prices fixed by California Almond Growers' Exchange, f. o. b. California.

Almonds—
Nonpareil ....21@22
I X L ....19@19½
N P U....................17½@18½
Drake's Thinshell ....18@18½
Pecans 17
Peanuts—
California, Raw 6
Japan 7½
Eastern 7½
Rice Corn ....5.00@5.25

RICE

Wholesale selling price:

California ....4.75@5.00
Broken ....3.75@4.00

BEANS

Wholesale selling price:

Producer's price not far from one dollar under these quotations:

Limas 6.00
Bayous ....6.00@7.00
Lady Washington ....5.90@6.00
Pinks ....4.90@5.00
Black Eyes ....6.75@7.00
Lentils ....13.00@14.00
Small White ....5.90@6.00
Garbanzos ....9.00@10.00

HAY

Prices to producer f. o. b. Los Angeles:

Barley Hay ....9.00@13.00
Wheat Hay ....8.00@11.00
Tame Oat ....9.00@14.00
Alfalfa ....8.00@11.00
Volunteer ....5.00@7.00
Straw ....5.00@6.00

GRAIN

Wholesale selling prices f. o. b. Los Angeles:

Corn, Yellow 2.20
Corn, White 2.30
Wheat ....2.50@2.55
California Red Oats....................1.85
Oats, White 2.15
Oats, Hulled 2.55
Egyptian Corn 2.20
Barley Seed 1.60
Barley Hulled 1.95
Milo 1.90
Rye 2.30
Sunflower Seed 7.50

FEED STUFF

Wholesale selling prices f. o. b. Los Angeles:

Bran, Heavy 1.80
Alfalfa Meal 1.15
Alfalfa Molasses. per cwt.................... 1.20
Beef Scraps 3.00
Beet Pulp 1.25
Cracked Corn, cwt. 2.25
Cracked Wheat. cwt.................... 2.65
Cotton Seed Meal 1.90
Bone Meal 1.95
Meat Meal 3.00
Bone, Green 1.65
Charcoal 2.00
Oil Cake Meal 2.50
Fish Meal ....3.15@3.25
Rolled Oats 2.20
Middlings 2.10
Rolled Barley 1.55
Feed Meal 2.30
Scratch Feed ....2.20@2.40

San Francisco Market

SAN FRANCISCO, May 4, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

The tide has been turned and now California is shipping butter to Australia. Contracts are also made for liberal shipments in the future.

Prices to trade, 4 cents above following quotations:

Extras ....23@23½
Prime Firsts 22½
Firsts 22

CHEESE

Wholesaler to retailer.

Oregon Y. Am....................14
Young America 12½
Californai Flats ....8@11½
Cheddar 20
Oregon Twins 14½

EGGS AND POULTRY

The call for eggs is somewhat slower, but the demand for export to Australia is keeping down stocks.

Prices to trade 3 cents higher than following quotations:

Extras 22
Firsts 20
Select Pullets 18½
Seconds 18

Price to producer:

Hens, lb. ....16@18
Fryers ....28@30
Broilers ....30@32
Roosters, Young ....22@26
Old ....10@12½
Broilers ....32@36
Squabs ....2.00@3.00
Ducks ....15@17
Geese ....2.50@3.00
Belgian Hares, lb....................7@8
Dressed ....10@12½
Turkeys, live ....16@18

LIVE STOCK

San Francisco prices. gross weight:

Steers ....6¼@6¾
Cows and Heifers....................4¾@6
Calves, lb., live weight....................6@9¼
Hogs ....5@8
Wethers ....6½@7
Ewes ....6@6½
Milk Lambs, lb....................8@8¼
Shorn stock ¾@1c less

POTATOES

Wholesale selling price:

Idaho ....1.40@1.60
Idaho Russet ....1.60@1.90
Delta Burbanks ....1.40@1.70
Salinas Burbanks ....1.50@1.75
Oregons ....1.50@2.00
Shimas ....1.00@1.40
New Potatoes, lb. ....2@3
New Garnets ....3@4
Sweets, cwt. ....1.75@1.90

ONIONS

Wholesale selling price:

Onions, cwt. ....75@1.00
Australian ....3.75@4.00
Oregon ....90@1.00
Garlic, new ....20@25

VEGETABLES

Wholesale selling price:

Asparagus, box ....1.25@2.50
Beans—
String ....5@7
Wax ....5@7
Brussels Sprouts, lb. ....3@5
Celery, crate ....1.50@1.75
Cucumbers, Hothouse, box....................75
Lettuce—
Southern, crate ....75@1.25
Local, doz. ....10@15
Egg Plant, lb. ....10@15
Florida ....15@20
Peas—
Small ....2@3
Large ....3@5
Peppers—
Bell, lb. ....10@25
Chili, Mexican ....12½@17½
Rhubarb—
San Jose 75
Alameda ....40@60
Squash, Summer, crate....................65@75
Tomatoes, Mexican, lug....................2.50@3.00

FRESH FRUIT

Wholesale selling price:

Apples—
Newton Pippins ....1.00@1.25
Bellflowers ....25@50
Berries—
Strawberries—
Southern, crate ....75@1.25
Fresno, crate ....1.00@1.25
Watsonville, chest ....4.00@6.50
Banner, chest ....5.00@7.00
Longworths, chest ....6.50@8.00
Other varieties, chest ....3.50@6.00
Raspberries ....15@20
Blackberries, baskets 15
Bananas, Hawaiian, bunch....................1.50@2.25
Cherries, box ....1.00@1.25
Pineapple. doz. ....2.00@3.50

CITRUS FRUIT

Wholesale selling price:

Grapefruit, Seedless, new crop.1.25@3.00
Lemons ....1.50@3.25
Lemonettes ....1.00@1.75
Navels ....1.65@2.50
Limes, case ....4.00@5.00
Tangerines, halves ....75@1.75

DRIED FRUITS

Wholesale prices are:

PRUNES—1914 crop, bulk basis: 30-40s, 5¾c; 40-90s, 5½c. The above are for both Santa Clara prunes and the stock from outside sections.

Other Fruits, 50-lb. boxes—	Standard	Choice	Extra Choice	Fancy
Evap'r'd apples ...		6¾c	7¼c	7¾c
Apricots	7 c	7¾c	8¼c	9¼c
Peaches	3¾c	4 c	4¼c	5 c
Pears	7 c	8 c	9 c	10 c

RAISINS

The following prices are f. o. b. Fresno, as given out by the Associated Raisin Company, for immediate shipment, and are guaranteed against a decline till June 1st:

Fancy seeded, 16-oz., 7½c; 12-oz., 5⅞c; bulk, 6c; choice seeded, 16-oz., 6⅞c; 12-oz., 5⅝c; bulk, 5½c; Thompson seedless, No. 1, 16-oz. pkgs. 7c; 12-oz., 6¼c; 50-lb. cs., 6½c; loose, Muscatels, 1-crown, 5½c; 2-crown, 5½c; 3-crown, 5⅞c; 4-crown, 6c; Sultanas, 50-lb. cs., 5¾c; bulk, layers, 50-lb. bxs., $2.75; in 20-lb. boxes, 6-crown, $2.75; 5-crown, $2.25; 4-crown, $1.60; 3-crown, 5-lb. bxs., $1.50; on all bulk stock, 50c additional. Cartons—Clusters, 20 to cs., No. 1, $1.70; No. 2, $2.10; No. 5, 4 to cs., $2.25. Local representatives of the Associated are asking about ¼c higher, while several of the largest independent packers are quoting ½c under these figures.

NUTS

Local stocks of all nuts practically cleaned up.

ALMONDS—Prices fixed by Almond Growers' Exchange to the trade, f. o. b. California:

Nonpareil ....11@13
I X L....................11@13
Ne Plus Ultra....................11@13
Drakes 10

Wholesale selling price:

Peanuts—
Unpolished ....5@8
Polished ....6@6½
Shelled, Jap ....6¼@6¾
Italian Chestnuts ....6½@7

BEANS

Wholesale selling price:

Limas ....5.15@5.25
Pink ....3.90@4.10
Black Eyes ....6.00@6.25
Cranberry ....5.00@5.25
Small White ....5.25@5.30
Garbanzos ....6.25@6.75
Large White ....4.90@5.00
Bayou ....5.30@5.40
Manchurian Speckled Bayous....3.75@4.00
Manchurian Butters ....4.50@4.75
Red Mexican ....3.90@4.50
Red Kidney ....5.90@6.00
Horse Beans ....3.50@4.00

HONEY

Wholesale selling price:

Comb, Water White....................15
Light Amber ....10@12
Amber ....7@10
Extracted White ....6@7
Light Amber ....3½@4½
Dark Amber 2
Beeswax ....27@32

HOPS

1914

Wholesale selling price:

Sacramento Valley ....12½@14
Sonoma-Mendocino ....12½@15
Oregon Clusters ....12½@15

HAY

Under date of May 1, Scott, Magner & Miller say:

Arrivals of hay for the week just past have totalled 4585 tons

There is inquiry for fancy lots of hay and same can be readily sold at top quotations, or for an exceptionally fancy car, a little above top quotations. Some hay has changed hands in the country districts. Some is also being shipped for export account, which tends to relieve the situation when we have an overstock on hand.

Favorable rains recently have benefited the crops in certain localities; at the same

WEATHER CONDITIONS

May 1, 1915.

Report from the various stations of the United States Weather Bureau by George H. Wilson, director, San Francisco.

	Rainfall Data			Temperature Data —Past Week—	
	Past Week	Seasonal to Date	Normal to Date	Maximum	Minimum
Eureka	.76	40.79	42.55	58	44
Red Bluff	.98	32.86	23.31	84	40
Sacramento	.34	14.41	19.01	72	46
San Francisco	.31	24.24	21.33	64	48
San Jose	.26	20.06	16.06	68	44
Fresno	.51	9.98	8.98	72	40
Independence	.50	3.43	8.82	64	....
San Luis Obispo	1.53	26.26	19.60	68	36
Los Angeles	.46	16.07	15.12	70	42
San Diego	.53	14.08	9.60	68	48

Grape-Fruit LAND $45.63 PER ACRE

CALIPATRIA FARMS
IMPERIAL VALLEY

Many old citrus men buying and planting grapefruit here after thoroughly investigating.
Nowhere else such fine long growing climate.
Cheap water, only 50c acre foot.
The soil you know is the best on earth.
Reserve opinion until you have personally investigated. Come to Calipatria and see for yourself—Seeing is believing.
You'll see as fine a grapefruit orchard as lies outdoors.
This is our regular $65 land which our special bonus offer brings down to above price for short time only.
Write for particulars today, and come when you can.

T. A. JOHNSON, Sales Manager

Imperial Valley Farm Lands Association
Calipatria, Cal.

OSBORNE MOWERS AND RAKES

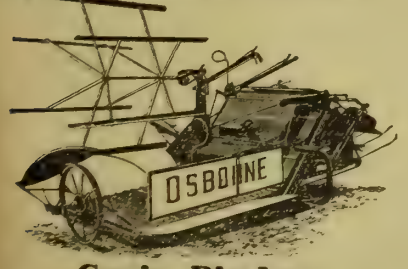
Rakes with roller bearings and specially heavy wheels and teeth for western conditions. Why buy a light rake made for eastern trade when you can get the Osborne Heavy Alfalfa Rake at the same cost. Osborne Mowers, 1914 pattern. The only mower that you can re-align the cutter bar on. Send for catalogue before buying.

ARNOTT & CO., INC.
112 S. Los Angeles St., Los Angeles, Cal.
Osborne Agents for 18 years in Los Angeles

"The Farmer's Friend"

In Handy Buckets — Also Small Cans

Ask your Dealer



Grain Binders

We have 6, 7 and 8-foot sizes, ready for immediate shipment. Write for terms.

Arnott & Co., Inc. 112-8 S Los Angeles St. Los Angeles

LUITWIELER PUMPS

Absolutely non-pulsating. Minimum power required. Write for our free pump booklets.

LUITWIELER PUMPING ENGINE CO.
707-709 N. Main St. Los Angeles
San Francisco Agents
Simmonds Mach. Co. 117 New Montgomery

8 HORSE TRACTOR $675.00 FOR CHICAGO

Made by International Harvester Co
16 Horse Power will run Hay Press - Thresher - Pump - Etc
8 Horse Tractor to Plow - Harrow - Cultivate - Etc.
NOTE TODAY FOR FULL INFORMATION

ARNOTT & CO. 112 So. Los Angeles St. Los Angeles

time we have had rain in sections where volunteer hay had already been cut, and it will no doubt be a slight injury to such lots.

The demand for alfalfa hay has been just about equal to the supply that has been coming in. There are no changes to note in this commodity.

Fancy Wheat Hay (lt. bales)	11.50@12.50
No. 1 Wheat or Wheat and Oat	9.50@11.00
No. 2 Wheat or Wheat and Oat	7.00@9.00
Choice Tame Oat	11.00@12.00
Other Tame Oat	6.00@9.00
Barley	5.00@8.00
Wild Oat	6.00@8.00
Alfalfa	6.00@9.00
Stock Hay	4.50@5.00
Straw, per bale	.30@45

GRAIN

Alfalfa Seed	16½
Wheat, Cal. Club	2.30@2.32½
Corn, Egyptian White	1.75@1.80
Corn, Eastern Yellow	1.74@1.75
Barley, Feed	1.30@1.35
Oats, Red, Feed	1.52½@1.60
Oats, White Feed	1.80@1.85
Millet	2½@3¼
Flaxseed	5@5¼
Rye	2.00@2.25
Sunflower	5@5½

FEED STUFF

Wholesale prices.

Alfalfa Meal, car lots	14.50@15.50
Bran, ton	27.50@28.50
Feed Cornmeal	39.50@40.00
Cracked Corn	39.50@40.00
Rolled Barley, ton	27.50@28.50
Rolled Oats, ton	37.00@37.50
Middlings	32.00@34.00
Shorts	29.00@30.00
Oilcake Meal	38.00@39.50
Cocoanut Oilcake Meal	24.00@25.00

Citrus Fruit Market

LOS ANGELES, May 5, 1915.

The freak rain is playing havoc with orange picking. There are two counts against it: first, when picking is begun it is very probable there will be serious trouble with decay and extreme care will be necessary in handling the fruit. Still worse, people in the East are being deprived of fruit just when the growers wish to pick it, for they are concerned as to its keeping. Several hundred cars which are now in the market or on the way are offered a good opening because of this holding back of fruit making a comparatively bare market. The good prices now being offered is causing an itching on the part of the Valencia growers, and presumably they will soon begin shipping. If they add too great a quantity to the Navels yet to go it is possible low prices may obtain for a few days. There are something over 2000 cars of Navels yet to go. Two weeks of good weather will easily clean these up, then Valencias will have the principal call in the market. There are perhaps 10,000 cars of Valencias to be marketed before November 1st.

At the present time there is an immense quantity of lemons in the store houses and packing houses of California. There are at least 3000 carloads. The warm weather of the East aided in cleaning up everything at the Eastern end, and these 3000 carloads will be shipped, weather permitting, very rapidly from now on. In addition, there will be fairly heavy spring cutting.

Shipments

Shipments of oranges from Southern California since November 1, 1914, 20,659, lemons 2,856, total 23,515; to same date last season, oranges 21,868, lemons 1,219, total 23,087. Total shipments from Tulare County, oranges 5,232, lemons 192, total 5,424; last year same date, oranges 4,679, lemons 30, total 4709. This year's shipments from Butte and other Northern California points, oranges 628, lemons 1, total 629; last year same date, oranges 398, lemons 5, total 403.

NEW YORK, May 3.—Thirty-nine cars navels, ten mixed, and two cars lemons sold. Navels and lemons higher.

NAVELS—	Avge.
Pinnacle, O. K. Ex	$3.05
Parrot, S. A. Ex	2.60
Golden Cross, O. K. Ex	3.25
Uncle Sam, Riv. Ex	2.85
Billiken, Riv. Ex	2.35
Pond Lily, Riv. Ex	1.85
Paul Neyron, S. A. Ex	2.85
Lotus, O. K. Ex	2.25
Monogram, O. K. Ex	3.00
Pet, imp., S. D. Ex	2.45
Pet, S. D. Ex	2.50
Jameson, Q. C. Ex	2.95
Justrite, Q. C. Ex	2.65
Tiger, S. B. Ex	2.55
Floral, S. B. Ex	2.40
Carmencita, S. T. Ex	2.15
Parrot, S. A. Ex	2.65
SWEETS—	
Parrot	$2.65
Carmencita	2.75
Colombo	2.50
Tiger	2.10
Floral	1.80
NAVELS—HALVES—	
Perfection	$1.25
Perfection	1.00
Perfection	1.05
TANGERINES—	
Geyser	$1.30
Palm Tree	1.30
Squirrel	1.50
LEMONS—	
Silver Lemon, ventilated	$3.00
Prairie Chicken, ventilated	2.40
Quaker Girl, ventilated	3.30
Greenleaf, ventilated	2.85

CLEVELAND, May 3.—Thirteen cars sold. Market steady on oranges; weaker on lemons.

NAVELS—	Avge.
A One, Amer. Ft. Dis	$2.50
Upland Queen, Upland M. O. A	1.85
Plain Ends	1.50
Florencia, Covina Ex	2.45
Venecia, Covina Ex	2.40
Parrot, S. A. Ex	2.65
Athlete, S. A. Ex	2.90
Green and Gold, S. A. Ex	2.00
Pine Cone, R. H. Ex	2.90
LEMONS—	
Pup, S. D. Ex	$2.05
Las Fuentes, C. S	1.75
Montecito	1.30
Setter, A. H. Ex	3.05
Prairie Chicken, A. H. Ex	2.40

CINCINNATI, May 3.—Seven cars sold. Market is steady on oranges, active on lemons.

NAVELS—	Avge.
Orangedale Red, Redlands O. D. G	$2.50
Orangedale Green, Ded. O. D. G	2.45
Monopole, A. C. G. Ex	2.30
Hawk, S. A. Ex	2.45
Orchard Run, S. T. Ex	2.10
LEMONS—	
Greyhound, S. L. Ex	$2.90
Copa de Ora, Or. Ex	2.80
El Modena	2.70
Pup, S. L. Ex	2.80
Duck	2.70

ST. LOUIS, May 3.—Fifteen cars sold. Market is steady.

NAVELS—	Avge.
Florencia, Covina Ex	$2.80
Venecia, Covina Ex	2.65
Freedom	2.50
Conqueror	2.45
Fairy, Fuller Company	2.45
Fuller's Fancy	2.35
Camellia, Ded. M. O. Co	2.30
Mutual, Red. M. O. Co	2.05
Corona Queen, Q. C. Ex	2.55
Old Mill, A. C. G. Ex	2.30
Scenic, Or. Ex	2.40
LEMONS—	
Questa, Q. C. Ex	$2.75
Family, Q. C. Ex	2.25
Val Verde, S. B. Ex	2.45
Val Vista, S. B. Ex	2.10
SWEETS—	
Rooster	$2.80
Searchlight	2.60

BOSTON, May 3.—Twenty-six cars sold. Market strong on oranges, unchanged on lemons.

NAVELS—	Avge.
Orchard, National O. Co	$3.05
Gold Medal, G. O. Groves	2.55
Standard, National O. Co	2.45
Silver Medal, G. O. Groves	2.45
Golden Rod, Highgrove O. G. A	2.45
Chief, Red Hgts. Orchards	2.40
Mercury, Bryn Mawr O. G. A	2.30
Cal. Maid	2.25
Request	2.20
Poppy Red, Red Rgts. Orchards	2.05
Industry, Sugarloaf O. G. A	2.05
LEMONS—	
Tunnel, S. T. Ex	$1.50
Rossmoyne, S. T. Ex	1.60
Girl	1.20

KANSAS CITY, May 3.—Clear and warm. Attendance good. One car sold by Kansas City Fruit Auction Company.

NAVEUS—	Avge.
Metropolis, Amer. Ft. Dis	$2.32
Defender, Dalrymple Ft. Co	2.46

PITTSBURGH, May 3.—Sixteen cars sold. Market is steady.

NAVELS—	Avge.
Gavilan, Div. Ex	$2.45
Alhambra, S. T. Ex	2.80
Don Quixote, S. T. Ex	2.65
Standards, S. T. Ex	2.00
Gladiola, Covina Ex	2.50
Florencia, Covina Ex	1.90
Laurette, Covina Ex	2.25
Iris, D. M. Ex	2.85
Violet, D. M. Ex	2.85
Braeside, Riv. Ex	2.25
SWEETS—	
Violet	$2.85
Jasmine	2.70
LEMONS	
On Honor, L. G	$2.70
As-you-like-it	2.30
SEEDLINGS—	
Violet	$2.65
Jasmine	2.60

PHILADELPHIA, May 3.—Sixteen cars sold. Market is a little higher.

NAVELS—	Avge.
Braeside, Div. Ex	$2.30
Tallyho, S. B. Ex	2.15
Parrot, S. A. Ex	2.30
Parrot, S. A. Ex	2.15
Hawk, S. A. Ex	2.25
Pepperleaf, Riv. Ex	2.40
Kenilworth, A. H. Ex	3.00
Peasant, A. H. Ex	2.75
Dandy, A. H. Ex	1.95
Parrot, S. A. Ex	2.70
Moose, O. K. Ex	3.00
LEMONS—	
Arab, S. D. Ex	$3.30
Pup	2.90
Duck	2.20

RAISIN RECIPES

(Continued from page 549)

in milk, three cups flour, one heaping teaspoon baking powder, one-half teaspoon each of salt, nutmeg, cinnamon and a pinch of cloves sifted in the flour. Mix in the usual way. Bake in a loaf. I find this very good and it is easy to make—P. M. H.

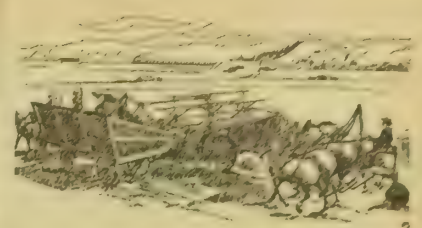
WENT TOO FAR

Miss Ritta—"Aren't you fond of dialect poetry, Mr. Drestbeeph?" Mr. Drestbeeph (of the Chicago Browning society)—"Well, James Whitcomb Riley and Eugene Field do very well; but I came across some poems by a fellow named Chaucer the other day, and he carried it too far."—Life.

AN IRRITATING SIGHT

Harold—"What are you picking on me for? I didn't do anything!"

Mickey—"Ye don't have t' do nuthin'. It's yer looks that gits me goat."—Judge.



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CANTERBURY BELLS—35c doz., $2.00 per 100.
DELPHINIUM BELLADONNA—$1.00 doz., $5.00 per 100.
SWEET POTATOES—Yellow, 50c per 100, $3.00 per 1000.

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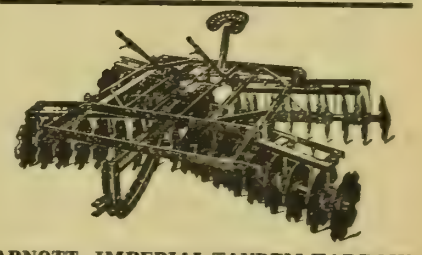

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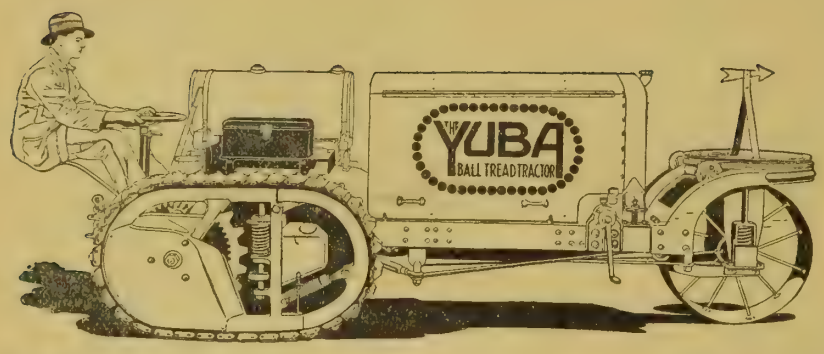

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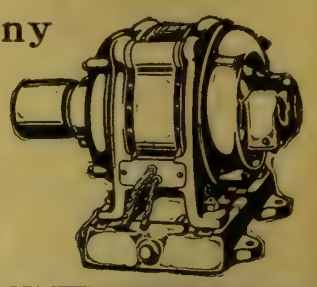
Rialto Building



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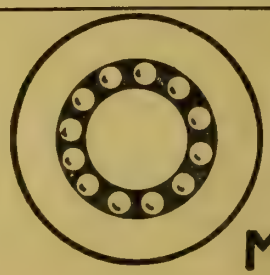

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CALIFORNIA CULTIVATOR

Rural Californian combined with California Cultivator

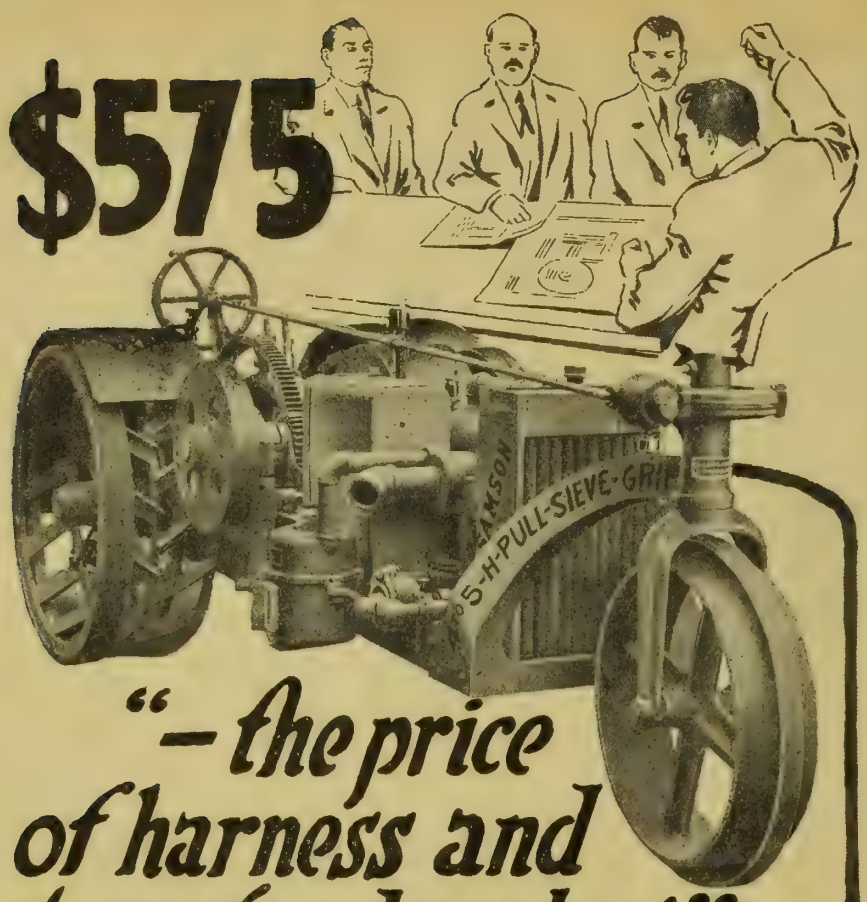
An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES May 13, 1915 SAN FRANCISCO

The World's Greatest Poultry Center

California has many large poultry ranches, the greatest being north of San Francisco Bay, especially in the vicinity of Petaluma. The larger ranches here average around 7000 birds. The one shown in the engraving is a $60,000 plant and is considered even in that great poultry center a model and remarkably fine plant. As a rule the poultry ranches in this section run about 400 birds per acre, and business principles are applied to the industry here as in no other section of the world.

$575



"—the price of harness and two good mules!"

"It can't be done," declared the chief engineer. "You asked me to design a four to five horse-pull tractor which would contain the best material, with an ample margin of safety in all its parts and a strong basic design. You said nothing about price. I followed your instructions. There are the plans and it can't be profitably sold for less than seven hundred and fifty dollars. To sell it for six hundred or less is out of the question."

He was one of a group surrounding a table covered with blue-prints and scratch-pads.

"In that case," said the president firmly, "we will not build a small tractor. A great field exists for it, true enough. The smaller acreages, twenty to one hundred acres, abound everywhere. They yield a revenue necessarily small, making close attention to economy of operation very necessary. The owner who would preserve his peace of mind must watch the leaks and do nearly all of his own work. Hired labor eats big holes in profits.

"But to be really 'successful' the machine must represent greater things than a mere saving in operating costs. The price must be low. Above all else, it must be dependable in construction, which my specifications insure. I realize that the two are difficult to combine, but more than once in our sixteen years experience in manufacturing and twelve in building tractors our reputation for building dependable products has been the very life of the institution. In times of stress we have leaned upon it as our greatest asset, while others, less fortunate, struggled against overwhelming odds. Unless the machine can be built as I have specified for six hundred dollars or less we shall not build a small tractor. We cannot and will not endanger our reputation and the confidence of the public by putting out an inferior machine."

The keenest disappointment showed in every face as the president paused. The joy of creation which these trained men had known so well for the past few weeks had been taken away.

The chief engineer broke the silence and repeated. "The designs cannot be cheapened without sacrificing strength. Unless," and his face brightened instantly——

He had struck the solution. We built the machine without a change. The price is five hundred and seventy-five dollars. The remainder of the conversation, one that actually occurred in our office, will be found in our new book, "The Price of Harness and Two Good Mules." Use the coupon to secure it free.

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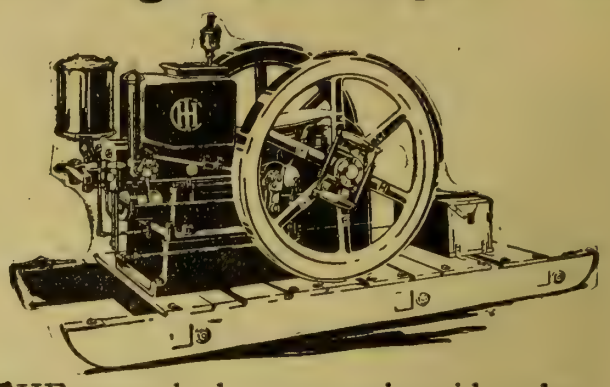
International Harvester Oil Engines—Mogul—Titan



THE man who buys an engine without knowing engines, takes a chance. He cannot know whether he has the best engine for his work or not, unless he knows engines and can make comparisons.

Our suggestion would be to take the I H C oil engine—recognized as standard in its construction; study its every feature closely, and use it as a basis of comparison when looking at other engines. That is the only way to choose correctly the best engine for the particular work you want your engine to do.

I H C oil engines—Mogul and Titan—are made in all sizes from 1 to 50-horse power and in every approved style—stationary, skidded, portable, tank and hopper-cooled, vertical and horizontal. They operate on gasoline, kerosene and even lower grade oils, and on gas or alcohol.

When you buy an I H C engine, the engine is not all you get for your money. Our service is worth knowing about. Get acquainted with an I H C engine at the place of business of the nearest dealer where they are sold. Ask him for one of our interesting catalogues or write to us for one.

International Harvester Company of America
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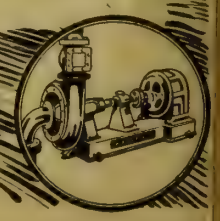

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Vol. XLIV No. 19 LOS ANGELES: THURSDAY, MAY 13, 1915 One Dollar Yearly

Bean Culture in California

Written for California Cultivator by George W. Hendry. Bean Varieties Adapted to Different Sections and Cultural Methods Given

THE production of dry edible beans in California has increased so rapidly within recent years that it now ranks as one of the leading agricultural industries of the state. The production of this crop is not localized but has spread to the various sections where favorable soil and climatic conditions obtain. Beans have been found to be a profitable crop in localities where they have not been grown before and where bean experience is lacking, consequently many eager inquiries are to be heard from various parts of the state regarding the methods of culture which should be employed in the production of this crop.

The Bean Sections of California

There is no scarcity of land in California suitable for the production of beans, in fact the state possesses almost unlimited capacity for the production of this crop. For its best development the bean requires a somewhat humid atmosphere or one which at least is modified by ocean fogs or mists from the rivers. Consequently the bean producing areas of California are to be found on the coastal plain, in the coastal valleys, or on the bottom lands of the interior rivers. As an example of the variation in relative humidity in the different sections, an average relative humidity for the vicinity of Fresno for the month of June taken during the afternoon would be about 13, while for the coastal plain of Ventura County the corresponding humidity would be about 63, or about five times greater than at Fresno. In the vicinity of Fresno because of the low humidity the production of beans is not profitable, while in Ventura County is to be found the center of the greatest bean producing section of the state, and one which is known the world over for the production of lima beans.

The second largest bean section of California centers about the delta region at the confluence of the Sacramento and San Joaquin rivers. Adjacent to the lower reaches of these two rivers is some 20,000 acres of overflow land devoted to the production of various kinds of dry beans. The land tributary to Ryde, Rio Vista, Courtland and Walnut Grove is included within this section.

Practically all of the Sacramento Valley bean land is to be found bordering the river. Back from the river even a short distance beans do not thrive well. The University farm located at Davis, Yolo County, is only about ten miles distant from the Sacramento River, yet the ordinary varieties of commercial beans do not yield satisfactorily at that place even on the best soil and under the most careful management.

Bean Varieties

The principal commercial varieties of beans grown in California are the Lima, Pink, Large White, Blackeye, Bayo and Small White. These varieties do not succeed equally well in all localities and the choice of a variety depends largely upon the local conditions.

Lima

The Lima is one of the most exacting beans and is not grown to perfection outside of a comparatively limited area skirting the coast of Southern California. It is more sensitive to frost than the common bean and requires a longer growing season. A hot dry wind at blossoming time is fatal to the Lima, and it will fail to set pods where the relative humidity is low.

Pink

This is grown quite generally in all of the bean sections of California. It is a hardy bean and is capable of withstanding a moderate amount of drouth and hot weather and will produce fair crops in situations too trying for most of the other varieties.

Large White or Lady Washington

The most popular bean in the Sacramento and San Joaquin River Valley section. It normally produces large leafy vines of semi-trailing habit of growth and requires a rich soil well supplied with moisture for its best development. It is non-productive under conditions of heat and drouth.

Blackeye

The so-called blackeye bean is in reality a cow pea and botanically is quite different from the other beans here described. The vines and leaves are larger and coarser than those of common beans, and the pods are longer and more irregular in shape. It is grown in all of the bean sections of California and has the widest range of adaptation of any of the commercial varieties of beans. The greatest part of the blackeye crop comes from the San Joaquin Valley, but it is also grown extensively in Southern California, in the coastal valleys of central California, and in the Sacramento Valley. It withstands the heat of the valleys remarkably well, even better than the Pink, and where irrigation water is available it may be grown successfully under very trying conditions. Because of its large vines it is sometimes used in orchards as a summer green manure crop.

Bayo

The Bayo is the most fastidious of the bean varieties. It is not grown extensively and its production is confined to a limited area of the choicest river bottom land in the Sacramento and San Joaquin valley section. It is an early maturing variety but has proven a complete failure when attempts have been made to grow it away from the immediate vicinity of the river.

Small White or Navy

This is a late maturing variety extremely sensitive to heat and drouth and requires a cool humid climate for its best development. It finds its ideal environment in the cool coastal climate of Monterey, San Luis Obispo and Santa Barbara Counties. Because of its hard seed coat it is an excellent shipping and cooking bean, and large quantities are shipped from California to Boston where they are prepared and marketed as "Boston Baked Beans."

Bean Soils

The bean is not an exacting crop in its soil requirements. Good yields are produced on all classes of soil, ranging from sandy loams to stiff clays and the peat soils of the delta region produce large yields of good quality beans. The ideal soil for bean growing may be described as a deep, rich, mellow, sandy loam; such soils are to be preferred to the heavier types because of obvious cultural advantages. Bean soil must have the capacity to retain sufficient moisture to carry the crop to maturity, for it is not customary to irrigate beans in California and ordinarily no rain falls from planting time until harvest. Very light sandy soils are not retentive of moisture and dry too rapidly, with the result that the plants may suffer from drouth before the crop has been made. Such soils when underlain with a more retentive subsoil at a depth not too great for the roots to reach are well adapted to bean growing. A stiff adobe soil may produce a good crop of beans but because of the difficulty of tilling such soil it is not suitable for commercial enterprises. The subirrigated soils, although usually considered the best bean soils, often contain too much moisture for the best results, causing the plants to make an excessive vine growth at the expense of seed production and to prolong their growth until so late in the fall that the crop is damaged by the early rains before the crop is ready to harvest. Varieties which are naturally inclined toward late maturity are subject to injury from early frosts on such land. The Blackeye and the Lima are of this class.

Newly broken tule land is often found to be slightly acid in its reaction and therefore not suitable for bean growing. Such soils however are usually benefited by a season's working and it is advisable to first crop such land to potatoes and follow with beans the next season.

The bean is not tolerant of alkali even in small quantities and alkali is often responsible for a reduction in yield. In sections where alkali is present in detrimental quantities bean fields exhibit a spotted appearance, the plants on the alkali maturing earlier and turning brown while plants on adjoining areas are still green.

Preparation of the Land

No specific rules for the preparation of bean land for planting can be given because of the diversity of soil and climatic conditions under which the bean is grown. But since over 90 per cent of the beans grown in California are grown without irrigation, it may be said in general that the principles of dry farming are or should be employed in the production of this crop. The plowing and working of the land should be done at such time and in such manner that the greatest amount of moisture may be stored in the soil. The subirrigated lands are the exception to this rule and therefore have different tillage requirements.

In general the first working of the land should commence immediately after harvesting the previous crop. If the previous crop was beans this first working should consist of a thorough disking, preferably with a cut away disk. This should be done in September or possibly in October. The purpose of this working is to conserve the residual moisture in the ground and to prepare the soil for effective plowing. Plowing is the next operation and should be done as soon as the first fall rains have penetrated sufficiently to put the soil in good plowing condition. This would usually occur some time in December. This plowing should be done deeply, and under ordinary conditions 12 inches would be none too deep. Nothing further need be done to the land until spring; that is to say the land should be rough or fallow all winter, in which condition it will absorb the greatest amount of moisture.

Towards spring the land should be watched carefully and not allowed to dry to any considerable depth below the surface. In other words a soil mulch should be established as soon as possible after the winter rains have ceased. If spring working is delayed too long a considerable part of the soil moisture is lost through evaporation making it difficult to prepare a perfect seed bed. In normal seasons this spring working should be done during the latter part of March or early in April. Either a chisel or a disk harrow may be used for this operation. But since planting does not usually commence until May first or even later, there will be an interval of from four to eight weeks elapsing between the establishment of the mulch and planting. During this interval the land should be cultivated frequently, at least every two weeks. The most satisfactory implement for this work is a cultivator with unusually light draft but efficient in cutting weeds, maintaining a shallow mulch and bringing the moisture near the surface preparatory to planting. It is very essential that the moisture should be near the surface at planting time in order that the seed may be placed in contact with moist soil. If the soil has become dry to a greater depth than it is proposed to plant the seed, the land should be ringrolled prior to planting in order to bring the moisture near the surface.

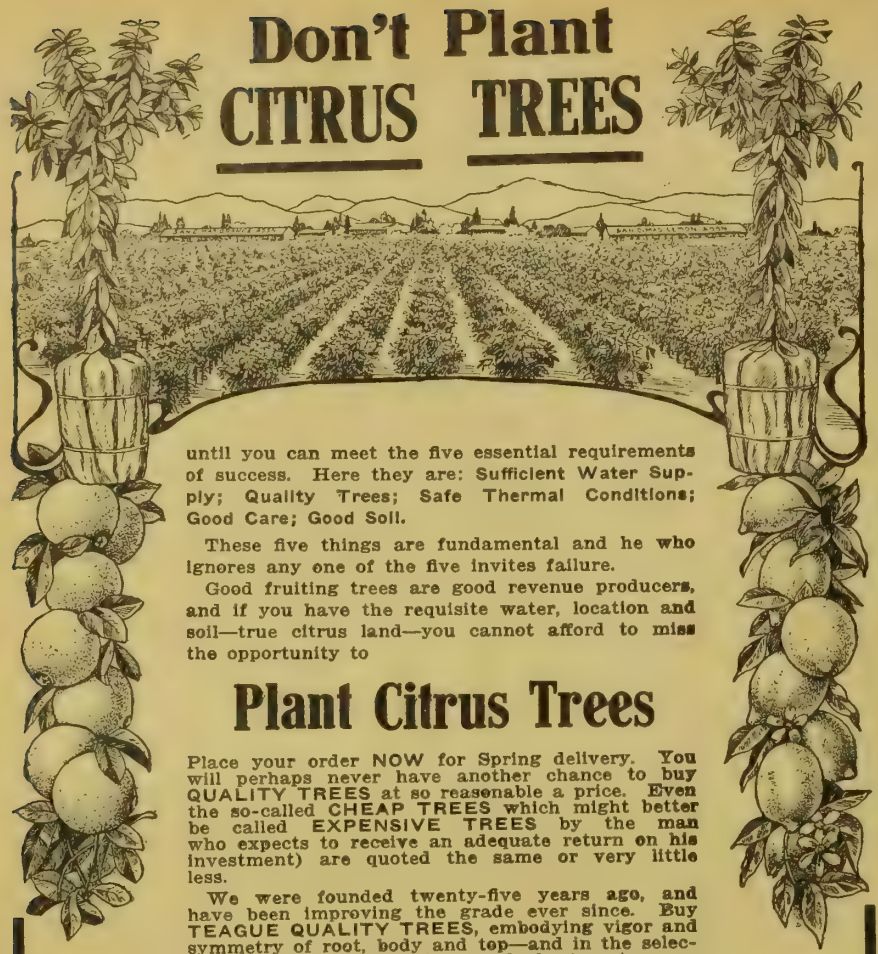
Time of Planting

In no case should beans be planted until the soil has become permanently warm. Planting done before May first is considered early planting, from May first to June first, medium, and after June first, late. From a commercial standpoint early planting is not to be recommended; chiefly because early plantings are frequently attended by losses from cold, damp weather or cold rains, causing the seed to rot in the soil or stunting the growth of the young seedlings. Fields which have received a set back early in life do not completely recover, and because of their slow development it is extremely difficult to control the weeds. It is usually desirable to plow and replant such fields. For small patches however beans may be planted early in the season and by frequent hand hoeings the weeds may be held in check.

Very late planting done as late as June 15 is to be recommended under certain conditions, such for example as are found on the very moist subirrigated soils bordering the rivers. On such land early planted beans produce an excess of vine growth but very few beans. Late planted beans on such lands produce much smaller vines but the yield of beans is considerably greater and the blossoming and setting of pods takes place later in the summer and under more favorable conditions. Late planting however is only posible on land well supplied with moisture. Late planting may also be practical in other and drier situations but irrigation water must be available in order to carry the crop through to maturity. Usually one irrigation will suffice for this purpose and may best be given about July 15 or at the time of the last cultivation which usually occurs when the vines are starting to blossom. This may be accomplished by opening a furrow between each two rows, applying the water and cultivat-

(Continued on Page 562)

Don't Plant CITRUS TREES



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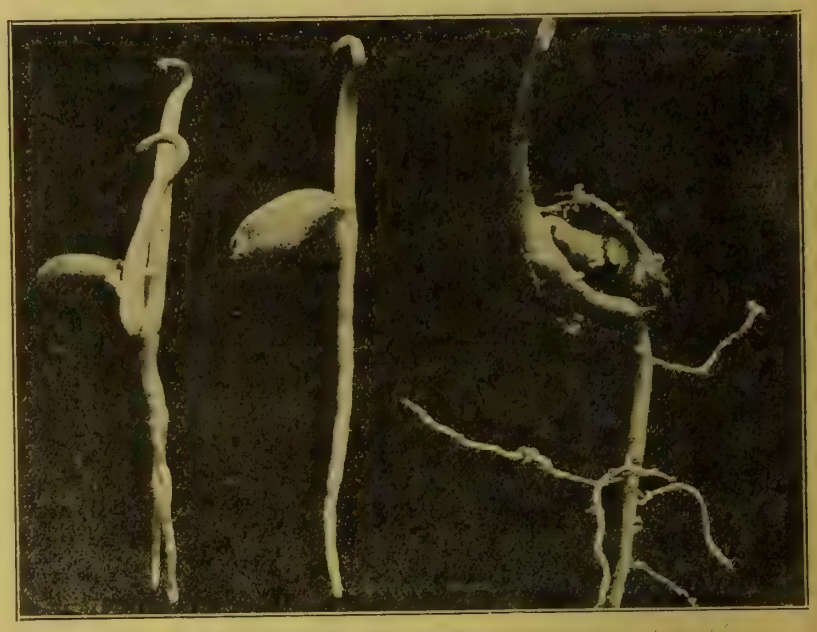
Citrus and Tropical Fruits

BENCH-ROOTING OF CITRUS NURSERY STOCK

Written for California Cultivator
By W. R. Ralston.

A VARYING percentage of the seedlings of all the species of citrus has a tendency to make a peculiar twist in the root just below and often including the hypocotyl. This often takes the form of the letter "z," and has been found to be of considerable annoyance as well as loss to nurserymen. Heretofore the phenomenon has been thought to be caused by the root striking a stone or other hard object or by some defective soil condition which prevented the roots from growing straight. Citrus seeds germinated in fine sand show many bench-roots, however, and the above theories are known to be unfounded.



SOUR ORANGE SEEDLINGS

Right, bench-root with half of seed-coat removed; center, germination of seed from which seed-coat had been removed before planting; left, polyembryony—two seedlings growing from one seed.

The writer undertook to solve the bench-root problem as a thesis, the work being done under the direction of Professor J. Eliot Coit in the greenhouse of the division of citriculture of the University of California. Counts were also made in commercial seedbeds in Los Angeles County.

In the normal germination of an orange seed the radicle tends to grow straight down while the caulicle and plumule grow straight up. This is accompanied by a certain force which in some other seeds may be tremendous. Instances have been known whereby large stones have been lifted or broken by growing plants, also there must be considerable force exerted by the germinating embryos of the hard-shelled or stone-fruit seeds.

The orange seed has a tough and fibrous seed-coat which when dry is very difficult to tear. One hundred sour seed were placed in all conceivable positions in loose silt loam which had been sifted into an ordinary seed flat and covered as usual with about one-half inch of pure sand. They germinated within six weeks and 24 per cent were found to have this peculiar bench-root curvature. After dissecting a number of the seedlings in various stages of germination the theory was advanced that the cause of this curving was the inability of the tender root tip to penetrate the tough seed-coat rather than the physical condition of the soil surrounding the seed.

In order to prove the truth or falsity of this theory 100 seed were planted after the seed-coats had been carefully removed. In four weeks (or two weeks less time than in the previous experiment) 96 percent germinated and not a single one showed the slightest tendency to form a bench-root. The accompanying cut shows some of these seedlings.

Thus it would seem that, although some seeds exert a tremendous pressure in liberating themselves from the seed-coat it is not the case with the citrus seedling. Apparently they have a very weak radicle which is very sensitive to any obstruction which will tend to keep it from the normal course. The roots however become stronger with age and can then compete with other roots. In the illustration the seedling on the right shows a mild form of bench-root. The radicle grew under the seed-coat but succeeded in breaking through at the opposite end. In many cases the root will grow all the way around, forming a loop before extricating itself and starting downward. This results in the worst form of bench-root.

It was also noticed that the seeds which were polyembryonic were much less liable to bench-root. Twenty-five of the seeds in the first planting gave rise to more than one plant each, yet out of the 24 bench-rooted plants only two were polyembryonic. This was due to the fact that instead of the force of one radicle there is the combined effort of two or more to penetrate the seed-coat.

Of course it is impracticable to attempt to remove the seed-coat before planting in the nursery, but it has been found that soaking from 24 to 36 hours in water or even using fresh, wet seed will reduce the bench-roots 15 per cent. One hundred seed were taken from the same lot of sour oranges and planted immediately so that there was no drying. The number of bench-roots was ten instead of 24 as in the previous experiment in which seeds had been kept out of the fruit a few days before planting.

The crook in the roots lowers the vitality of the trees. In some of the plants the curvature is so abrupt that it would seem a physical impossibility for the sap to make this turn with anything like the rapidity which is required in the adult tree. It is a common practice among nurserymen to throw out only those bench-rooted seedlings which are the worst and to transplant to the nursery rows those which are only moderately deformed. Trees with such bench-roots may grow and bear good crops for some years but eventually they will begin to fal off in vigor and in yield.

Therefore in buying nursery stock and budded trees the roots should al ways be examined and those with bench-roots refused. Balled trees can not be inspected and many badly de formed root systems are planted unde cover of the ball. Bare-rooted tree are easily examined and are to be pre

ferred on this account, although there are many other points in favor of balled trees.

CITRUS FRUITS

"Citrus Fruits, An Account of the Citrus Fruit Industry With Special Reference to California Requirements and Practices and Similar Conditions," by J. Eliot Coit, M. S. A., Ph., D., Professor of Citriculture in the University of California, published by the Macmillan Company, New York, $2.00. The Cultivator will be glad to secure the book for its subscribers at the above price or, including a year's subscription to the Cultivator, at $2.75.

In his preface Dr. Coit says:

"The citrus industry has now reached a high state of development in both California and Florida. Furthermore, it is progressing with rapid strides. Old World practices and precedents have been largely ignored in the development of an industry characteristically American in spirit and new in methods. The readiness with which the growers adopt new and better methods is an indication of the virility and youthful vigor of this new industry.

"The literature has hardly kept pace with the industry and is scattered through a large number of periodicals and reports. On this account, it is largely unavailable to those who need it most. The last comprehensive work published in California was that of Lelong in 1902. This quickly ran out of print and for the last six years has been rare.

"The present volume represents an attempt to discuss underlying principles in such a way as to emphasize the importance of certain stable fundamentals upon which the rapidly changing superstructure is built. It has also been the aim to describe the industry as it exists today and bring together in orderly arrangement all the information available at this time which is worth while."

There are 25 chapters in the book, the last of which contains nearly 50 pages of bibliography. Practically everything ever published on the citrus industry is referred to in this chapter. Other chapters touch upon history and development of the citrus, botany, geography and climatology of California, varieties, nursery, inspection and quarantine, improvement, judging the citrus, selection of site and planting, cultivation, irrigation, pruning, orchard heating, picking and packing, by-products, marketing, diseases, insects, and fumigation.

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GRAPEFRUIT JUICE EASILY BOTTLED.

A simple method of bottling the juice of grapefruit for use in making acid beverages is advocated by the United States department of agriculture as a means of gaining a useful by-product from hundreds of thousands of cases of grapefruit which now are wasted. An investigation was undertaken at the urgent request of Florida grapefruit growers who reported that the market during the season would not take up a large proportion of the grapefruit crop and asked the department to determine the possibility of utilizing the fruit or its juice in some profitable way.

All that is necessary, according to the government's fruit juice specialists, is to bring the grapefruit juice to the boiling point in a porcelain-lined or enameled kettle, pour it while still hot into bottles which then are hermetically sealed. The juice when so handled will keep indefinitely and provides a base for grapefruit-ade or other acid beverages having the characteristic acid, somewhat bitter, flavor of the fruit. Experiments show, however, that it is highly important that the bottle be completely filled so that no layer of air be left between the top of the juice and the cork or seal. Where air in any amount comes in contact with the top of the sterilized juice it will cause the juice to change its color. In handling the juice it is particularly important that it be kept from coming into contact with iron or other metals easily acted upon by acids.

The investigators found also that it was possible to freeze the grapefruit juice into solid ice and then by whirling the ice in a centrifugal machine to take out a large part of the water and leave the solids and flavoring matter of the fruit. This freezing and concentrating of the juice greatly reduces the bulk and makes a product which can be sterilized by heating and kept indefinitely. Care must be taken to keep the juice from coming in contact with iron.

Those who wish to make a clear juice may filter the grapefruit juice before it is heated by adding to it from two to three per cent (about three ounces avoirdupois to the gallon) of infusorial or Fuller's earth well washed with hot water. The mixture is then forced through a non-metallic filter press and the clear juice reheated and boiled. With the freezing process the juice is filtered after concentration, about twice the amount of infusorial or Fuller's earth being used per gallon of concentrate.

The chemists, in connection with this bottling of grapefruit juice, notify the public that the same process is not suitable for bottling the juice of oranges and lemons, which will not retain their flavor if handled in this way.

While as yet as far as known there is no commercial market for sterilized grapefruit juice, it is believed that many persons will find this juice, with the addition of water and sugar, a pleasant variation from lemonade or limeade. Those who like grape fruit should find the beverage inviting. The method is so simple that those in regions where grapefruit are cheap and plentiful can prepare this product on a small scale with ordinary household appliances.

American fruits are marketed in all parts of the world. Our apples, the exports of which have ranged between 6¾ million and 10 million dollars in the last decade, are sent chiefly to Europe, and our dried apricots to Europe, North America, and Australia. Most of the oranges and lemons which we export are sent to Canada, and smaller amounts are distributed in many countries. Canada, Germany, England, France, the Netherlands, Australia, and New Zealand are the best market for dried peaches, while the United Kingdom, Canada, and other British territories take most of our exported pears. American prunes are shipped principally to Europe and Canada and considerable quantities to the Orient. Canada takes about three-fourths of our exported raisins, while New Zealand buys between one million and four million pounds annually. The exports of canned fruits are chiefly to England, with smaller but important shipments to France, Germany, Canada, Cuba and Central America.

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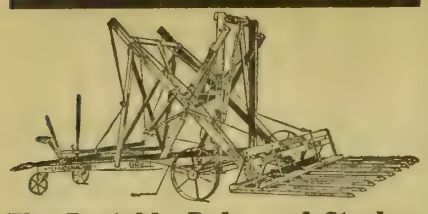

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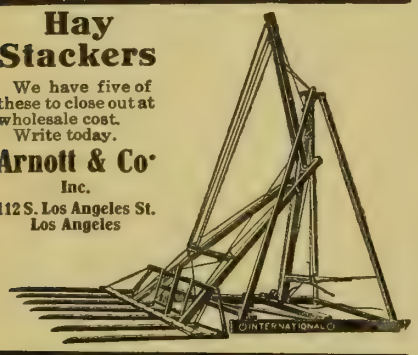

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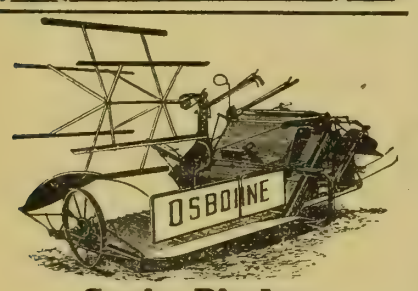

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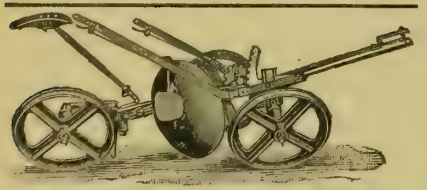

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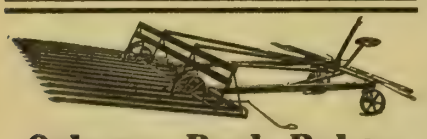

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Deciduous Fruits

CROP REPORT.

REGARDING the coming season's crop of fruits George P. Weldon, chief deputy state horticultural commissioner, writes:

"The publication of the April crop condition report has been delayed for one week because of the bad weather which has recently prevailed throughout the state. It is too soon to estimate how much damage has been done by excessive rains, winds and frost, but it is now believed that this damage will not be nearly so great as was at first feared. Cherries, plums and prunes have suffered most, but to what extent will not be known until the May reports are compiled. There will be some damage to apples in the mountain counties.

"Fungous diseases of all kinds develop best during damp weather, and it is expected that scab, mildews, shothole diseases, etc., will be in evidence in many orchards after the rains are over. Notwithstanding these facts the general crop outlook is considerably better than at this time last season."

Mr. Weldon's tabulated report made up from reports from various county commissioners gives the following as to the various fruits:

TABLE NO. 1—

Counties.	Almonds	Apples	Apricots	Berries	Cherries	Figs	Grapefruit	Lemons	Olives	Oranges	Peaches (canning)	Peaches (drying)	Peaches (shipping)	Pears	Plums	Prunes	Walnuts
Alameda	50	**	65	100	70	*	*	*	*	*	**	**	**	60	50	60	*
Butte	100	100	100	100	100	100	100	100	100	100	100	100	100	100	*	100	*
Colusa	100	*	100	*	*	100	*	*	*	100	*	60	*	100	*	100	100
Contra Costa	70	80	..	..	80	*	*	*	100	*	85	85	85	100	70	85	100
Eldorado	*	70	*	*	100	*	*	*	*	*	*	*	100	90	100	*	*
Fresno	100	*	75	100	*	100	100	100	100	100	**	**	**	*	*	*	*
Glenn	100	100	90	100	*	100	100	100	100	100	*	100	*	100	*	100	100
Humboldt	*	100	*	100	100	*	*	*	*	*	**	**	**	100	**	**	**
Imperial	*	*	100	*	*	100	100	*	*	*	*	*	*	*	*	*	*
Inyo	*	96	**	**	**	**	*	*	*	*	**	60	**	75	**	**	*
Kern	*	40	90	*	*	100	*	*	100	100	95	95	95	0	85	100	*
Kings	*	*	110	*	*	*	*	*	*	*	100	100	100	*	*	100	*
Lake	75	50	50	100	75	75	*	*	**	*	**	**	**	100	*	75	100
Los Angeles	100	100	100	*	*	100	100	100	100	100	100	100	100	100	*	100	90
Madera	100	**	75	100	*	100	*	*	100	*	75	75	*	*	*	65	*
Mendocino	80	75	100	**	100	**	*	*	*	*	80	80	80	65	100	100	**
Merced	100	*	75	100	*	100	*	*	100	*	80	75	75	*	*	*	*
Modoc	*	100	100	100	100	*	*	*	*	*	100	100	100	100	100	*	*
Monterey	100	80	25	100	55	*	*	*	*	*	*	*	**	75	75	75	*
Napa	80	90	90	**	60	*	*	*	*	*	85	85	85	50	70	90	80
Nevada	100	50	100	100	110	100	**	**	**	*	100	*	100	90	100	90	**
Orange	*	100	25	**	*	*	100	100	**	120	*	75	*	*	120	*	100
Placer	**	**	**	**	70	**	*	*	**	**	100	100	100	75	80	*	*
Riverside	100	80	100	*	100	*	**	**	**	**	100	*	*	100	*	100	100
Sacramento	90	100	90	100	100	*	**	**	**	**	100	100	100	85	85	90	*
San Benito	**	100	75	**	100	*	*	*	*	*	100	100	*	50	*	100	**
San Bernardino	*	100	95	*	95	*	100	100	100	100	95	95	95	90	100	100	100
San Diego	**	90	100	100	100	**	100	50	**	100	*	90	*	100	**	**	**
San Joaquin	100	100	80	100	100	**	*	*	**	*	100	100	100	100	80	..	100
Santa Barbara	*	100	50	*	90	*	*	100	100	100	*	*	20	0	*	*	100
Santa Clara	*	70	70	**	40	*	*	*	*	*	85	85	85	65	**	65	**
Santa Cruz	*	90	50	95	75	*	*	*	*	*	*	*	**	80	**	80	*
Shasta	50	55	75	100	50	100	*	*	100	*	90	85	90	20	75	80	80
Sonoma	75	100	100	100	25	..	*	*	..	*	100	100	100	80	75	65	*
Stanislaus	100	100	75	100	100	100	**	100	100	100	100	100	75	100	100	100	100
Sutter	75	80	100	**	75	90	**	**	**	**	100	100	100	75	80	75	**
Tehama	100	50	50	100	100	75	*	**	**	**	*	85	**	30	*	50	*
Tulare	90	90	75	100	*	100	**	**	**	**	100	100	100	*	80	80	*
Ventura	**	*	75	*	*	*	**	100	**	**	*	*	*	*	*	*	100
Yolo	70	*	70	**	**	**	*	*	**	*	100	100	100	70	100	80	*
Yuba	70	100	75	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Siskiyou Commissioner recently appointed and no commisioner is serving in Solano County.

Figures in table indicate condition of crop in per cent, on the basis of 100 as normal.

*Crop not grown commercially.

**Horticultural commissioner has insufficient information for a report.

All blank spaces except where otherwise indicated show a failure on the part of a county horticultural commissioner to report in time, or in the required form.

TABLE NO. 2—

Estimated per cent of the total crop of the principal California fruits grown in each of the main producing counties during a season of normal production. Compiled from reports of the county horticultural commissioners by Geo. P. Weldon, Chief Deputy State Commissioner of Horticulture.

Counties	Almonds	Apples	Apricots	Cherries	Figs	Lemons	Olives	Oranges	Peaches	Pears	Plums	Prunes	Walnuts
Alameda	*	..	16	23	..	..	..	..	*	5	..	*	..
Butte	14	*	..	..	4	..	17	*	*	*	..	2	..
Colusa	4	..	..	..	..	..	..	..	..	..	..	*	..
Contra Costa	13	*	*	3	..	..	..	..	*	6	..	*	..
El Dorado	..	*	..	..	..	..	..	..	*	3	*	..	..
Fresno	..	..	9	..	56	*	5	*	36	..	..	*	..
Glenn	*	..	*	..	..	..	..	..	..	..	..	..	..
Humboldt	..	*	..	..	..	..	..	..	..	..	..	..	..
Imperial	..	..	*	..	*	..	..	..	..	..	..	..	..
Inyo	..	*	..	..	..	..	..	..	*	*	..	..	..
Kern	..	*	*	..	..	..	..	..	*	..	..	..	..
Kings	..	..	4	..	..	..	..	..	6	..	..	*	..
Lake	..	*	..	..	..	..	..	..	..	2	..	*	..
Los Angeles	4	2	3	..	*	29	5	24	*	*	..	..	31
Madera	..	*	..	..	4	..	*	..	*	..	..	..	..
Mendocino	..	*	..	..	..	..	..	..	..	4	..	*	..
Merced	*	..	..	..	16	..	*	2	..	..	..	..	..
Modoc	..	..	..	..	..	..	..	..	..	..	..	..	..
Monterey	..	9	*	..	..	..	..	..	..	..	..	..	..
Napa	..	*	..	..	..	..	..	..	..	*	..	6	..
Nevada	..	2	..	..	..	..	..	..	*	*	..	..	..
Orange	..	..	4	..	..	6	..	11	..	..	..	..	35
Placer	2	*	..	4	..	..	*	..	6	7	40	..	..
Riverside	2	*	3	..	..	16	10	13	*	..	..	*	..
Sacramento	7	..	*	4	..	..	6	*	*	22	9	*	..
San Benito	..	..	4	..	..	..	..	..	*	..	..	4	..
San Bernardino	..	5	4	..	..	12	6	35	5	..	..	..	*
San Diego	..	*	..	..	..	8	8	*	*	..	..	..	..
San Joaquin	11	..	3	18	..	..	..	..	3	5	2	*	..
Santa Barbara	..	*	..	..	..	3	3	..	..	..	..	..	15
Santa Clara	..	*	18	28	..	..	..	..	5	10	19	62	..
Santa Cruz	..	53	4	..	..	..	..	..	..	..	..	*	..
Shasta	..	..	..	..	..	..	..	..	*	*	..	*	..
Siskiyou	..	*	..	..	..	..	..	..	..	..	..	..	..
Solano	8	..	4	9	..	..	..	..	3	7	17	..	..
Sonoma	..	18	*	9	..	..	7	..	*	8	..	10	..
Yuba	*	*	..	..	..	..	6	..	..	*	*	*	..
Stanislaus	6	..	*	..	*	..	4	..	4	*	*	..	..
Sutter	9	..	..	..	8	..	..	..	3	*	*	*	..
Tehama	*	*	*	..	..	..	10	..	3	3	..	*	..
Tulare	..	*	*	..	..	5	*	14	9	..	2	3	..
Ventura	..	..	8	..	..	19	..	*	..	..	..	..	18
Yolo	12	..	4	..	6	..	5	..	*	6	6	2	..

SPRAY FOR CODLING MOTH

The apple owner and the pear grower who are anticipating disposing of their crops at satisfactory prices are spraying for that pest which has cost this country millions of dollars. The codling moth has done great injury where its control would have been easy and comparatively inexpensive. We say "comparatively" for when the profit which comes from first class fruit is compared with that which does not come from inferior fruit it shows a sufficient margin to justify the expense. The campaign against codling moth was begun years ago with the old time Paris green mixture which still is effective when good material is secured. This is usually applied at the rate of one pound, or possibly one pound and a third, of Paris green to 200 gallons of water. Where the greater strength of Paris green is used it is perhaps wise to put in about five pounds of lime to each 200 gallons.

It is usually mixed with a very small quantity of water to a creamy consistency and stirred until all the dry particles have disappeared. Then it is poured into the barrel or spray tank and kept thoroughly agitated every moment until it is all sprayed out. The careless sprayer who allows it to rest for a moment and then begins spraying again without the agitation is reasonably sure to have some injured trees and some others which will bear poor fruit because of the dose not being of sufficient strength to accomplish good results.

Arsenate of lead is generally preferred for this pest and it is somewhat easier to keep mixed. The neutral lead arsenate is used at the rate of three pounds to 50 gallons of water.

There are also a number of ready-to-spray mixtures which are being used by most of our orchardists. At one time it was feared these would not be so reliable, but as a rule these manufactured products are thoroughly reliable. They should be applied according to directions accompanying the package.

Where there is danger of attacks from fungus troubles a combined mixture is often sprayed on the trees and young fruit. This usually consists of Bordeaux and arsenate mixed. It makes the additional cost but slight as to material, and of course the cost of application is no greater.

The point in spraying is not so much what is used as the thoroughness and intelligence as to time of application. For codling moth the first spraying should be about the time the petals drop from the blossoms. Then three or four more sprayings at intervals of about three weeks will give reasonable assurance of clean fruit.

Plants by Parcel Post--Postpaid

TOMATOES—Stone, Beefsteak, Dwarf Stone, Earliana—20c per doz., $1.00 per 100.

PEPPERS—Anaheim Chili, Chinese Giant—20c per doz., $1.00 per 100.

EGG PLANTS—35c per doz., $2.00 per 100.

ASTERS—All Colors—25c doz., $1.50 per 100.

CANTERBURY BELLS—35c doz., $2.00 per 100.

DELPHINIUM BELLADONNA—$1.00 doz., $5.00 per 100.

SWEET POTATOES—Yellow, 50c per 100, $3.00 per 1000.

Morris & Snow Seed Company

439 So. Main St., Los Angeles

Ideal Gopher Trap

Only Trap guaranteed to catch large or small gopher. Being round with thin edges gopher walks into trap before detecting anything in runway. Positive grip, jaws always hold. 100% efficient—catches gopher every time. Easiest to set. Far safer and surer than poisons or gas. Farmers say it's worth dozen other makes. Price 50c. If your dealer can't supply you, will be sent postpaid on receipt of 60c; two traps for $1.10; six for $3.00. Money back if not satisfied.

E. J. CHUBBUCK CO., Dept. A,

731 Market St., San Francisco, Cal.

MORE WALNUTS

Mr. O. F. Hall of Orange County calls attention to a walnut tree that is also trying for a record. It has many clusters of four and five, but he finds one cluster of seven perfect nuts, the stem being only one inch in length, and another with 12 perfect nuts on a stem two inches in length. This must be a good year for walnuts for another grower at El Monte exhibited at this office last week a twig showing eight perfect nuts.

In addition Mr. A. G. Wicklund of Moorpark, Ventura County, writes: "I have found clusters of ten nuts many times and I have before me a cluster of 13 that I picked this morning. Walnuts are selling well and a bumper crop is almost assured."

CROP ESTIMATES

Reports received from growers this week are as follows:

J. S. Rhodes, Modesto, Stainslaus County

'Cots 65 per cent of normal; Elberta peaches 70 per cent. All other varieties of peaches 100 per cent. Almonds full crop, grapes normal, plums 85 per cent.

O. S. Hofmann, San Jacinto, Riverside County

Both apricots and peaches promise big crops.

A. A. Brock, County Horticultural Commissioner, Ventura County

As to the apricot crop, in some parts of the county it will be less than 50 or 60 per cent of normal, while in other parts there will be 85 to 90 per cent, so on the whole I feel there will be about 75 per cent of the apricot crop this year. About 110 per cent walnut crop and 100 per cent grain and hay.

SHASTA COUNTY ORGANIZATION

At the annual meeting May 5 of the Shasta County Cured Fruit Association the following were elected directors: W. J. Hill, S. G. Roycroft, F. S. Field, H. P. Dodson and T. M. Miller.

W. J. Hill was re-elected representative to the California Cured Fruit Exchange.

The Exchange was represented at the Anderson meeting by its president, secretary and general manager. A very satisfactory report was given of the association and exchange work for the past year.

A TEST OF COMMERCIAL FERTILIZERS FOR GRAPES

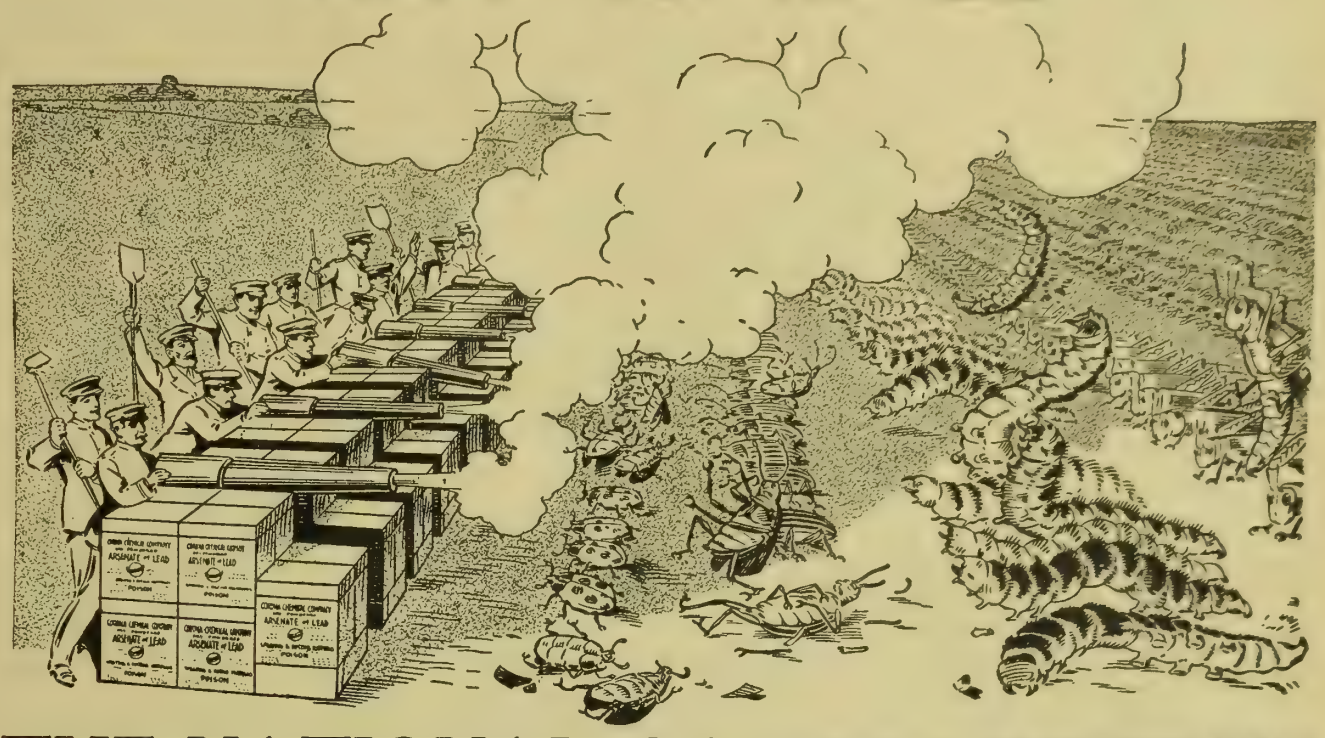
There has been a decline in yields of grapes in the chief grape growing region of New York. This bulletin is a report of several experiments to determine the value of commercial fertilizers in increasing or restoring former yields. The results of the experiments carried on at a vineyard near Fredonia show that nitrogenous fertilizers had a marked beneficial effect upon the yield, upon the quality of the fruit, and upon leaf and wood growth, making it certain that nitrogen is the limiting factor in this vineyard. Lime had no appreciable effect on this vineyard, and phosphorus and potassium had so small a beneficial effect that their use was not profitable. The conclusions reached from the results at this vineyard and those where cooperative work was carried out are that fertilizers cannot be profitably applied except where the vineyard is put in good condition by proper drainage and tillage and the insects or fungi are under control. Where the vineyards receive proper attention and care, fertilizers can be applied with good effect, nitrogen being the element most frequently needed.—New York Agricultural Experiment Station, Bulletin No. 381.

PLANT BREEDING FARM

Mr. J. H. Mack, of Fallbrook, San Diego County, writes regarding his plant breeding farm which has been maintained there for several years. He says that there has been produced on the place a new variety of sweet corn which as soon as thoroughly proven will be offered to the trade. There have also been produced new varieties of blackberries and raspberries and other hybrids from dewberries, blackberries and loganberries.

CORONA DRY WEEK

MAY 15 to 22



THE NATIONAL GARDEN DEFENSE

You can save your growing plants from insect attacks—if you act in time. One bug or worm today means a million **to come.** Dust or spray your fruit trees and vegetables with "CORONA DRY"—**now** is the right time—and kill the leaf eaters before they get a good start. Don't wait until the fruit is infested and the leaves half gone. **Dust or Spray Now!**

"CORONA DRY" is pure Arsenate of Lead, put up in a patented form for home use. It is the ideal method of killing leaf-eating insects on vegetables, flowers, small or large fruits, and ornamental trees and shrubs. You simply blow the dry powder over the plant with an inexpensive duster. It will not burn the foliage. Spreads rapidly and clings tight. So simple that a child can apply it successfully. If a spray material is preferred use Corona Dry. Used by hundreds of the largest growers.

Dust or Spray Everything with

"CORONA DRY"

PATENT ARSENATE OF LEAD

The easiest method of insect control ever discovered. Just pour a little of the "CORONA DRY" into the Duster and blow it over the foliage. Each puff covers a hundred leaves.

Most economical because it spreads so thoroughly and clings on the leaves so long. Will not cake or lose its strength, and you will need no other insecticide if you have "CORONA DRY"—the universal insecticide.

Better for Potato Bugs than Paris Green, because it covers the plant better and less is required to kill each bug. Rain does not wash it off so easily. Can be applied 10 times as rapidly.

Kills Sweet Corn Worms where all other methods fail. One puff of "CORONA DRY" on the new silk of the ear kills the worm before it gets inside. The only satisfactory preventive of this destructive pest.

"CORONA DRY" is safe to use. It requires no water, no mixing, **no expensive apparatus.** Just get a pound of "CORONA DRY" and a Corona Hand Duster. Then you will be prepared for the annual invasion of the insect army.

AS A SPRAY

Corona Dry Arsenate of Lead is an ideal spray material. Perfect results on fruit trees or vegetables are obtained by using one pound to 50 gallons of water.

IMPORTANT—Corona Dry does not clog the nozzle of your spray—one pound of Corona Dry Arsenate of Lead will do the work of three pounds of a paste lead and do it more thoroughly. No waste—no freight to pay on water, and Corona Dry has perfect suspension properties in water. Corona Dry Arsenate of Lead is the universal insecticide either in spray or dust form, and will exterminate the garden or orchard pests.

Send for Free Book

On Controlling Garden Pests

Our new 16-page booklet—"Garden Pests and Their Control"—tells how to prevent and destroy more than 150 different kinds of destructive insects that infest vegetable gardens, fruit bushes and trees, shade trees, annual and perennial flowers, roses, shrubs, and all kinds of growing things.

This is the most recent and valuable book on this subject, yet we make no charge for it. We will send you a Free Copy upon receipt of your name and address. Write today.

Special Proposition to Dealers!

We offer a very attractive proposition to dealers who sell insecticides. Write us if you are not already handling our line of "CORONA" Dusting and Spray Materials. You will have a big demand for these goods. Write for information.

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Manufacturers of Corona Dry, Corona Dusting Sulphur, Paris Green, etc.

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The man with the good telephone in the house is in quick touch with the voice of the entire world. In a minute he knows the markets. In case of fire, tramps or illness, he can call the whole community. If he has an orchard and the fruit ripens quickly, he can scour the country for help in harvesting. The whole community becomes a living thing to him and that old dread of country life—isolation—is gone forever.

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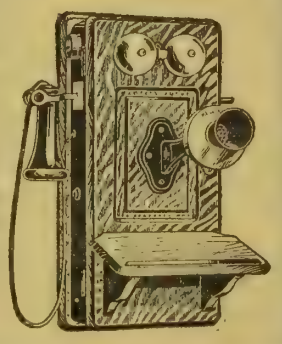
You may find that Kellogg instruments cost slightly more than ordinary ones. But a huge trade has been built on them all over the world because they do away with repair bills and because after years of service the voice is transmitted as clearly and plainly as when they are new. Just the other day a customer wrote us that he had a Kellogg phone in service fifteen years.



The instrument shown here is Kellogg Favorite. Less wall space, stronger ring, reliable lightning arrester. Standard, unbreakable receiver and mouthpiece, secret service push button to ring "Central" without calling neighbors.

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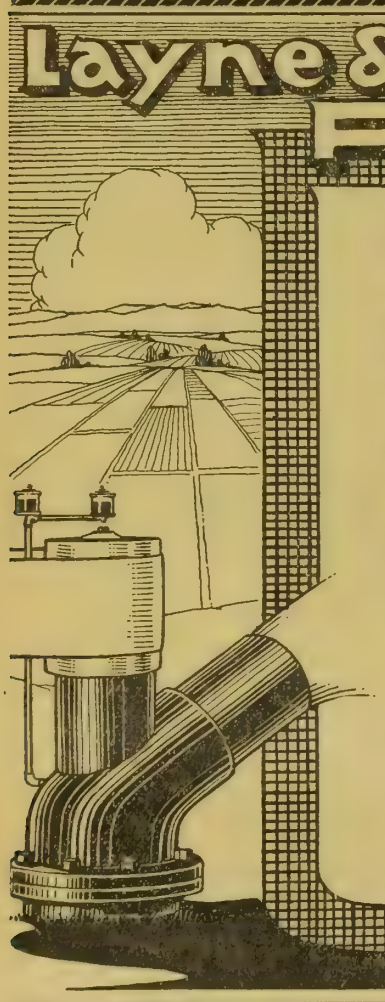

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SEEDLING SELECTION

Written for California Cultivator
By Ernest Braunton

IT is a comparatively easy matter for anyone to improve common garden flowers by selection. Of late years citrus growers have been agitated over the matter of bud variation, but they are way, way behind the times. In ornamental horticulture much of plant improvement for hundreds of years has been brought about by taking advantage of bud variation. The remainder of improvement is due to seedling. selection and hybridizing.

Local examples of notable bud variation are too numerous to cite, but in roses alone they are very common. A considerable per cent of the best roses are sports or bud variants. The latest of these is the Red Cherokee or Ramona, discovered and propagated in Los Angeles. No two plants in all the world are alike. A million seeds of poppies sown together produce a million individuals each one of which differs from the others to a slight degree.

One of the million must be the tallest though by ever so little; another the smallest. This one grows the largest flower or the smallest, the darkest in color, the lightest, the flattest, the deepest cup-shaped, etc. One flowers earliest, another latest. One bears ten flowers, another but one. One or a few may show a slight tendency to doubleness, and this the observant gardener quickly notes and seizes upon as the first step in the production of doubles; and in the end he succeeds.

Added to all these natural and unexplainable variations are those due to climate, soil, food supply, moisture supply, shade, sun, etc., scores of causes. Why not take advantage of these known variations and by selection so improve a type as to make it commercially valuable? When a most excellent flower shows in your garden perpetuate it either by seeds, buds, cuttings or grafting. Amateurs furnish 90 per cent of new plants

Tuberous Begonias

The tuberous section of the begonia family contains the ones that should be called the flowering begonias for reasons that are plain to all who have grown them. The flowers are larger and richer in both color and texture than those of the fibrous-rooted section. They may be had in every shade and color except blue and its allies; in single, semi-double, and double; plain, fluted, frilled and fringed. They are as easy of cultivation as any begonias and will endure as much neglect. In my own garden there are bulbs that have been in the same place, without the usual annual removal, for five years, and each year they bloom freely. Only the singles will endure such neglect.

The Best House Plant

The best house plant, all things considered, is no doubt Kentia (Howea) Forsteriana. K. Belmoriana is a fine looking plant yet not quite so hardy and is slower in growth. Anyone who can grow any sort of house plant will succeed with these palms. Careful attention to watering and an occasional gentle sponging of the leaves will keep Kentias in good health. From spring until Christmas each year a dose of light liquid manure should be given once a month. In locations practically frostless these palms (K. Forsteriana) are hardy, needing protection from sun more than from light frosts.

The Boston Fern

No other fern is so universally popular for house use as the one known as the Boston. It is properly Nephrolepis exaltata, variety Bostoniensis, being a broad-leaved, drooping light-green variety of the common sword fern native to Florida and some other parts of the world. During the past few years some splendid sports of the Boston have appeared, the most popular of which seem to be Whitmanni and elegantissima.

Fern Balls

In years gone by Japanese fern balls were very popular everywhere but are now less grown in Southern California than farther north, doubtless for the reason that as one journeys south the air becomes more dry. This change is quite noticeable in summer even in so short a journey as from Los Angeles to San Diego. The fern balls are made of Davallia bullata, a sort with running root stalks, the leaves of which in nature die down every year. The fern balls should be dried off each year to rest the plants and when growing should be kept damp and in a damp atmosphere. Watering should be done by immersing in a tub of water, and once a month this bath should be weak liquid manure.

A Rare House Plant

Pandanus Veitchii is very little known but is not a difficult plant to keep in health in living rooms. In appearance it might be likened to a prickly dracaena with leaves striped with white longitudinal bands. It needs a warm temperature but may be maintained in thrift in any well-lighted room or window if careful attention is given to watering. Lack of soil drainage is as fatal to pandanus as exposure to frosts.

Laggard Chestnuts

The other day I met a ranchman from near Covina who complained of the lateness of a fine young chestnut tree in both leaf and blossom and also that it had bloomed three years but set no nuts. All chestnut trees are late. In eastern states where willows, alders, etc., bloom April 1st, chestnuts often do not bloom until July. Chestnuts are rather an uncertain quantity and many trees are self-sterile, either refusing to set nuts or bearing burrs containing nuts which never mature. The remedy for this latter fault is to plant two or more trees close together or to graft into the top of a tree growing in an isolated position a branch from another chestnut tree. By the way these are grand ornamentals, among the best in deciduous shade trees.

Soil for Ferns

Anyone living in the country may reach canyons and procure a sack of leaf mold, well rotted, not dried leaves. Run this through a fine mesh sieve and you have an ideal soil for ferns, asparagus, begonias and a host of plants of like requirements. If the supply of leaf mold is scanty, use but one-third, the remainder make of equal parts of sand and common garden loam. Such a mixture, with a thorough incorporation of more or less well rotted animal manure is ideal for all classes of plants. It is essential that drainage should be free with all pot plants.

The Soft or Silver Maple

Southern California is not a very favorable section for deciduous trees on account of its arid summer atmosphere. So that any such tree thriving in the south end of the state should grow still better as we progress northward.

For damp sandy soils I have not seen a better tree than Acerdasycarpum, the soft or silver maple. One I recall was planted by me in a collection of more than a dozen species of deciduous trees. The situation was one where fine river bottom sand, very retentive of moisture, was found to a great depth. Of all trees planted the maple grew the fastest and was also the handsomest by a considerable margin. For either street or garden shade in such a soil it cannot be surpassed by any tree common in California.

Farm Bureaus

THE Cultivator is glad to give below additional notices of farm bureau meetings and items as to work being done in different counties of the state through the month of May. Others were given in our issue of May 6.

Madera County, Thos. C. Mayhew, Adviser, Madera

Chowchilla, May 3.
Madera, May 5.
Eastin, May 13.
Raymond, May 18.
Coarse Gold, May 20.
Oakhurst and Nipinnawassee, joint meeting, May 22.
North Fork, May 22.

A joint meeting of the Nipinnawassee and Oakhurst centers will be held in conjunction with the Fire Protective Association and the government forestry service.

The recently completed club house at Chowchilla was built by that center alone, the money being raised by the farm bureau by subscription, by giving entertainments, etc.

Ventura County, Wm. B. Parker, Adviser, Ventura

Fillmore, May 3.
Ventura Avenue, May 7.
Nordhoff, May 10.
Oxnard, May 12.
Camarillo, May 14.
Saticoy, May 19.
Moorpark, May 20.
Somis, May 24.
Santa Paula, May 25.
Simi, May 26.
Mound, May 25.

San Joaquin County, Frank F. Lyons, Stockton

Directors' meeting, Stockton, Saturday, May 1.
Thornton, Monday, May 3.
Lodi, Thursday, May 6.
Acampo, Friday, May 7.
Lockeford, Monday, May 10.
Linden, Thursday, May 20.
Bellota, Friday, May 21.
Stockton, Saturday, May 22.
Escalon and Farmington, Monday, May 24.
Agronomists' convention, Tuesday, May 25.
Ripon and Manteca, Wednesday, May 26.
Tracy and Union Island, Thursday, May 27.
Holt, Friday, May 28.
Thornton, Monday, May 31.

Mr. S. V. Wolfe who has been hired as tester of the San Joaquin County Cow Testing Association started testing this week. All the expenses of the association are included in his salary.

Seven hundred cows have been entered in the association and more are expected. The cost of testing will be $1 per cow per year.

Dr. Cady will be in San Joaquin County during the latter part of May and the first of June.

Many of our fertilizer demonstrations are beginning to show results, particularly those where ammonium sulphate is used as a cure for little leaf.

There are three boys' agricultural clubs in the county, one at Lodi with 18 members growing one-eighth acre plots of potatoes; one at Stockton with a membership of 13 growing one-fourth acre plots of potatoes, and one at Ripon with a membership of 13 growing one-half acre plots of popcorn. Five of the boys in the Stockton club having no available land have secured two acres in a subdivision near town and are growing their potatoes cooperatively. They clubbed together to buy their seed and fertilizer and are hiring their team work done at the same time. Two of the boys have rented more than a quarter acre and are growing potatoes and melons as a business venture.

San Diego County, H. A. Weinland, Adviser, San Diego

Encinitas, Monday, May 3.
Fallbrook, Wednesday, May 5.
Bonsall, Friday, May 7.
Escondido, Monday, May 10.
Ramona, Wednesday, May 12.
Dehesa, Friday, May 13.
(Special meetings with Dr. Webber):
Chula Vista, Monday, May 17, 7:30 p. m.
La Mesa Heights, Tuesday, May 18, 7:30 p. m.
Spring Valley, Wednesday, May 19, 2:30 p. m.
Lemon Grove, Wednesday, May 19, 7:30 p. m.
Escondido, Thursday, May 20, 2 p. m.
El Cajon, Friday, May 21, 7:30 p. m.
Nestor, Monday, May 24.
Mission Valley, Wednesday, May 26.
Jamacha, Friday, May 28.

Glenn County, W. H. Heileman, Adviser, Willows

Ord Farm Center, May 3 and 4.
Bayliss Farm Center, May 6 and 7.
Codora Farm Center, May 10 and 11.
Larkin Farm Center, May 13 and 14.
Orland Farm Center, May 17 and 18.
Hamilton District, May 19.
Jacinto Farm Center, May 20 and 21.
Newville District, May 24 and 25.
Elk Creek District, May 27 and 28.
Orland Farm Center Picnic, May 29. Special dairy program at picnic.

The county is maintaining two boys' high school agricultural clubs and doing cooperative work with the Princeton Club over the line in Colusa County.

The bureau directors' meeting held the first of the month started field work on a county drainage campaign in which each center in the county is cooperating. The campaign has to do largely with plans for controlling winter run-off and storm water.

The farm bureau is engaged also through its directors and local committees in each center in collecting data for the development of telephone and electric power and light service in the county. This important matter is being carefully canvassed over the entire county.

Each of the farm centers in the county and the board of directors have favorably passed on the McPherson marketing commission bill in the state legislature and proper parties interested in these matters have been notified of the action taken by the county organization.

The Glenn County farm bureau during the coming month will give its attention largely to the formation of dairy and hog raising associations in the county. It is planned to form a Farm Bureau Dairy Association throughout the various farm centers. The hog raising association will aim to protect and build up the hog industry of the county. The live stock interests of the county are entering into the bureau work with a great deal of enthusiasm.

A squirrel and gopher campaign is formulating throughout the county, and attention is being given in the various centers to cooperative buying of special farm implements such as manure spreaders, feed cutters, grinders, and other tools used more or less periodically throughout the year.

The farm centers over the county have passed favorably on the subject of a monthly publication and a farmers' exchange. The first issue of the farm bureau monthly will appear perhaps during the coming month.

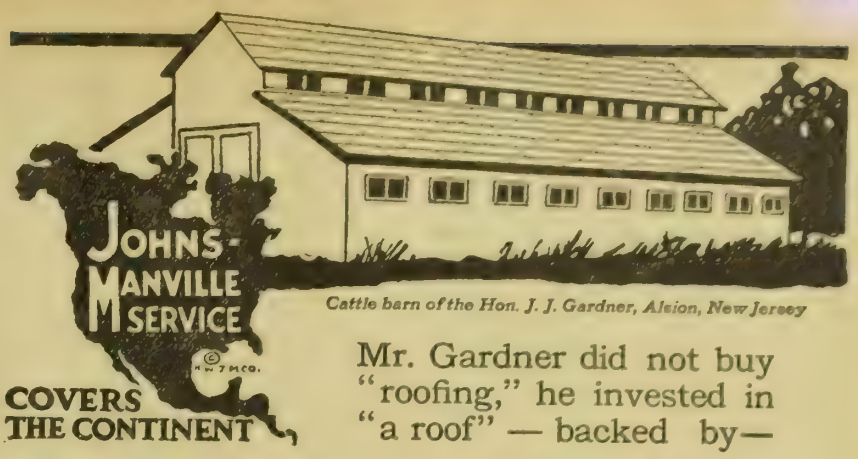
The farm bureau in the county has been organized less than two months and in this short period has taken an active part in the assembling of plans for needed development. Attention to a great deal of individual and miscellaneous work relating to soils, crops, and live stock has been given by the organization and the county adviser, and added to this routine several large county wide undertakings are going ahead.

It is estimated that the shipment of citrus, other trees and vines into the county this spring will reach one million. So far it is a season of good crops and substantial development.

Humboldt County, A. H. Christiansen, Adviser, Eureka

In reply to question as to the cooperative marketing and purchasing of farm produce and farm supplies by the Humboldt County farm bureau, Adviser A. H. Christiansen writes: "The farm bureau proposes to standardize all of the products raised by members of the bureau and find a market for them, also to purchase stuff needed on the farm like seeds,

(Continued on Page 568)



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An Overproduction of Apples ?

The present demand for apples in the United States, including those used for export, is placed by the Department of Agriculture at 55,000,000 barrels. If that many apples were raised in this country there would be no overproduction. Figures from the Department of Agriculture show there has been an average annual decrease of 25 per cent in the apple production during the last nine years. The serious shortage that exists for apples is attributed largely to the dying out of the old orchards and the insufficient plantings of new ones.

The Yucaipa Valley, eight miles from Redlands, altitude 2400 to 3000 feet, is the place to plant an apple orchard, and this is the time of year to visit Yucaipa and see what you would have if you had planted four years ago. It is not too late to make a start.

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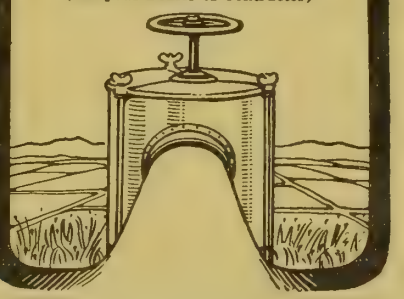

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BEAN CULTURE IN CALIFORNIA

(Continued from Page 555)

ing immediately afterwards. For average conditions medium planting will give the best results. From the first to the fifteenth of May, depending upon the locality and soil, is generally considered the most desirable planting season.

Rate of Planting

The general practice is to plant beans in rows although on very weedy land they may be planted in hills in order to permit of cross cultivation. The distance between rows and the spacing of the beans in the row may vary within wide limits depending upon the vigor of growth which in turn is influenced by the variety used and soil conditions. A very desirable spacing for average conditions is in rows 28 inches apart with the beans dropped from two to four inches apart in the row. For average size beans, such as the Lady Washington, this spacing would require from 25 to 30 pounds of seed for an acre. Using larger beans, such as the Bayo, 30 to 40 pounds would be required at this spacing. This is not heavy seeding and may be increased by 30 per cent where cutworms or other pests are known to be destructive. The Blackeye, Lima, Bayo and Cranberry are large vigorous growing varieties and the spacing should be increased in order to provide ample room for complete development.

Method of Planting

For small areas a trench may be opened and the seed dropped by hand. This method is quite as satisfactory as machine planting but it is necessary to drop and cover the seed immediately after opening the trench in order to prevent the soil from becoming dry.

An ordinary grain drill may be used for planting beans, providing the cups are large enough to accommodate the seed. An 11 row grain drill with seven inches between drill tubes may be fitted for bean planting by plugging all of the cups excepting the second, sixth and tenth. With such a drill the rows will be spaced 28 inches apart. The beans may be dropped at any desired interval in the row by adjusting the regulator.

For seeding large fields the most popular planter is the common two-row machine which in general appearance and construction is very similar to the corn planter. It is equipped with two hoppers and may be adjusted to plant beans at any desired spacing. There are several makes of this type machine on the California market, and in purchasing such a planter it is a matter of first importance to first test the machine with the variety or varieties which it is proposed to plant, to see if the planting plates are adapted to those particular varieties. The two-row riding planter of this type retails for about $40, and the one-row walking planter of the same type for about $15.

Depth of Planting

The proper planting depth under any conditions is determined largely by the soil moisture distribution. It is of vital importance that the seed be planted deep enough to be in contact with moist soil. If the soil is dry to a depth of several inches it should be ring rolled before planting for the purpose of bringing the moisture near the surface.

Because of this method of sprouting, which is to push its two large seed leaves up through the soil, the bean will not stand as deep planting as corn and many other large seeded crops. For average soils one and a half inches is considered a good planting depth, but on the lighter soils, especially when the moisture is some distance below the surface, the depth may be increased to about three inches. On the extremely loose peat soils of the delta region a planting depth of from four to six inches has given better results than shallower planting.

Cultivation

Most of the cultivation for beans, as previously described, should be done before planting time. If the ground has been thoroughly worked before planting there will be less necessity for inter row cultivation after the plants are up. In general cultivation should commence as soon as the seedlings are large enough so that the rows may be seen across the field and should be repeated at intervals of from one to two weeks up to the time the vines come into blossom, or until such time as the vines interfere with the passage of the teams and implements. Cultivation should be discontinued at blossoming time because the flowers are very delicate and easily destroyed by contact with the horses or cultivator. The most efficient implement yet devised for cultivating beans between the rows is the V-shaped sweep cultivator of the two row type. The bean is a surface feeder with many shallow roots, and a shallow draft cultivator such as the sweep is required. The ordinary corn cultivator of the shovel type is used by many bean growers but becuse of its deep penetration it cuts off and deprives the plants of many of their feeding roots and is less efficient in destroying weeds.

On very weedy land, especially when the preparation has not been thorough, special precautions must be taken to control the weeds. Two or three days after planting, and before the seedlings have appeared above the ground, the land may be gone over with a light spike tooth harrow, thus destroying many small weeds. If many weed seeds germinate at the same time as the beans and threaten to become serious, it is desirable to repeat the harrowings even after the beans are up. Many growers hesitate to harrow a field of young beans, but if the land is level and free from clods and the implement is run crosswise of the rows this working will result in but slight injury to the crop.

THE LURE OF THE LAND

"The Lure of the Land, Farming After Fifty," by Harvey W. Wiley, published by the Century Company, New York, $1.40 net, postage ten cents.

"A book for the thousands of men and women in the large cities who have felt the lure of the land and who are inclined to believe that a farm offers the happy and safe solution of their special problem. Sane, practical, constructively helpful discussion of the general question of the lure of the land, the "born on the farm" myth, the dairy the hope of the small farmer, farm labor, the farmer's market, the farmer and the parcel post, the decreasing meat supply, etc., etc. Here are facts which every city man who wants to try farming should know—much wholesome advice also for most farmers, concerning opportunities to be improved. Dr. Wiley writes out of the wisdom of a lifetime of experience with farm life in all its phases, enriched by careful study of the problems of country life. A book very human in its quality and invaluable for its reliable information."

We were not aware that Dr. Wiley had posed as a farmer, but he is most successful in the 30 chapters in this book in stating facts which must prove enticing to the city man who has not had actual farm experience. Apparently Dr. Wiley was born on a farm for the book is dedicated:

"To the memory of my father and mother, pioneers of the backwoods of Southern Indiana, who taught me the homely duties of cultivating the fields they rescued from the forest, reverence for truth and to battle for the right, and illustrated by their example the dignity of labor in a hard environment."

The last paragraph in Chapter II, Agriculture a Learned Profession, is as follows:

"I doubt if there is any other branch of knowledge today which has a larger endowment, more competent corps of teachers, more enthusiastic pupils, than the great university of agriculture, which exists in all of the manifold forms which I have described throughout the length and breadth of the land. The United States is by no means the only country in which it is recognized that farming is a learned profession. In Europe and in the islands and continents of the seas, and even in Asia and Africa, the elucidation of the fundamental principles of agriculture is constantly carried on. Professors and tutors and artists and mechanics and photographers and illustrators are carrying this new propaganda throughout the world."

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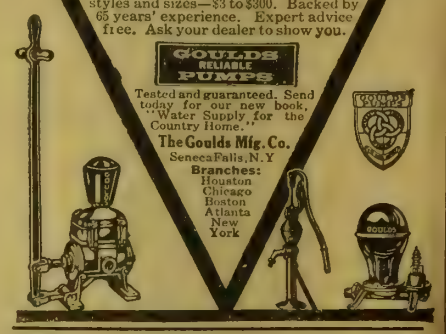

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Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Adopted Son

What power has a foster-father over his foster-son after he is 16 years of age? Has a foster-son any right to ask for a part in the property of a foster-father after he dies if the father has legally adopted him, providing the father does not make a will in favor of his wife?—Subscriber.

After adoption the adopted child and the person adopting sustain towards each other the same relations as parent and child and have all the rights and are subject to all the duties of that relation. The foster-father is thus entitled to the custody, services and earnings of the child until the said child obtains its majority or has a guardian appointed by a court with competent jurisdiction.

Horse Sold by Non-Owner

A let B have the produce he could grow on his farm during the growing season without any consideration. Verbal agreement was that A furnish team of horses, wagon and tools. In a month or so B exchanged one of the horses for another and his wife paid $25 difference. Mrs. B now claims that the animal is her personal property. Is there any law by which this animal can be recovered, as the former animal cannot be found? If animal cannot be taken please state in what way A can recover the value of his animal—Subscriber.

A would be entitled to bring action to replevin the horse which the woman has upon affirming the transaction as a sale. Where one willfully uses the materials of another without his consent, the product belongs to the owner of the material if its identity can be traced.

Trees Not True to Name

Four years ago I bought fruit trees of a nursery company which proved untrue to name. This was proven by the first fruit they bore last season. I have grafted them over, but consider it a great loss to me. To what recompense am I entitled and how shall I proceed to collect?—Subscriber, Beaumont.

You have a right of action against the nursery company for breach of the implied warranty upon the part of the nursery company as to the trees sold. Your measure of damages would be the value the property would have had at the time to which the warranty referred, if it had been complied with, or its actual value at that time; this would undoubtedly be the difference between the value of the trees when they arrived at fruit bearing stage, if they had been such as you presumed you were purchasing, over the trees which you actually did purchase. You are also entitled to fair compensation for the loss incurred by an effort in good faith to use said trees, thus if your trees were now found to be worthless it would be the value of your work and of your lands during the period of raising them to the point where they would bear fruit; however you mentioned that you purchased these trees four years ago and it might possibly be that the statute of limitations would run against you, so you should take prompt action. (In addition to Mr. Stanton's opinion given above we call attention to the fact that practically all nurserymen's guaranties contain the following clause: "We give no warranty, express or implied, as to description, quality, productiveness or any other matter of seeds, bulbs, plants or trees we send out, and will be in no way responsible for the crop. If the purchaser does not accept the goods on these terms, they are at once to be returned."—Edit.)

Interlocutory Decree

After an interlocutory decree is granted does the neglect to enter final judgment at any time invalidate the divorce? Are the parties still married in the eyes of the law? Can the defendant inherit any of the wife's property while the case stands as above, provided she dies without making a will in the meantime?—Subscriber.

Neglect to enter final judgment in divorce does not invalidate the divorce as the final divorce may be entered at any time after one year has expired, but until such final judgment is entered, parties sustain to one another the legal relation of husband and wife and would be entitled to inherit one from another just as though they were not divorced.

Trespassing Stock

For over two years have been bothered by 20 to 60 head of neighbor's mules. What is one allowed per head for stock corraled that have done no damage? Can one also collect damage for crops destroyed, and what is one allowed per head for feeding stock corraled and owner notified?

The procedure for handling estrays has been several times heretofore detailed in these columns. The sum allowed a taker-up for the keeping and care of each horse, mule, jenny, ass, bull, cow, ox, steer or calf is 30 cents per day. The sum of 10 cents per day is allowed for the keeping and care of each sheep, goat, hog or other animal not herein above specified. You are also entitled to collect damages in a separate action brought against the owner of the animals for any and all loss occasioned to your crops.

Damage by Stock

Have a lease on ten acres of land sowed to alfalfa. A neighbor pickets his cows and horses on it and lets them run loose on it. Have told him to keep them off, but he doesn't do it. What is the best way to pursue to make him keep them off or pay damages?—Subscriber, Hemet.

It would seem that the best way for you to do would be to take the cows and horses into custody as estrays and if this was done whenever they were placed upon your property and the owner was obliged to pay the costs as provided for under the estray act, you would probably have little trouble.

NOT IN THAT CLASS

Judge: "You admit, then, that you stole the loaf of bread?" Woman prisoner: "Yes, your Honor." Judge: "What have you to say for yourself?" Woman: "Nothing, your Honor. If it was lace or jewelry I might plead kleptomania, but we can't work that when it's bread."—Boston Transcript.

THE LIMIT

"She is simply mad on the subject of germs and sterilizes or filters everything in the house."

"How does she get along with her family?"

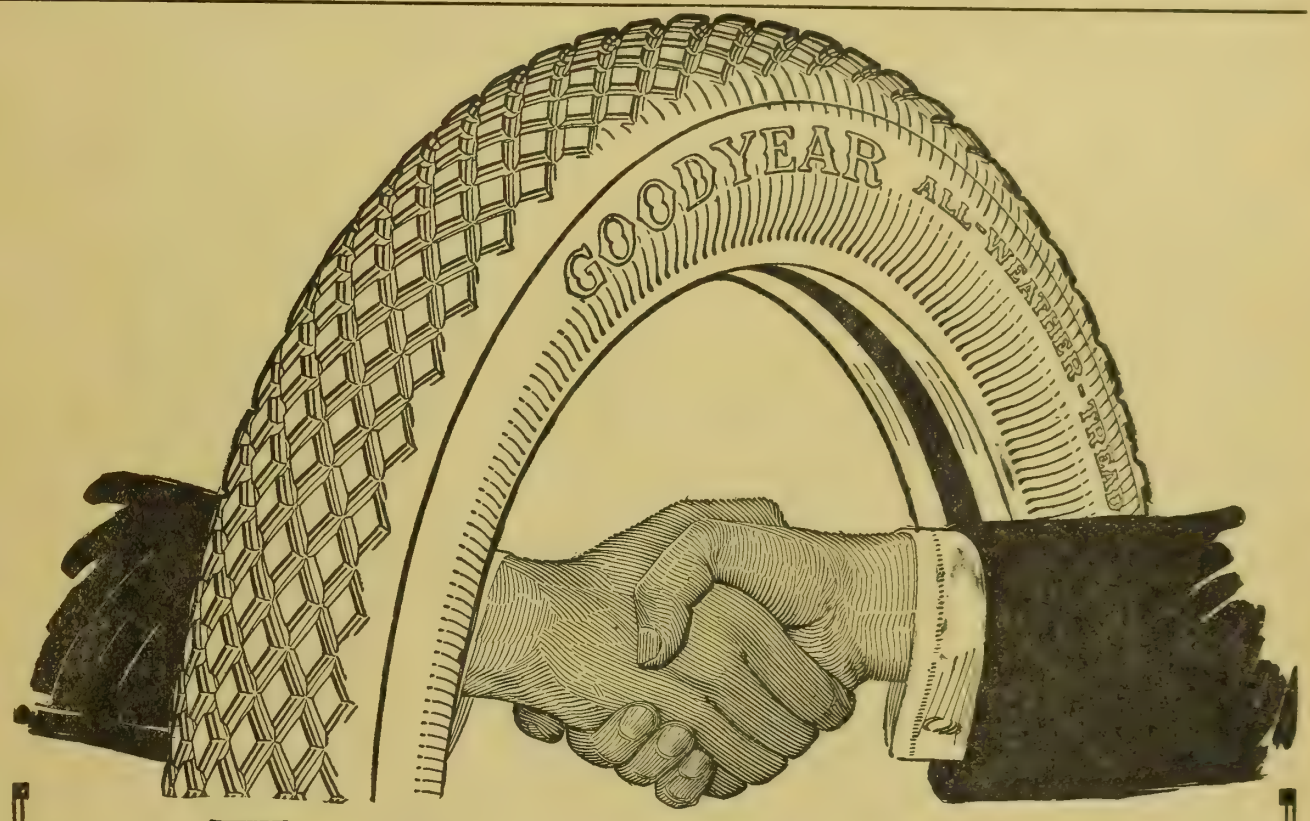
"Oh, even her relations are strained."—Philadelphia Public Ledger.

TEMPUS FUGIT

"Why, what in the world has become of your watch? The one you used to have had a handsome gold case."

"I know it did, but circumstances alter cases."—Philadelphia Telegraph.

The way to move out of a small job into a bigger one is to grow out of it. Likewise, one must grow out of the small town.



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Yet in those two years we made expensive improvements—two of them very expensive. And not in one iota has the tire been skimped.

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Note that every hidden extra is retained. Our Fortified Tire is still "On-Air" cured to save blowouts. Yet that one extra—used by no one else—costs us $450,000 yearly.

It still has our exclusive No-Rim-Cut feature. It has in each base 126 braided piano wires to make the tire secure. It has hundreds of rubber rivets, formed before vulcanization, to combat loose treads.

Our All-Weather tread is still double-thick; thicker than ever in some sizes. It still has those sharp, tough, resistless grips.

Those extras—all exclusive to Goodyear—are all retained, despite our price reductions.

Still That $100,000

And we still spend on experts—on laboratory work—$100,000 yearly. That is to test tires built in different ways, to learn how to build them better. And every improvement we discover is adopted regardless of cost.

Years ago these extras compelled a price one-fifth more than others. Yet men flocked to these tires by the hundreds of thousands. Goodyear became—as it is today—the world's largest-selling tire.

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Thursday, May 13, 1915

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We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

DEDICATED

The California building at the P. P. I. E. was dedicated last Tuesday. It is Californian in architecture, in exhibits, and more than all, in its hospitality. Its hospitality began long before its dedication, but like all other buildings at the exposition the formal dedication served to attract attention to its wonderful exhibits and to its beautiful architecture. Every attendant at the exposition should make it one of the first points visited.

LIGHT PACK

Canners are announcing that owing to high price of sugar and an indifferent market it is probable the canneries of California will run light during the coming season. It has been the policy of the canners to pack considerably beyond the actual business in sight, trusting to markets to clear off the reserve. Whether this is a bona fide statement of conditions or whether it is for the purpose of bearing the market before purchasing fruit for the season we are unable to say, but there is one lesson in the present situation, and that is cooperation. The fresh fruit cannot be kept by the producer, and if the canners refuse to purchase the dry yard is the only way to save the fruit, and this is not always satisfactory. The cooperator, however, can by a slight investment in sugar put his fruit into condition in which it will keep for months, then a market may be developed which will handle it at a living price.

We recently gave an account of one of the most successful canneries, located at Porterville. It is to run the coming season and we believe will save money for its members. There should be more like it in California, and there will be if the canners will only give us a little more encouragement in the unjust treatment of producers.

IN CALIFORNIA

Secretary of Agriculture Huston has been visiting the various forest reserves in California during the last week. His idea was to find out for himself to what extent their timber, forage, water power, recreational and agricultural resources are being developed for the public under present methods and to make a study of the administrative problems of the forest service. Under the methods employed in handling the livestock grazing business of the national forests agricultural development is benefited not only through the prevention of injury to watersheds but also through the opportunities opened for ranch development. As new settlers locate near the forests room is made for their stock by cutting down, if necessary, the number of stock allowed the larger permittees. More than 16,000,000 cattle, sheep and hogs, including young stock, will find forage this year on the national forests. The revenue from this source is expected to exceed $1,200,000 in 1915.

ADVERTISE

We note in the accounts of the disturbance which prevails in the fruit growers' cooperative marketing associations of the Northwest that one of the economies to be practiced is in cutting off appropriations for advertising purposes. In this connection we quote from an Eastern farm paper which calls attention to the advertising campaign carried on by the California Fruit Growers' Exchange, which has greatly extended its market and brought better prices to the members of its organization:

"Some of the first ads published explained at some length the purpose of the organization. Other ads said nothing about cooperation, but were devoted wholly to the fruit. The advertising man soon found, to his surprise, that announcements explaining the work of the exchange brought the best results. The American public demonstrated that it had an interest in cooperative effort, and people not only bought the fruit but wrote to commend the cooperative idea."

We believe that is a most excellent suggestion. Personality, even in advertising, adds strength. The apple growers of the Northwest might well appeal to the consuming public by throwing a little of their personality into their apple campaign and informing the world of their efforts along the line similar to that followed by the orange growers of the Southwest.

Above all, advertise and let the world know the worth of the fruit of the Pacific coast.

FROM AUSTRALASIA

Under the head of "A California Embargo" we note the following in the "Fruit World of Australasia":

"It is unfortunate that the California state department of agriculture should have made such unwise regulations as to prevent fruit from New South Wales, Queensland and Western Australia entering the port of San Francisco for participation and competition with the nations of the world at the Panama Exposition. The reason for this is stated to be the presence of the Mediterranean fruit fly, which pest is active in certain portions of the states named. The California department quoted from government reports issued by Mr. Froggatt, and plainly declared to Mr. Nielsen, New South Wales Trade Commissioner, San Francisco, that their decision was final. Mr. Nielsen offered to produce government certificates that the fruit was unaffected and pointed out that large areas in the states named were entirely and absolutely free from the fruit fly.

"It is to be hoped that wiser counsels will soon prevail and that these unnecessary restrictions to trade will be speedily removed."

It is a deprivation to Californians not to see the results of the work of Australian orchardists. Their exhibits would doubtless have been an education and Californians would have been glad to give the Australasians opportunity to prove to the world the fruit-producing capacities of their continent. But California has been fearfully punished because of the laxity which prevailed in early days when many pests were introduced which have costs millions. If we remain in the fruit-growing industry we must maintain a most rigid quarantine wherever there is a possibility of danger, and we believe that in the main the position taken by our state horticultural commission will be supported by the fruit growers.

ADJOURNED

The California state legislature adjourned last Monday. Hundreds of bills were rushed through at the last moment and doubtless without very full consideration. Hundreds were left without reaching a vote. This is easily excused, however, when it is understood that there were 3000 bills presented, many of which were of little value. This is somewhat of an improvement over the previous session, for at that over 4000 were introduced. It has been shown during this session that many of these bills were presented by the lawmaker without any understanding of their true intent, merely on request of some constituent. There should be restriction in this matter, there should be fewer bills, and the people should be given more opportunity to look over those few. It has been intended to aid the public to secure an idea of the various bills by the so-called bifurcated session, that is, there has been a period of introduction, then a recess for discussion and investigation, then a reconvening to finish the business of the session. The principal complaint against this practice was that while the public informed itself upon the bills or upon a particular bill, when the legislature reconvened the bill was sometimes so completely changed by amendments that it was finally passed in a form which practically reversed the original intent of the bill. Therefore this bifurcated session was discontinued by the legislature just adjourned.

One of the bills which finally passed and on which there was a hard fight was the McPherson bill providing for a state marketing commission to which farmers can send their produce for sale. The bill calls for an appropriation of $25,000 to inaugurate the service. It makes the salary of the market commissioner $5000. This is in the nature of an experiment and is intended to pioneer the way in marketing farm products.

The Ashley standardization bill also passed, though it was bitterly fought on the ground that it was an effort to protect the farmer against himself. We hope it will prevent shipping of inferior and green fruit from the state.

Many are disappointed that the bill providing centralization of all agricultural work under one secretary of agriculture was not successful. There has been a world of discussion along this line and it perhaps may crystallize in a more satisfactory bill which may pass at another session.

Notwithstanding a remark made by a large newspaper, which is opposed to the policies of the majority of the legislators, that the most worthy act of the present legislature was the motion for adjournment, we believe its work was generally commendable.

Agricultural Notes

In England and Wales there are 157 cow insurance societies.

The College of Hawaii has added a four-year course in sugar technology.

American cotton mills are now using 5,000,000 bales of cotton annually.

The Ise of Pines' grapefruit for the next season will, it is now estimated, amount to 200,000 crates.

Experiments made on the value of sugar cane trash for paper manufacture indicate a fair profit.

The island of Sardinia has 152 cooperative agricultural societies working together in a federation.

The campaign against bovine tuberculosis in the Hawaiian Islands is reported as making substantial progress.

New Zealand veal is being shipped to San Francisco, the Moana having just brought 200 cases from Wellington.

A "deferred" cable rate is instituted between Honolulu and San Francisco. This rate is eight cents per word.

Chinese cottonseed oil was imported through San Francisco last year to the extent of 6,293,140 pounds, valued at $363,232.

Large shipments of Mexican tomatoes have been received in Los Angeles by steamer, the rail shipments being stopped by the revolution.

The Spanish minister of public works is encouraging the planting of American wheat which he regards as best adapted to climatic and soil conditions in Spain.

A new 17-day passenger and freight service has been inaugurated between San Francisco and New York, by way of the Panama Canal. Sailings from both ports will be made every three weeks.

The Jewish orange growers of Jaffa in Palestine are unable to market their crop in Europe because of war conditions and have sent a representative to New York to dispose of the fruit in that market.

Uruguay held its second annual stock congress at Durazno, March 4-9 and discussed rural credits, development of the dairying industry and marketing of its products, roads, organization of rural development societies, fairs, etc.

Boys' and girls' pig growing contests are being organized in Illinois. The state board of agriculture and the State Live Stock Breeders Association and a number of swine breeders' associations have given money for prizes which amounts altogether to almost $1,000.

German farmers have been given permission by the government to plant such acreage as they wish to sugar beets this spring. They are required to deliver three-fourths of their crop to the sugar factories; the remainder may be used for stock feed or sold to distilleries for manufacture of alcohol.

As an evidence of the serious effect the slump in ostrich feathers is having on farmers in South Africa may be mentioned the fact that last week one farmer brought in to Graaf-Reinet the pluckings of 40 birds for which he says he used easily to get 300 pounds ($1,460). This time he only got six pounds ($29.20), or one-fiftieth of the usual price. Another case came under our notice where a farmer only got nine pounds ($43.80) for the feathers of 60 birds, whereas between 300 pounds and 400 pounds was the price he was accustomed to receive.

Agricultural News Notes of the Pacific Coast

Northern California

Wool growers of Solano County report an excellent season.

Santa Rosa observed her annual rose carnival last Monday.

Severe winds did considerable damage to fruits in Butte County last week.

Live Oak, Sutter County, has shipped in excess of 2,000,000 pounds of beans.

The University of California commencement day exercises were held last Wednesday.

Six hundred students of the university of California are looking for summer jobs on farms.

Dairymen of the northern end of the state made vigorous protest against the veal bill.

Stock has been subscribed for a cooperative creamery to be constructed at Loyalton, Sierra County.

Arbuckle, Colusa County, is still seeding some lands which were under flood water earlier in the season.

The president has signed a proclamation eliminating 77,000 acres of land from the Sierra National Forest.

County Horticultural Commissioner Bowman of Placer County reports considerable infestation of brown apricot scale.

One of the most complete, well fitted creameries in California is that just completed at Orland in Glenn County.

Strawberries were injured by severe hail storms which visited Bowman, Placer County, about the first of the month.

Dixon, Solano County, observed May day with sports and exhibits of products. The celebration is to be an annual affair.

Farmers at Madison, Yolo County, recently held a picnic at which an exhibit of farm products and babies was the principal feature.

The university of California estimates that over 50,000 hogs have been saved during the past year by the use of hog cholera serum.

Sebastopol berry growers are now shipping strawberries to eastern markets. This is the longest haul ever attempted in strawberry shipping.

At the annual meeting of the Shasta County Cured Fruit Association at Anderson last Saturday Manager Ellis of the state exchange made an address.

Egg men of the state are pleased at the enactment of the Chinese egg bill. It stipulates that the word "imported" must be stamped on all eggs brought from foreign countries.

California now has nine cow testing associations, the largest of which is that of Ferndale, Humboldt County. In that association are 4,000 cows, which makes it the largest association of its kind in the world.

The Natomas Consolidated finished the seeding of 70,000 acres of wheat and barley near Pleasant Grove, Sutter County, only a few days ago. Searchlights were used on the big tractors and work was continuous for months.

Central California

The picking of Valencia oranges began in Porterville May 10.

A large dairy ranch is being established at Poplar, Tulare County.

Tipton and Poplar, Tulare County, will plant large acreages of beans.

Fresno County's tobacco crop netted the growers this year nearly $50,000.

Dinuba orange growers are forming an organization to fight gray scale.

There will be 4,000 acres of rice planted in Kern County this season.

The recent rains are thought to have done more good than injury to all crops.

Tepary beans will be tested in many parts of the San Joaquin Valley this season.

Ceres, Stanislaus County, is making an effort to establish a $50,000 milk condensary.

The state legislature has passed a bill which is intended to prevent shipping of frosted fruit.

Porterville, Tulare County, is shipping out from three to eight cars of canned fruit weekly.

A shipment of 600 head of steers recently went to the San Francisco market from Porterville.

Farm Adviser Mayhew of Madera County reports increased interest in modern methods of farming.

Watsonville has shipped to date more than 200 cars of apples in excess of last year's shipments.

A sale of Jersey cattle held at Modesto last week brought prices rather under those anticipated.

The county board of forestry of Merced County has been planting Black Mission figs along its highways.

A cooperative marketing organization to handle cured fruits has been formed at Del Rey, Fresno County.

Porterville poultry fanciers are planning for the biggest ever poultry event in that county next December.

The Association of Fruit Growers at Terra Bella, Tulare County, will plant extensively of tomatoes for the cooperative cannery.

Tulare County creameries paid out $72,059 for deliveries of March butter fat. This is an increase of $2000 over the preceding month.

The raisin growers' company now has almost entire control of the raisin situation and is in the strongest and best of favor with growers.

Many dairymen of the San Joaquin Valley recently visited Sacramento and urged reconsideration of the dairy bill, which was granted.

Kern County claims that over $4,000,000 was paid for beef produced in that county during 1914. Its product of corn was also in excess of $100,000.

The sealer of weights and measures of Tulare County is urging the marking of tare weight on boxes of fruit and vegetables offered in the markets of that county.

The first full carload of strawberries out of the Pajaro Valley was shipped on April 15. There has now been established a regular "berry special" to San Francisco.

Southern California

Brawley, Imperial County, is shipping about three cars of onions daily.

Orange County has an association of chambers of commerce representing 11 different cities.

Los Angeles observed May Day and all the first week of May in its great Fiesta celebration.

The Imperial Valley is already shipping its new barley crop. Prices are ranging from $1.10 to $1.11½.

The hold-over lima bean crop is moving very slowly. There are over 300,000 bags yet in Ventura County.

Orange County string bean growers are netting most satisfactory sums. Shipments at present are very heavy.

Women's clubs of Riverside County are working to secure more general roadside beautification and improvement.

The greatest walnut producing section of California is Orange County. It has about 14 per cent of the state's total.

The Orange County citrus growers have fully endorsed the methods employed by the California Fruit Growers' Exchange.

Venture County offers prizes in the form of free trips to the world's fair to contestants from the county agricultural clubs.

An association of walnut growers has been formed at Moorpark, Ventura County. There will be about 700 acres in the association.

The board of supervisors of San Luis Obispo County indicate that they will soon make an appointment of a county horticultural commissioner.

Brawley is maintaining a farmers' public market. Produce, live stock, furniture, everything which the farmer may have to sell is admitted.

Orange County citrus growers recently met at Orange and discussed possible methods of securing greater returns for their next year's output.

Orange County sugar factories will manufacture more sugar this season than any preceding year. Contracts are still being made with the farmers.

There was never a time in Southern California citrus sections when there was so great an interest in factories for the purpose of saving waste products of the citrus industry.

Avocado growers of the southern end of the state will meet at the Alexandria Hotel, Los Angeles, on Friday morning of this week for the purpose of organizing a state association.

Farmers in the Palo Verde Valley are discussing the matter of levee construction along the Colorado River. There is some damage visited upon the valley during almost every June flood.

The Olive Heights Citrus Association, Orange County, has commenced suit against a member to enforce delivery of Valencia oranges, which have been sold from under the association.

At the recent annual meeting of La Puente Valley Walnut Growers' Association the following officers were elected: S. L. Watts, president; B. F. Maxson, vice-president; Robt. H. Neely, secretary; C. J. Hurst, Sam Robinson and E. J. Va[illegible] Wig, directors.

The Coast

Texas is shipping an immense quantity of onions.

Burbank potatoes are selling at Yakima, Washington, at $40 per ton.

Crickets are doing vast injury to wheat fields near Spokane, Washington.

Several towns in Arizona have organized farm improvement associations.

A lettuce grower at Yuma, Arizona, has been exhibiting a three-pound head of lettuce.

Lewiston, Idaho, reports its grain warehouses practically empty of last season's crop.

Manager Kelly of the Yuma irrigation project reports that at the present time there are 698 irrigated farms on that project.

The International Soil Products' Exposition will be held in Denver, September 27-October 9.

The Montana stock growers association closed its annual convention at Miles City last week.

The Portland Union Stock Yards report only a medium supply of hogs and prices advancing.

It is reported that there are 65 herds of reindeer in Alaska made up of a total of over 60,000 head.

The regular monthly meeting of the Arizona State Poulty Association was held at Phoenix last Saturday.

Cattlemen of Cochise County, Arizona, report this the best year for cattlemen ever experienced in that state.

The board of trustees of the North Yakima Fruit Growers' Association has ordered an assessment for the support of the growers' council.

The members of the Douglas County Fruit Growers' Association met at Roseburg, Oregon, and decided to organize a cooperative cannery.

Berry shippers of the Northwest are greatly concerned over the requirements as to size of crates prescribed by the Pure Food and Drugs Act.

Potato growers of South Idaho are endeavoring to stamp out two very serious diseases of that section. They are rhizoctonia and fusarium blight.

Hop men of Oregon estimate the yards of the state this year will not exceed 20,000 acres and that the crop will be less than 60 per cent of normal.

A fruit broker at Seattle, Washington, was recently arrested because of selling strawberries in boxes which were larger than those prescribed by law.

Ninety-five per cent of the fruit growers near North Yakima, Washington, have agreed to market their fruit only through a coperative organization.

One feature of the Celilo Canal opening was the participation by the Northwest Livestock Association in the great parade held at Lewiston last Monday.

An agreement has been effected between the states of Arizona, Colorado, New Mexico and Texas, through which the free movement of cattle is permitted.

Can you twist the tugs of your harness like that? Flexible harness is strong harness. Keep it pliable and it will give you good service for years.

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Raise a pig;
If you have a dear desire for a
Splendid private car,
Raise a pig.

If your daughter yearns for jewels,
That will make a lurid blaze,
Or your wife would be a leader
Where some other matron sways;
If you wish to give up toiling and
In comfort spend your days,
There's a way—don't overlook it—
Raise a pig.

If you're sick of serving others and
Are looking for a change,
Raise a pig;
If you wish to gaze at wonders
That are far away and strange,
Raise a pig.

If your son would like to squander
Money on a chorus girl;
If you yearn to own a castle, having
Walls inlaid with pearl;
If your youngest daughter wishes
To be married to an earl;
There's a way—don't overlook it—
Raise a pig.
—Northwestern Stockman and Farmer.

SILAGE FOR SWINE

Written for California Cultivator
By Geo. H. Bancroft

NOT having had personal experience in feeding silage to swine, I have written to authorities on the subject and give below extracts from the answers received. These, I believe, will be valuable.

The editors of The Country Gentleman write, March 19: "Silage is not usually considered a very good feed for swine. It is too bulky. The hog's digestive apparatus is not designed for handling large amounts of bulky feed. Some feeders have found some advantage in feeding just a small amount of silage to hogs as a sort of appetizer. A pound or two a day is about all the silage that they feed. Corn silage will do very well for this purpose."

Richard A. Haste, managing editor of Campbell's Scientific Farmer of Billings, Montana, writes, March 17: "Corn silage has not proved of any special advantage in hog feeding. Alfalfa and the clovers containing a large amount of protein are better for the growing pig and a more concentrated food is better for finishing the product. The trouble with silage as a hog feed is that it is too much of a roughage and not concentrated enough for pork production. However, where alfalfa is not available a combination of carbohydrates and proteids ensiled would doubtless be an economical hog feed."

The Kansas state agricultural college at Manhattan writes per W. A. Cochel, March 11: "We have never made a complete test of alfalfa silage for brood sows because of the fact that it has been almost impossible for us to make a good grade of silage from alfalfa. Hogs will not be able to utilize silage made from corn, kaffir, Sudan grass, barley seed, oats and rye. The great difficulty in feeding silage to hogs is that it is so bulky that they are not able to consume any great quantity of it. It may be that you could maintain brood sows on it fairly well, but it has very little productive value."

The Frost Publishing Company of Chicago, per John F. Myers at San Francisco, writes March 23: "In the classification of feeds silage is classed as a roughage and hogs are not adapted to the handling of much roughage in their ration, so silage can hardly be classed as a hog feed. Alfalfa pasture during the growing season and alfalfa hay during the months that alfalfa cannot be pastured will make much cheaper and better food for hogs than silage.

"When pasturing alfalfa or feeding alfalfa hay at least a half ration of grain should be fed for best results. It might be a good experiment to try out a little silage on a few brood sows. It is impossible for a hog to even get a maintenance ration from silage alone."

American Farmer's School, Minneapolis, Minnesota, per H. G. Parkinson, writes March 9: "There is but little experimental data on the comparative values of silage for feeding swine. There is one thing about silage for swine that is desirable, and that is the fact that it is a good succulent roughage, although we cannot feed large quantities to our herd because of the fact that their digestive capacity is limited and will not take too much. With broow sows, if they are beginning to get heavy with pig, it would not be wise to crowd them with too much roughage of this character. For hogs that you are wintering and for brood sows too, as well as young growing pigs, some silage is undoubtedly beneficial. The amount that you feed will depend upon the kind of hogs to which you are feeding it and their condition.

"I would not advise feeding any quantity of silage to hogs which you wish to fatten, because when you are fattening a hog you are feeding him about all of the concentrate that he can care for anyhow. Silage too compares very favorably with pasture. 'Canned pasturage' is really a very good name for silage."

S. J. Craig, Lake County agricultural agent, Crown Point, Indiana, writes, March 3: "In speaking about 'canned pasturage' in reference to silage you give your own explanation on that when you say that the hog has a very small stomach. You cannot supply mature corn to the hog through silage as profitably as you can harvest the corn and feed it to the hogs by itself on the point you have already mentioned, which is that the hog has a small stomach."

American Swineherd Publishing Company, Chicago, Illinois, per Jas. Baynes, writes, March 4: "You need something besides silage, but it comes in all right. But out in your country I suppose you have green stuff the year round. If you can grow corn silage you can make all the silage, and soja beans are extra good. Also rape is great hog growing stuff, and alfalfa if you can raise it. It is the cheapest feed, but you must have some grain to balance the ration. If you can raise barley or wheat or kaffir corn or maize, you can balance it all right. They are making a big business in Colorado with the beans and alfalfa and barley."

F. W. Woll, professor of animal nutrition, University Farm at Davis, California, writes, March 8: "Replying to your question, I would say that silage from either Indian corn or sorghum or other crops is not especially adapted for feeding swine, for the reason that it is too bulky, and these animals cannot derive sufficient nutriment from the silage to make much gain. Silage, however, is used to some extent by swine breeders in different parts of the country, being fed in small quantities, and especially to brood sows, and in this case is used more as an appetizer and to regulate the system than for the nutriment it contains.

"I have no doubt but that you will find rape a very valuable feed for pasturing hogs, and cow peas and soy beans will very likely also do well on your land and prove valuable swine feed."

In addition to the above we have the following from the different scurces quoted:

Clayton Messenger, proprietor of the Hampshire Farm in Iowa, and an extensive raiser of hogs, at one time did not believe in silage for swine. An experiment convinced him, however. They were very greedy for it and squealed lustily for more. The consequent thrifty appearance of his stock has induced him to plan a hog silo

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Cures raw, galled, sore necks while working horse. First application gives horse ease. Cures galls or chafing on person. 50c a box. Any live dealer will get it for you. Or send dealer's name and 50c and we will send you box prepaid. Fully guaranteed. Money back if it fails. Reference: Farmers State Bank, this city.
WILLIAMSON MFG. CO., Box B, SHEFFIELD, ILL.

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as he is convinced that silage has a place in feeding swine.

Wm. Smiley and Son, Albany, Wisconsin, tried the experiment of feeding their herd of big type Poland-China sows on silage at the rate of one and a half bushels to five sows, the ratio of feeding value of corn silage to corn being about 1:5, but its feeding value to the sows was more than that, as it kept them in fine condition and helped in farrowing. In winter silage is fed twice per week.

The Silver Manufacturing Company of Salem, Ohio, found through investigation that the testimony concerning the value of silage as a feed for swine is conflicting. Col. F. D. Curtiss, an authority on swine, states that silage is valuable to add to winter rations of swine. It keeps up the flow of milk of the sows that are nursing the young, equally as well as when they are running on clover. Dr. Bailey fed large hogs 10 pounds of silage and one pound of wheat bran with good results at a cost of two cents per day. He states that clover silage would require no grain in addition. Feeding experiments conducted at the Virginia experiment station show that silage is an economical maintenance feed for hogs when fed in connection with corn, but not when fed alone.

United States Farmer's Bulletin No. 32 states that "Numerous attempts have been made to feed swine silage, but generally without success. In some cases swine have gained something, probably from the grain that might be present in the silage, but the available data do not as a rule demonstrate satisfactory results from such feeding. The Utah station reports as a result of experiments that silage is unfit for pigs and they do not like it. At the New York station feeding results in this line have yielded entirely unsatisfactory results. Henry reports that he repeatedly tried corn and clover silage as a food for swine, but without success. The Virginia station, however, reports fairly successful results with corn as a cheap maintenance ration for carrying brood sows over winter, but not for fattening.

The above data give somewhat conflicting verdicts as to the value of silage as a feed for swine.

The writer believes with Mr. Haste that a combination of plants containing a rich proportion of carbohydrates and proteids ensiled would be an economical hog feed. The difficulty of ensiling plants rich in food values will no doubt be overcome in some manner, perhaps by partly wilting or drying the green forage before cutting or shredding for the silo.

If "canned pasture," or silage, is of the same, or about the same, food consistency as green grass or crops in the pasture used for grazing hogs, for instance rape, then some method of forcing the hog to take a reasonable amount of exercise while consuming silage would be well worth trying.

Lately means have been contrived to force the hog to exercise while feeding after the same or similar manner as poultry are compelled to scratch in a deep litter or work some mechanical feeder when they are hungry.

In other words, if rape is of such great value as pasture for swine, then the "canned pasture" should be good if accompanied with about the same degree of exercise.

We are convinced that silage can be used to advantage in feeding swine, but it evidently cannot be profitably used unless in connection with some more concentrated food. The proper proportion of solid grains to silage in the ration is the problem. We are convinced that we do not have the last word yet upon this subject.

PRODUCTIVE FEEDING OF FARM ANIMALS

"Productive Feeding of Farm Animals," by F. W. Woll, Ph. D., Professor of Animal Nutrition, University of California, published by J. P. Lippincott Company, Philadelphia, $1.50.

Prof. Woll's coming to the University of California has added materially to its teaching force. More, we believe his presence in California will give a stimulus to animal husbandry.

This book, one of the Lippincott Farm Manual series, is adapted to the use of students in agricultural colleges. It will also prove of great value to the live stock producer who wishes fullest information as to feeds and feeding values. We are all reaching for that which will aid us in producing the most with the least expenditure. It is a volume of nearly 400 pages, fully illustrated, with much tabulated information regarding all kinds of feeds. From the introduction we quote:

"A clear understanding of the main principles underlying the nutrition of farm animals has never been more important to the stock farmer than at the present time, with prevailing high prices for feed and labor. In order to secure profitable returns the farmer must be able to adapt these principles to the special conditions that surround him; these are likely to vary in different years, both as to prices and products. Modern industries supply immense quantities of by-products that serve as feed for farm stock, such as flour and oil-mill feeds, starch and sugar factory feeds, brewery and distillery feeds, and others. These differ much in nutritive values as well as in cost. Since better results may be obtained in feeding stock a combination of different feeds than from only one or two, it is important not only to understand the principles of stock feeding, but to become familiar with the different available feeding stuffs, their main characteristics and nutritive properties, as well as their relative values under changing market conditions. Only in this way can the stock farmer secure the best and most economical returns from his feeding operations and make stock raising pay; provided the other factors have received proper attention: Keeping animals adapted for the purpose in view and giving them the care which they require in order to do well."

The following outline of contents will indicate the topics discussed in the book: Introduction, Composition of Feeding Stuffs, Digestibility, Uses of Food Materials by Animals, Description of American Feeding Stuffs, Their Characteristics and Value for Different Purposes, Principles of Feeding Livestock, Feeding for Maintenance and for Production, Feeding Standards, Feeding Livestock Under Ordinary Farm Conditions, Dairy Cattle, Beef Cattle, Hores, Sheep, Swine, Poultry, Appendix, Tables of Composition, Digestibility and Manurial Values of Feeding Stuffs, etc., etc.

COTTONSEED MEAL.

Cottonseed meal contains from 38 to 45 per cent protein and is therefore one of the most concentrated feedstuffs upon the market. There are in fact very few vegetable feeds which have anything like this percentage of protein. Its value has perhaps been more thoroughly appreciated in Europe than in this country despite the additional cost of shipping it abroad. During 1913, for example, about 400,000 tons of the meal were exported to Europe. Much of what remained in this country was used as fertilizer, so that it has been estimated that American cattle were fed less than one-half of the total quantity of meal produced in the country. There is, however, a growing tendency at the present time to use the meal as a supplementary feed. One pound of cottonseed meal is said to be usually worth as much as two pounds of corn for feeding cattle. There is however a distinct limit to the quantity of the meal that animals can use economically. In the South it was formerly the custom to feed steers very heavily on the by-products of the cottonseed oil mills, 12 to 15 pounds of meal a day being a not infrequent ration. Such heavy feeding frequently caused blindness and death, while in other cases the steers after gaining fast in weight for a period of 90 days or more, lost flesh with equal rapidity and could be with difficulty got back into good condition. Experiments have shown, however, that when the ration is kept below seven pounds a day, steers can be fed for 100 to 120 days upon it without showing ill effects. If silage is given at the same time as roughage the feeding of cottonseed meal can be prolonged beyond this time with safety. Silage is a better roughage to use with meal than cottonseed hulls as experiments in several states have shown that it gives larger daily gains and better finish.

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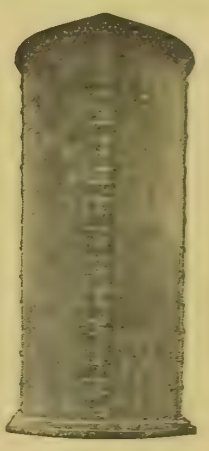

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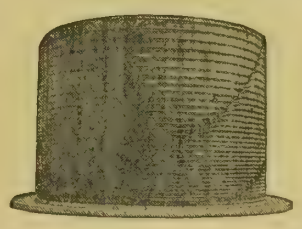

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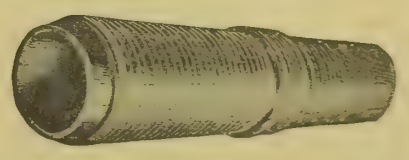

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THE OX WARBLE FLY

Cattle grubs when infestation is heavy seriously affect the gains in fattening cattle and reduce the flow of milk in dairy cattle, states Professor William Hislop, animal husbandman of the Washington experiment station at Pullman.

A case is recorded by Boas in Denmark of an infested dairy cow which, while she remained in poor condition, gave 33 pounds of milk per day. Forty-six grubs were extracted from her back and eight days later she was giving 44 pounds of milk per day. The loss in this case was 25 per cent. The hides of grub infested cattle are so perforated with holes that they are discriminated against when marketed. A green, "grubby" hide is generally worth one cent a pound less than a perfect hide.

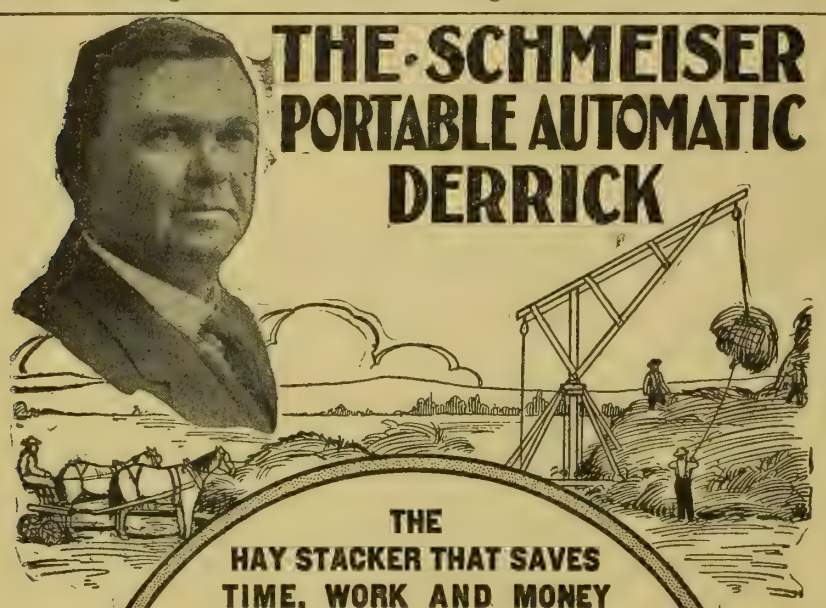
Life History.

The fly (Hypoderma lineata) that causes this grub is variously known as the ox warble fly, the heel fly, or the ox bot fly. During the spring and summer the eggs are deposited on the hairs around the hoof heads, and the animal on licking them carries the eggs or grubs into its mouth. The maggot passes into the gullet and then migrates to the back where it causes a swelling observed in late winter or early spring. In the spring or early summer months the grub emerges from the back of the animal through a small hole previously used for breathing purposes. On falling to the ground and burrowing in it the grub enters the pupa stage which lasts from three to six weeks. At its conclusion a two-winged fly emerges.

How to Combat.

The best method of destroying the grubs when ripe is to squeeze them out and kill them. If the warble is small and firm the grub may be removed by inserting a pair of small forceps into the opening of the tumor. If the opening is too small to permit the entrance of the forceps it may be enlarged by a small incision with a sharp knife. Strong thumb pressure will then force the grub out through this artificially enlarged opening. When removed all grubs should be destroyed, otherwise they may pass into the remaining stages of the life history and ultimately develop into adult flies. After the removal of the grubs an antiseptic should be applied to the affected portion of the hide. Cresol or Zenoleum (five per cent solutions) are excellent for this purpose.

If stockmen would cooperate in the wholesale destruction of these grubs, the pest could be eradicated.



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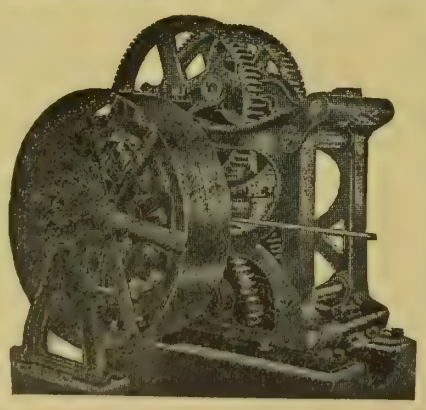

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SEPARATOR ROOM HINT.

I find that a very offensive smell arises from the concrete floor of the separator house after we have flushed out the house the night before with water and it is the surplus water and the little milk that is left on the floor that causes the smell. Simply sprinkling a little air-slacked lime over the floor the night before will give a sweet smell in the morning and not that offensive odor.—Shirley Manock, Tulare.

FARM BUREAUS

(Continued from Page 561)

feeds, etc. To carry on such a business a credit rating is necessary and this has been secured by responsible farmers signing demand notes and depositing them in the bank, guaranteeing any indebtedness that the bureau may incur. Already over $4,000 of such notes have been signed up, and a business agent hired by the bureau and prospects look bright for the raising of the full $10,000 before very long."

Glenn County, J. W. Mills, Adviser, Fairfield

Rio Vista, May 4.
Benicia, May 11.
Vallejo, May 14.
Suisun, May 17.
Vacaville, May 19.
Cordelia, May 20.
Dixon, May 26.

At the Rio Vista and Dixon meetings we are going to discuss swine growing. At Vallejo the dairy will be the subject, while at the other places no subjects have been alloted.

We have organized three potato clubs, one at Suisun, one at Rio Vista and one at Vacaville, and a pig club at Dixon.

Maricopa County, Arizona, Jas. A. Armstrong, Adviser, Phoenix

On Tuesday, May 11, a meeting is to be held in the Roosevelt meeting house by the South Side Farm Improvement Association. The subject to be discussed will be the Dairy Cow. It will be discussed by Dr. Norton. Prof. G. W. Barnes will also be present and discuss The Adobe Hole in Its Relation to Contagious Abortion in Dairy Cattle. Farm Adviser James A. Armstrong will also be present to answer any questions that may be asked along general farming lines; especially in relation to the ant campaign which is now in full swing.

On Thursday, May 13, meeting at Lehi with the Lehi Farm Improvement Association. Prof. G. W. Barnes and Farm Adviser James A. Armstrong will discuss the dairy industry south of the river and show the ultimate results to be expected from the Cow Testing Association which is being formed in the Mesa, Chandler and Gilbert district at this time.

At Chandler, Friday, May 14. A petition is being circulated asking the assistance of Prof. Stanley F. Morse in the formation of a Farm Improvement Association at Chandler. This petition is being rapidly signed up by all farmers in that district who are familiar with the work of these associations in other places, the purpose being to improve the social conditions in rural communities and improvement of markets, distribution of seeds, etc., or in general to make use of the facilities offered by the extension service of the University of Arizona and the United States department of agriculture.

This meeting is to take place in the Chamber of Commerce rooms, Friday, May 14, at 2:00 p. m. Prof. Stanley F. Morse in charge of extension work of the University of Arizona, will be present, as well as Farm Adviser James A. Armstrong, and possibly Live Stock Specialist G. W. Barnes.

On the evening of May 15, a meeting of the Gilbert Commercial and Country Club will be held in Gilbert. Prof. Stanley F. Morse, with the University of Arizona extension service, and Farm Adviser James A. Armstrong will be present, and possibly Live Stock Specialist G. W. Barnes.

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Fodder Poisoning

Sheep fed on hay stagger and finally lie on the ground with the head pulled back. There is a discharge of mucous from the nose. When placed on their feet they stagger forward and root their nose in the ground and then fall. Within five or six days they die. On cutting open the stomach a substance was found resembling dirt. I thought it possible that it was caused from some poison or weed in the hay but know of no such weed here.—Subscriber, Vacaville.

It acts like spinal meningitis caused by fodder poisoning, not from a poisonous weed in the hay but from a mould or fungus on the hay caused by dampness. The best remedy would be a physic. Mix four ounces Epsom salts, two ounces common salt and half a dram of powdered nux vomica. Dissolve it all in a pint of warm water and give at one dose as a drench. Be careful in drenching and in the amounts of the medicines. The nux vomica is poison, but given as directed will be all right.

Bloody Milk

Cow gives bloody and clotted milk from one-quarter without apparent cause. Please tell me what to do.—Subscriber, Merced.

Thin the cow's blood by giving Epsom salts two pounds, common salt one pound and nux vomica three ounces. Mix and give a handful in a little feed once a day. Bathe the quarter of the udder that gives the bloody milk with warm water and rub it carefully with the hands and be sure to milk it out clean every time.

Alfalfa Ball

Mare has what veterinarian calls alfalfa poisoning from wet, dusty alfalfa, or alfalfa ball. Gave arsenic but it does not seem to help her. What should I give her? She does not seem to have much use of her hind legs.—Subscriber, Merced.

If the horse's bowels are clogged with alfalfa that is rolled up in balls as it sometimes does, our answer will probably be too late to do much good. The horse should have had a very active physic. The veterinarian should have given arecaline, but you might have given a physic of one quart raw linseed oil, two ounces of turpentine and three drams aloin at one dose. The arecaline you could not get nor give, it is given under the skin with a hypodermic syringe.

Poultry for Profit

PREVENTING DISEASE

Written for the California Cultivator
By Jean A. Koethen

AN ounce of prevention is worth a good deal more than the proverbial pound of cure in the poultry yard. In fact an Irishman would probably say that prevention is just about all there is to curing disease anyhow, and he wouldn't be far from wrong, only the American way of putting it is more conservative and therefore less emphatic. We may be very sure of this, if there is disease in the poultry yard, it is somebody's fault, and while there may be remedies, they are only makeshifts and the real cure is to find out what is wrong and as speedily as possible to right it.

The word we use nowadays for all sorts of disease prevention is a word that is used so freely in all localities and by almost all sorts of people that it has become a word to conjure with. It is the word that puts up quarantine signs and causes careless milkmen to be arrested and fined and puts drinking fountains in school yards in place of the old disease-spreading water pail and forbids spitting in public conveyances and does a whole lot of things that never were thought of when some of us were children. This same word is conjuring disease away from hen yards and weaving a magic spell that keeps every fowl red-combed and vigorous, only men have been slow to realize that their fowls are not essentially different from themselves in their requirements, and the Herculean task is only commenced. I mean sanitation, a good Latin word, which means health-making, and that is precisely the same thing as preventing disease or curing disease.

Preventing Roup

When we think of diseases of fowls we naturally think of roup first, for it is a monster of many heads and without doubt the greatest enemy of fowl health and happiness. There is swell-head, roup of the eyes, diphtheretic roup, roupy catarrh, and all gradations between, from a swollen-shut eye down to real diphtheria with its false membranes and often speedy death. Roup often appears in the beginning like a common cold, with a thin discharge from the nostrils, which soon becomes thick and soils the feathers where the bird tries to wipe it off, or there is a sticky look about the eye, or perhaps the eye is closed or swollen or both. Sometimes the birds eat well and seem little inconvenienced by their malady, but in more severe cases they mope and refuse to eat, and when the disease takes on its most virulent forms they remain quiet, with ruffled feathers and closed eyes, and soon die.

I have mentioned these symptoms of roup because it is extremely important to recognize them at the very beginning. One single symptom is a danger flag, a warning that there is something wrong, either in the sanitary condition of the premises or in the constitution of the bird. In searching for the cause of an outbreak of roup, though it be but a single case, I should look to

Housing

The most important thing about a sanitary poultry house is that it admits the sun. Lack of sunshine means vermin and mold and disease germs. You know the difference between roup and a cold is that roup is a germ disease—at least so the doctors say. We speak of roup being caused by bad ventilation, dampness, etc., but it would be more correct to say that these things lower the tone of the system so that the deadly, ever waiting germ may get in its work. The germ may have been left in the house by former outbreaks of the disease or it may have been brought in by a newcomer. In any case sunshine, aided by disinfection, destroys it and keeps it out. It is for this reason that a south front is considered the best for poultry houses. A south front, open to the sun, and with a roof so high that it admits the sunshine to every farthest corner, is the first step in the prevention of roup.

The second essential to a sanitary poultry house is ventilation. In winter the open front, with back and sides tightly closed, may admit a sufficient amount of oxygen, but it does not provide for circulation of air to dry out any possible moisture. In long-continued rainy spells if droppings are left for a few days on an earth floor, they are almost sure to mould, and unless the house has a tight foundation the earth becomes damp and remains so. A window at the rear of the house, which can be opened between storms, provides circulation of air which quickly dries up this dangerous moisture.

The matter of housing poultry so that it may have necessary protection without drafts, and yet be supplied with pure air, is by no means as easy as it looks. On some of the most up-to-date ranches I have seen the roosting houses are built with two sides open, the one into the scratching-shed, the other directly out of doors. A few hens in a small colony coop will do well enough with air from the front only, but a large flock needs more air than this except perhaps in cold, stormy weather. A good test of the ventilation facilities of your house or coop is to go to it at night when all the birds are inside, and see how you like the smell. It would be going too far to say that there should be no odor, for even the cleanest, most carefully ventilated quarters will have some, but if there is a heavy, stuffy, noisome air, believe me, you will have roup in your flock if you have none now.

Of course, if there are too many hens in your house you cannot have pure air unless the conditions are almost those of outdoors, and this brings me to the third requirement of a house, which is that it be large enough. It is generally agreed that 3½ square feet of floor for Mediterraneans or 4 to 5 square feet for heavy breeds is about right, but it is safer to have four for Leghorns and five for heavier birds. Even then the number may be too great if the house is not well planned. Hens throw off the moisture of the body through the lungs instead of through the skin, and a close, crowded house too often becomes a veritable sweat box. If on your evening visit to the roosting house you find that it seems hot, be sure the hens find it quite as uncomfortable as you do. The fact that hens will always roost in trees if they can is a pretty fair indication of the sort of air they like to breathe. "It seems queer to me," remarked a carpenter who had built a house for the family and was now constructing my henhouse after what seemed to him an unnecessarily protective design," you want so much air yourself, but you aren't willing your hens should have any." I took the hint and since then have tried to give my hens as much air as I like myself.

Cleanliness

A **prominent poultry** breeder, who was recently asked what he considered the first essential to successful poultry keeping, replied, "Cleanliness." But what has cleanliness to do with roup? Just this: the presence of unremoved droppings week after week must inevitably vitiate the air. Some poultrymen clean out the droppings daily, but most find twice a week sufficient. Where droppings-boards are used I think a house needs cleaning rather oftener than when the droppings fall into soft dirt, but twice a week is none too often. Some authorities advise the use of air-slacked lime on the droppings boards, but I have found clean dirt entirely satisfactory. Its use would be too troublesome in a large plant, but a large plant should have cement floors which can be washed often with the hose.

I would not like to say that roup is caused directly by filthy soil in poultry yards and runs, but gapes and intestinal worms and scaly leg are, and I can hardly imagine that hens enjoy scratching in it, so why not spade it up once in a while and plant something? If barley or oats are buried far enough below the top of the ground they will be up before the hens have found them, and even this little growth helps. Of course a system of double yards is better, and I expect to see the day when no poultryman with any self respect will grow fowls without giving them some chance to nibble at green growing things, or will keep them year after year in the same bare runs.

(Continued next week.)

SICILIAN BUTTERCUPS

Dr. A. B. Woodhull is an enthusiast for what she terms "one of our very heaviest producing breeds of poultry." This is the Sicilian Buttercup, comparatively little known and yet one of our older breeds. Regarding this breed Dr. Woodhull writes:

"The cock is erect, with as self-important an air as if boasting of royal ancestry. In color he is a rich orange, with black tail and black and red wing flight feathers. The comb is cup-shaped with points around the edge; or may be likened to a crown, and is a distinguishing characteristic. The legs are willow green, body plump and symmetrical, skin yellow, and weight from five to seven pounds.

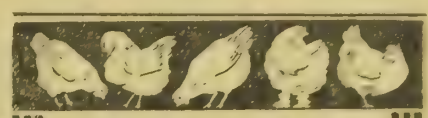
"The hen is golden buff or butter color, rather evenly spangled with black on the back and across folded wings. The hackles should be plain, golden buff; tail and wing flights dark, legs same as cock. Comb same as that of male, but smaller. The carriage is sprightly, accompanied by an air of happy, trusting friendliness that is quite captivating.

"Buttercups are hardy and strong from the shell. They mature very early, sometimes beginning to lay at four months of age. As layers they are unexcelled, not being afraid to compete with any other breed. Individual hens and selected pens have made astonishing records. This great laying capacity is not limited to the first, but continues through second and third years. They waste no time becoming broody, but trust to the incubator to hatch the eggs it is their business and pleasure to produce.

"Buttercups grow rapidly, are small boned and plump, so that surplus cockerels may be disposed of as broilers at two months of age. It is not for table use, however, that they excel; it is for eggs—eggs, winter, summer, and all the year. Sicilian Buttercups are very hardy, mature early, are everlasting layers of rich, well flavored eggs, are practically non-sitters, they combine activity with gentleness, and possess a unique beauty quite characteristic."

ANOTHER CURE FOR ROUP

A subscriber who has tried and found it most effective recommends as a cure for a cold or roup in its first stages the use of three parts cottonseed oil, one part chloroform. Use the ordinary small sized oil can or machine oiler and inject into the nostrils.



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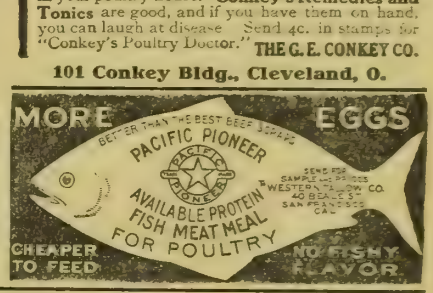

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TREES

Rialto Seedless Lemon Trees—Write or phone for Brief History and it will be mailed to you. The coming Lemon for California. Also Seedless Grapefruit—Valencias, Washington Navels—Eureka and Villa Franca Lemon—Mexican Lime—Ganter and Harmon Avocado Pears. We are making special inducements to planters. Prices on application. We have first-class stock and can make deliveries from San Bernardino, San Diego and Los Angeles Counties. We are not jobbers but selling our own grown trees. Buds selected from the best bearing trees. 25 years in Southern California growing and handling citrus trees. Yours for good business.
CALIFORNIA ORCHARD DEVELOPMENT CORPORATION
303 South Hill Street
Main 884 Los Angeles, Cal. F-7406
or
Cyrus W. Wilhite
Home 303 Glendora, Cal.

Lease Expires Next Spring—Must sell. Have left about 2,000 Eureka lemons, three-quarters inch and up, buds selected from trees producing heavy crops of fancy fruits. 2,500 Valencia Late five-eighths inch up, 2,000 Marsh Seedless grapefruit five-eighths inch up. These are stocky and especially adapted for desert planting. Will sell with loose roots or balled. Prices as follows for loose roots: Eureka lemon, three-quarters up, $16.00 per hundred; Valencia Late, five-eighths up, $15.00 per hundred; Marsh seedless grapefruit, five-eighths up, $12.50 per hundred. All information cheerfully given. E. J. Van der Sluis, Glendora, Cal.

AVOCADO TREES

The Avocado is the most valuable of all fruits and the most important future industry before the people of California today. Vigorous, field-grown, budded trees of standard frost-resistant variety; from four to seven feet high, $2.00 to $3.00, according to size. Write for literature. W. A. Spinks, Duarte, Cal.

BUDDED AVOCADO TREES

Blake, Fowler, Harman, Ganter, Taft, Walker, Murrieta, Trapp, for immediate delivery. Royal, Challenge, for future delivery.
MAGEE BROS., R. D. No. 2, Pasadena.

Very Fancy Citrus Stock—Eureka lemons, Valencia and navel oranges and grapefruit. Very strong one and two year old trees, heavy root growth. Very low prices. Get our quotations for any quantity wanted. Smith Citrus Nurseries, 619 Oakland Ave., Pasadena. Colorado 4089.

Eureka Lemons, Late Valencias, Washington Navels—⅝ up. Thrifty, clean stock, 20c open root, 25c balled. Quality considered, you can not beat it. Plant now. Call or write Wilbur K. Howard, Loraine avenue and Santa Fe crossing, Glendora, Cal.

For Sale or Exchange—High class citrus trees. Marsh Seedless Grape Fruit, Eureka, Villa Franca and Lisbon Lemon, Navel and Valencias. Low prices. Will consider land, team or runabout automobile. John Shingler, Uplands.

Two-Year-Old Eureka Lemons—Washington Navels and Valencia buds, A1 stock; 15c loose root, 20c balled. Harmon Avocado buds, 3 to 7 feet, $1.00, $1.50 and $2.00. A. Z. Lane, Glendora, Cal., Box 331.

Prices Reduced—Ganter and Harman Avocados, 4 to 7 ft., extra fine field grown trees with large, even heads; on rented ground and must be sold. Our prices will surprise you. Citrus also reduced. Magnolia Nursery, Whittier, Cal.

For Acacias, Avocados, Budded Loquats, Citrus trees, Evergreens, Feijoas, Palms, Roses and all kinds of trees, shrubs, vines, etc. Write for our new catalogue. Robertson Nurseries, Fullerton, Cal.

For Sale—Navel, Valencia and lemon trees, three-quarters inch and up, 20c loose root, 25c balled. Budded Avocados, 4 to 7 feet high. Address Box 54, Glendora, Cal.

For Sale—2000 Late Valencia Orange trees, two years from bud. 1800 Washington Navel, one year from bud; A1 stock. Address H. H. Eshelman, Soldiers' Home, Cal.

The 1200-Acre Nursery, growers of 1500 varieties of trees and plants. OREGON NURSERY CO., Orenco, Oregon. Sales office, 522 Chamber Commerce, Los Angeles, Cal.

Budded Avocado—Select field-grown trees of standard varieties for the home or orchard. Sapota, Feijoa, etc. Catalogue free. Semi-Tropic Nursery, Monrovia, Cal.

For Sale—Finest Valencia and Washington navel trees in the country, 20c loose roots, 25c balled f.o.b. Small orders promptly filled. B. C. Dodson, Glendora, Cal.

Very Fine Sweet and Sour Orange Seed-Bed Stock — PRICE REASONABLE. MIGHT TRADE FOR GOOD AUTO OR TEAM. ORANGE COVE NURSERIES, OROSI, CAL.

For Sale—Eureka Walnut Trees, budded on Native Black Walnuts. Choice stock. Order immediately. Don't delay. Wm. Holve, Fullerton, Cal.

100,000 Citrus Trees—Choice Seedlings and Buds. Wanted, a budder. Butler's Morning Side Nursery, Lamanda Park, Cal.

For Sale—Field-grown budded avocados, Harman, Ganter, Taft; 2 feet to 7 feet high, $1.00 to $3.00. Home Phone 444. A. B. Rogers, Glendora, Cal.

Before Planting Olives, Avocados, Feijoas, Rhubarb or Cactus, get my free booklet. Bishop's Nursery, Highland, Cal.

Nurserymen—Pot grown conifers, palms, shrubs and ferns for lining out or potting. Ballou's Nursery, Pasadena, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

TREES

Cactus and Trees—Cash Nurseries, Sebastopol, Cal.

SEEDS AND PLANTS

Sudan Grass Seed—Pure, recleaned, clear of Johnson grass, 20c lb. cash, orders of 20 lbs. or over 15c lb. Sudan grass makes better feed than Cane or Millet and twice as much per acre; can be sown any time in May or June. 3 lbs. of seed per acre makes hay crop in 60 days, and seed in 90. Instructions for planting, cultivating and harvesting with each order. F. M. Grundy, Lubbock, Tex.

For Largest and Quickest Profit plant now. Luther Burbank and Mediterranean Spineless Cactus Plantations. ROBINSON CITRUS NURSERIES, R. F. D. 35-A, San Dimas, Cal.

Burbank Spineless Cactus—Hardiest varieties, "Melrose" and "Special." Strong, matured slabs. $8.50 per 100; $50 per 1,000. Labranza Ranch, Athlone, Merced Co., Cal.

$udan Gra$$—Plenty of time to plant this wonderful forage. Special ten-day offer. Spineless Cactus and Giant Winter Rhubarb at reduced prices. Write now. Black Bros., 455 Lucas, Los Angeles.

For Sale—Ten bushels (dry) sour orange seed prepaid by express for ten dollars per bushel. Address J. M. Chaffer, Enterprise, Fla.

Berry Plants, Rhubarb, Cacti—It will be worth your while to send me a postal right now if you are interested. Louis F. Scribner, R. 2, Pasadena, Cal.

For Sale—Genuine Luther Burbank Spineless cactus at reduced prices. Orders received now. Oscar Mauer, Del Mar, San Diego County, Cal.

Burbank Spineless Cactus—All the best varieties for forage and fruit. Guaranteed. Send for catalog and price list. G. D. Cummings, Los Altos, Cal.

Sweet Potato Plants For Sale—Yellow Nansemonds. S. A. Wilks, R. F. D. No. 1, Box 137, Downey, Cal. Phone Home 713.

For Sale—Yellow sweet potato plants, $1.50 per thousand F. O. B. Santa Ana, Cal. S. D. Teel, R. D. No. 3, Box No. 8, Santa Ana, Cal.

Attention Dairymen—Plant Sorghum for green feed or ensilage. Seed for sale in lots to suit. A. L. Sayre, Madera, Cal.

Spineless Cactus—Selected stock. Am reducing my prices to advertise it. Write me for special terms. Nick Kass, Lincoln, Cal.

FARM LANDS FOR SALE

Money Making Ranch—86 acres near Watsonville, all rich sandy loam, 20 acres 11-year apples, 20 acres 10-year apricots, 10 acres 3-year apricots; 1914 6000 boxes apples, 75 tons apricots. Balance land good fruit soil, now in grain, corn, etc. New house of 6 rooms, modern, barn and ideal poultry and fruit farm equipment. Everything in personal property, stock, furniture, etc., included. Get full details and be convinced of this splendid buy. Price, $26,000; terms. E. Steinhauser, Watsonville, Cal.

VICTORIA, AUSTRALIA, WANTS SETTLERS

Special inducements; government land, railways, free schools; cheap irrigation; 31 years to pay for farms adapted to alfalfa, corn, grains, fruit, etc.; climate like California; ample markets; reduced passages; special excursion being arranged. Free particulars from F. T. A. Fricke, Government Representative from Victoria, 687 Market St., San Francisco, Cal., Box X.

For Sale—800 acres of fine valley land, situated in Santa Maria Valley near the town of Ramona. 30 miles from San Diego, 10 miles from a railroad. The soil is especially adapted to the growing of figs, olives, peaches, plums, grapes, oranges and many other crops; for particulars apply to owner. F. J. Etcheverry, Ramona P. O., San Diego Co., Cal.

For Sale—200 acres of land in Imperial Valley, 80 acres leveled up in crop of corn this year. Buyer gets one-fourth of crop delivered in sack at R. R.; 120 shares of paid up water stock. Good house on place. Price, $80 per acre cash. Might consider a trade to the extent of $3000 or $4000 in desirable property near Los Angeles. The balance in cash. Address George Thresher, Gridley, Route 1.

For Sale—16-acre apricot orchard, trees mostly two years old. Soil a fertile, sandy loam, not steep, no frosts or winds; small house; good spring. Situated one and one-half miles from town on County road. Price $3500.00. Terms $1500.00 cash, balance long time and easy payments. No exchange. Direct communications to J. J. B., Rural Route No. 2, Watsonville, Cal.

For Sale—At Bank appraisal, 80 acres, 10 miles southwest of Hanford, Kings Co., Cal. Alfalfa and general farmland, ditch water from Kings River. Address Box R, Cultivator Office, Los Angeles.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

For Sale—You can own your own 10-acre ranch and home with water for $750.00, $150.00 cash and $150.00 a year; 7 per cent interest, in Fruitland Colony Lands. F2467. 1005 S. Main St., Los Angeles, Cal.

For Santa Clara Valley properties, improved or unimproved in vicinity of Palo Alto and Stanford University, call on or correspond with BYXBEE & SLOCUM, 101 Lytton Ave., Palo Alto, Cal.

PHEASANTS

Chinese Ringneck Pheasant Eggs $2.50 for 15. Powars Pheasantry, 935 S. 10th St., San Jose, Cal.

Pheasants—Ringneck and Golden. Also eggs. T. D. Morris, Agua Caliente, Cal.

POULTRY

Just Out—The Cultivator Poultry Book, "Poultry for Profit," by Jean A. Koethen. Published by the Cultivator Publishing Co. Highly endorsed by experts. Over 200 pages, 50 illustrations. Contains simple methods of avoiding and overcoming difficulties. A guide to poultry success under Western conditions—it tells what to do, why to do it, and how to do it. Nicely bound in cloth. Price $1.00 postpaid, or with Cultivator one year, $1.75. Send orders to Cultivator Publishing Co., 115-117 North Broadway, Los Angeles, Cal.

The Everlasting Layers!—Brown Leghorns—My strain matures early, grow like weeds—and hardy. Give them feed and exercise, and the egg basket will pay the bills. Baby chicks, delivered, $9.50 hundred. I send only A1 chicks. Guarantee safe arrival. Henry Stubbe, Campbell, Cal.

Baby Chicks—Rhode Island Reds and White Leghorns. My guarantee safe arrival, full count, strong, vigorous; fine bred chicks, Leghorns, $9.00 per 100. Will lay in five months. Reds, $11.00 per 100. Will lay in six months. J. W. Lyon, Gardena, Cal.

Barred Plymouth Rocks—Winners at New York and California's leading shows. Laying strain unequalled. Eggs for hatching from seventeen Champion matings. Eighteen years breeding Barred Rocks exclusively. Write for catalogue. C. H. Vodden, Los Gatos, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. National Poultry Co., 607 E. Third St., Los Angeles, Cal.

S. C. White Leghorn Baby Chicks and Hatching Eggs that are Top Notch. Write for particulars. Prices reasonable. Ten years in business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

Petaluma Hatchery—The one that's different. We challenge the hen, or anybody else. Don't compare prices, compare quality. Circular free. L. W. Clark, Petaluma, Cal.

Sicilian Buttercups—Beautiful fowls, wonderful layers. Eggs, $3.50 per 15 for balance of season. Limited amount of stock for sale. Dr. A. B. Woodhull, 101 S. Fifth St., Alhambra, Cal.

For Sale—Baby Chicks, Wyckoff White Leghorns, $9.50 per 100; $45 per 500; early delivery. Oswald Miller Robertson, THE ARLINGTON HATCHERY, Arlington, Cal.

Chicks—Day old chicks from my healthy, vigorous, heavy-laying, free range stock of S. C. White Leghorns. Price $6.50 per hundred. H. P. Hansen, R. 4, Box 177, Petaluma, Cal.

Revenue Strain—White Wyandotte eggs, $3.00 for 15, from prize winning stock; 221 pen average, chicks 25c. Mrs. W. L. Duvall, Franklin Ave., Pomona, Cal.

At Your Service 365 Days in the Year—First-class chix; eggs for hatching, eight breeds. Hawkeye Hatchery, Turlock, Cal.

For Sale—Thoroughbred White Leghorn baby chicks, $8.00 per hundred. Lankershim Hatchery, Lankershim, Cal.

For Sale—Ground Chile Pepper, the finest grade, $5.00 per hundred. Any quantity. J. E. Hathaway, Norwalk, Cal.

For Sale—Barred Rock Cockerels, also Barred Rock, R. I. Red, Anconas, Buff and White Orpington chix. Enoch Crews, Santa Cruz, Cal.

White Wyandottes—Eggs, $2—15, $7—100. Cockerels $3.00. Ramona Farm, Box 1361, R. D. 2, Sacramento.

MISCELLANEOUS

Free for Six Months—My special offer to introduce my magazine "INVESTING FOR PROFIT." It is worth $10 a copy to anyone who has been getting poorer while the rich, richer. It demonstrates the REAL earning power of money, and shows how anyone, no matter how poor, CAN acquire riches. INVESTING FOR PROFIT is the only progressive financial journal published. It shows how $100 grows to $2200. Write NOW and I'll send it six months free. H. L. Barber, 430, 28 W. Jackson Blvd., Chicago.

"Smith's Pay the Freight"—To reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St., San Francisco.

For Sale or Trade — $500.00 equity in $950.00 lot just out of Los Angeles. Will consider Ford or what have you? B. C. Dodson, Glendora, Cal.

For Rent—Land suitable for corn or other late crops. Irrigation water available. Share crop rental. Address Box 29, Willows, Glenn County, Cal.

Wire Fence and Netting—American and Square Deal, at CUT PRICES. FREE Catalogue. Old Hickory Sup. Co., Dept. 4, Los Angeles, Sacramento, San Francisco.

DUCKS

Fine Strong Day-Old Ducks and Chicks from extra good stock. Also selected setting eggs from leading breeds. Yours for better poultry. Black Bros., 455 Lucas, Los Angeles.

Mammoth Pekin Indian Runner Duck Eggs, $1.00 per eleven. Black Minorca and Ancona Eggs, $1.50 per fifteen. Mrs. W. L. Duvall, Pomona, Cal.

HORTICULTURAL PRINTING

Catalogues for the seed and nursery trade. The live stock and poultry industries are a specialty with us. Two thousand illustrations to select from. Write for prices and samples. The Kruckeberg Press, 237 Franklin St., Los Angeles.

SCHOOLS AND COLLEGES

Telegraphy — Stenography, bookkeeping, English branches. Positions guaranteed. Mackay Business College, Los Angeles.

LIVE STOCK

Billiken Herd—Pure bred, registered, O. I. C. Swine. The Big White kind. Sows now farrowing. Three herd boars used; new blood lines. Weaned pigs will be ready soon for shipment. Cholera immune; first class in every way. Make your reservations now for singles, pairs and trios. Write for my new circular. C. B. Cunningham, Mills, Sacramento County, Cal.

Hogs—Forty head of BIG TYPE POLAND CHINA boars of any age. Sired by IOWA WONDER, who is a son of A WONDER, the greatest hog living or dead. No females to sell at present. On account of large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

For Sale—Registered Tamworth swine—boars, sows and gilts of this famous bacon hog. This breed commands a premium on the market. Our original sows from the University Farm at Davis. Sweetwater Fruit Company, Bonita, San Diego County, Cal.

Blue Ribbon Herd Duroc-Jersey Hogs—Bred Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 firsts, 13 seconds, 6 thirds, 7 fourths, 1 fifth. Will show 1915. For prices, write Jno. P. Daggs, Modesto, Cal.

Grape Wild Farm Thoroughbreds—Guernsey Bulls of A. R. Breeding. BERKSHIRE HOGS. Finest herd in the state. All ages for sale. A. B. Humphrey, proprietor. Mayhews, Sacramento Co., California.

Wanted—12 to 60 Holstein cows, registered or well bred grades, in exchange for high class, clear residences. Los Angeles and vicinity, at from $1800 to $9000, desirable for private homes or income. R. H. Whitten, R. D. 5, Box 646, Los Angeles.

For Sale—Registered, Berkshires:. 25 choice pigs of best breeding from the best strains in America. For prices and description address H. L. Murphy, Perkins, Sacramento Co., Cal.

Blatchford's Pig Meal weans pigs easily and safely; no trouble; no milk. Write for free folder, "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

For Sale—At all times, Jacks and Stallions, driving and saddle horses. Price and stock guaranteed. Phillips and Kingsbury, 2318 G Street, Sacramento.

Cholera Immune—Registered Berkshires of all ages, both sexes, from large-boned pigs. Riccomi Bros., Mountain View, Cal.

Red Rock Ranch, Glen Ellen, Cal.—High-class Duroc Jersey hogs. Specialty registered pigs at weaning time. If interested write.

Berkshires—Pedigreed Boars ready for service. Bred sows, weanling pigs, both grade and thoroughbred, finest stock. C. H. Thompson, Novato, Cal.

Berkshires Registered—Young stock from Masterpiece Strain at $10 each. Weaning age. G. A. Casey, Box 7, King Rd., San Jose.

Registered Toggenburg Buck Kids. An exceptional chance to secure the best stock. H. W. Shepard, National City, Cal.

Poland Chinas—Young stock; either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

Glenview Poland China—Stock for sale. Chas R. Hanna, R. F. D. No. 3, Riverside, Cal.

For Sale—Thoroughbred Duroc Jersey Boars and Gilts, strong and vigorous stock. Fred Hart, Exeter, Cal.

N. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale.

MACHINERY

USED RANCH MACHINERY, PUMPS, WINDMILLS, TANKS, ENGINES.
SPECIAL PRICES THIS WEEK ON HAY MACHINERY, PUMPING PLANTS.
SPECIAL: PRACTICALLY NEW 38 H. White Middleton engine and No. 5 two-step B. J. centrifugal pump with all frame, shafting, pipe fittings, belt, pulleys, gates, 50,000 gallon redwood tank and 30 ft. stand; take entire plant for $1200; engine cost $1500, whole plant is practically new, or will separate.
60 H.P. Columbus, new $900
20 H.P. St. Marys, fine 900
6 H. I. C. complete mounted saw.
Other first class guaranteed engines.
WHY BUY NEW WHEN YOU CAN GET ENGINES LIKE NEW AT 1-3 NEW PRICE? BELIEVE WHAT YOU SEE.
PUMPS, PIPE, CYLINDERS
Horizontal, Vertical centrifugal, single, double acting pumps, rotary duplex, triplex pumps, all sizes, less than half.
FINE WAGON AND WATER TANK, $75.
HORSEPOWER BALER. FINE, $90
SOUTHWICK POWER BALER, $350
WINDMILL, TANKS
12 FT. STEEL AERMOTER AND 50 FT. STEEL TOWER, $75.
8-ft. Aermotor tower, $25; 10-ft., $27.50. Others with or without tanks, pumps.
HAY MACHINERY
Mowers, Champion Binder, $75; Header, $90; Rakes, Whitman Empress Baler, Sprayer, harrows, potato, beet machinery, Fan Mill, Corn Sheller, Ensilage Chopper; small ranch tools.
Absolutely cheapest serviceable material can be produced for. Pioneers in our line. DEMMITT CO., UPSTAIRS, 120 N. Main, Los Angeles. Yard, 816 Yale.

For binders, headers, reapers, mowers, rakes, hay loaders or stackers, write us for money-saving proposition. Why buy second-hand uncertainties when you can get absolutely new, dependable goods of highest quality, efficiency and economy at almost as low cost and much cheaper upkeep? Call or write us without fail when in need of agricultural implements, dairy supplies, road and grading machinery, gas engines, domestic water systems, wagons and buggies.
NEWELL MATHEWS COMPANY
Established 1886
Los Angeles & Market Sts. Los Angeles

For Sale—Used and new Gas Engines, H. P. up, rebuilt and fitted with modern equipment. 22 years' experience enables us to repair and rebuild Gas Engines correctly. Get prices. Lloyd, 806-808 N. Main St., Los Angeles. F7020—Broadway 4103

For Sale—40-Horse Power Distillate Engine, nearly new. Near Pasadena. Address Box 144, Altadena, Cal.

RABBITS

Leading Rabbitry in America—Flemish Giants a specialty. Prize winning and heavy weight stock. Scored and sold on their merits. Inquiry and inspection solicited. Catalogue on request. Empire Rabbitry, Empire, Cal.

Bosworth's Imperial Red New Zealand Hares sold at hard times prices. NOTHING BETTER. Geo. M. Bosworth, Geyserville, Cal.

Pure-Bred Heavyweight Flemish Giants—Young stock. May trade for other rabbits and pet stock. Herbert Habecker, Hughson, Cal.

Belgians—Heavyweights. With or without pedigree; express paid. Old Hickory Supply Co., Dept. 4, Capitola.

Caldwell's Royal Red New Zealands scored and sold on merit. Catalog free. Caldwell Bros., Box 613R, Los Angeles.

WANTED

Wanted—To hear from owner of farm or fruit ranch for sale. O. O. Mattson, Minneapolis, Minn.

Queries

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Shares

A owns 250 acres of land, tools and stock, but lacks money for help. A offers to put his labor against B's, each to share one-half of expenses (seed, feed, upkeep and sale of crops). Shares suggested are as follows: Land, stock and tools, one-third net profits; A, for his labor, one-third net profit; B, for his labor, one-third net profit. Is this a fair and just division? We raise barley, corn, potatoes, beans, some truck garden and a little fruit.—Subscriber, Ramona.

This query was answered in the Cultivator of April 15. A second answer is given below:

I should say that the expense agreement is fair enough, that is, A and B should share equally as given. This leaves only the question as to the proportion which should be paid for the use of the land, stock and tools. The decision must rest, it seems to me, on prevailing values for land rental, such as is represented here, taking into account different types of soil, if such are present. This will give the figure which the land should receive. For the use of stock and tools, the matter may be figured somewhat differently. Twenty-five cents per day for actual time stock is used, plus their feed, will probably represent a fair rate for this item. The use of the tools should command a figure equal to a sum representing ten per cent annual depreciation of the original value of the implements and a fair rate of interest on the money invested, say six per cent. It seems to me therefore, that the arrangement should be based on equal division of gross profits after running expenses are deducted, twenty-five cents per day and feed for actual time stock is used, and interest and depreciation of implements.

If it is desirable to set aside a definite proportion for the use of land, stock and tools, it will be necessary to figure the net profits (gross profits less actual running expenses) for crops to be raised, which will give a working basis to determine the proportion that the figure as derived above will bear to the total net profits. In other words it will be necessary to see what the land will do in a rough way, and from the sum thus determined, find the proportion under the going rates of rental, use of stock and implements. If I had all the details at hand, I could of course work this matter out very quickly, but it seems to me that this is the only way by which the matter can be properly handled.—R. L. A.

Wanted, An Ice Plant.

Lemon Cove, Tulare County, wants an ice factory. It is said there is an excellent opening for such a plant in that thriving section.

Barrenness.

I have a heifer which aborted last fall. Since then she has not become with calf. What is the best treatment? Subscriber, Visalia.

The heifer should have the genitals washed out every week with a solution of Kreso or other disinfectant as directed on the bottle or can. If there is infection or discharge this may remedy it and the heifer get with calf. If she did not clean after calving a diseased condition may have resulted which caused a closing of the neck of the womb. This would have to be opened with a dilator. It would be well to have a veterinarian examine the animal and prescribe.—W. S. G.

Traces of Unequal Length

A contends that a horse pulling with one trace shorter than the other pulls most of the load with shortest trace, also that he is apt to get a sore shoulder. Be says A is mistaken in both instances. Your decision settles the argument. Subscriber, East Bakersfield.

Your question does not state how the horse is to be hitched to the load, but we will presume that it is in the ordinary way with singletree and evener and he is to pull with another horse. If the singletree is free to move there will be no difference in the load on either shoulder and the load would not make sore shoulders with a perfectly fitted collar. If there should be so much difference in length of traces that the end of the singletree touched an obstruction, such as the evener, the draft would be changed and chafing caused. The same thing can happen when one horse lags far behind the other.—J. B. N.

Indian Runners

Which is considered best, the white or fawn-and-white Runner duck? How many ducks should run with one drake? What is a fair price to pay for breeding stock, and is there a market in Los Angeles for the eggs?—A. M., Oceanside.

There is not, dealers tell me, either a very great or a very steady demand for duck eggs for table use. Prices are about the same as for hen's eggs, though they vary considerably at different seasons. The best customers seem to be Jewish people and tubercular sanitariums. Four or five ducks is usually considered a sufficient number for one drake. There is probably no difference between the laying qualities of the white and the fawn-and-white Runners, but the latter seem to be more popular. I think one dollar per bird would be a fair price for stock.—J. A. K.

Plums Failing to Bear

What is the trouble with our plum trees? They bloom very heavily but never set any fruit. They are on a medium sandy soil at an altitude of 2500 feet.—Subscriber, Hot Springs, Arizona.

There is not sufficient information to form a correct diagnosis in this case but unless the same variety of plums has been tested in that section and found to bear well we would judge that the variety is not adapted to the section. It is possible at that altitude that white frosts may come at blossoming time to destroy the young fruit, or there may be some other reason. If such is the case then grafting over the trees or replacing with varieties of known productivity is the only remedy. In the meantime it might be well to vary the method of pruning on one or more of the trees, also making an application of nitrate of soda early in the spring before blooming time.

Pear Blight

Am sending leaves and twigs from pear tree which is affected with some disease. Is it pear blight? The tree has been planted three years. It has set a fine crop of fruit but the tender shoots are turning black and drying.—Subscriber, San Dimas.

This is a serious case of pear blight. The only solution is continual cutting of the trees so as to prevent its spread. If this is not done the tree will be destroyed. Cut the affected branches low enough so as to thoroughly remove all blighted tissue. Carefully remove from orchard all diseased portions and burn. The pruning tools should be kept in a solution of bichloride of mercury, two ounces to 15 gallons of water. They should be dipped in this solution after each cutting.

Planting Palm Seeds

Please give me information about planting palm seeds. When is the proper time and how long does it take for them to sprout? Planted some over six weeks ago, but as yet have not begun to grow.—Subscriber Manhattan Beach.

Plant now, and while it is not necessary to soak the seed it is doubtless better to do so. Seed boxes or beds should not be exposed to full sunlight nor should they be allowed to get dry. I have had seeds remain dormant for eight months before sprouting. Few will sprout in six weeks. Seeds of all common hardy palms will grow readily if planted in the open ground at this time of the year. A free sandy loam is a good soil. Tropical palms need special soil and care in glass house with bottom heat.

HIS CONSOLATION

Pat had been told by the doctor that he could live but a few hours, and his wife and assembled relatives and friends asked him whether there was one last wish he would like to have gratified.

"There is," said Pat. "I'd like to hear the village band play once again."

Accordingly the village band gathered. When at last it had played "Say Au Revoir, but Not Good-bye," and had taken its own departure, Mrs. Pat, kneeling at her husband's bedside, asked:

"Can ye die aisy, now Pat?"

"Yis," replied Pat. "I can die aisy now. Hell has nothing worse than that."

ALL THINGS COME

"And what," asked the cannibal chieftain, in his kindest tones, "what was your business before you were captured by my men?" "I was a newspaper man," answered the captive, "An editor?" "No; merely a sub editor." "Cheer up, young man," said the cannibal, smacking his lips, "shortly you will be editor-in-chief."

INCREDULOUS

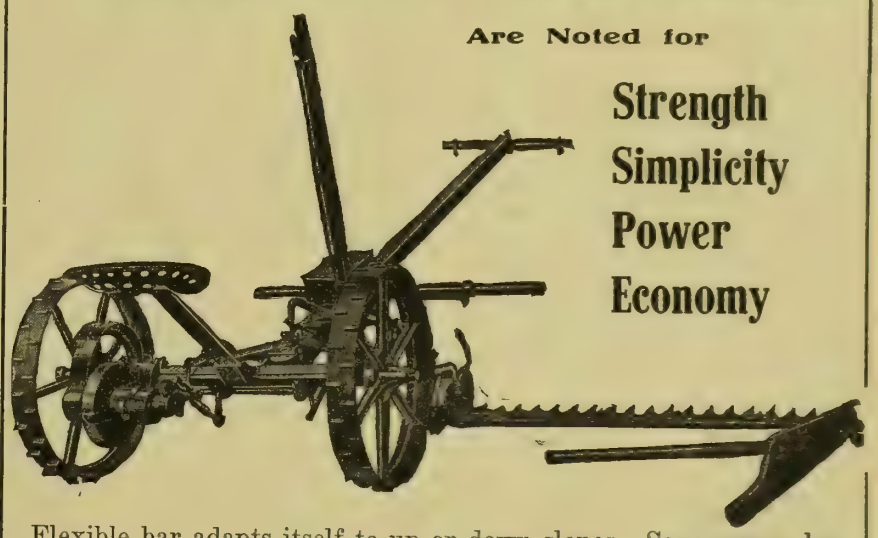
"I was outspoken in my sentiments at the club today," said Mrs. Garrulous to her husband the other evening. With a look of astonishment he replied:

"I can't believe it, my dear. Who outspoke you?"—National Monthly.

JOHNSTON MOWERS

Are Noted for

Strength
Simplicity
Power
Economy



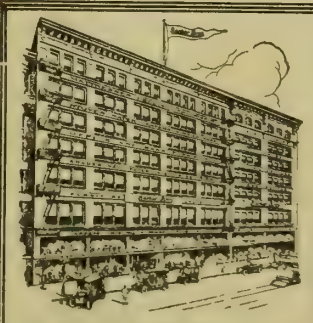
Flexible bar adapts itself to up or down slopes. Save money by buying and using a Johnston. Learn more about this wonderful machine and its record for five years in California. Write us today.

Newell Mathews Co.

ESTABLISHED 1886

AGRICULTURAL IMPLEMENTS, DAIRY SUPPLIES, ROAD AND GRADING MACHINERY, GAS ENGINES, DOMESTIC WATER SYSTEMS, WAGONS AND BUGGIES

Los Angeles and Market Sts. LOS ANGELES, CAL.



–Are You in Need of Home-Furnishings of Any Kind.
–Do You Wish to Secure the Best Goods for Least Money. ?

—Then take advantage of the COMPLETE and SATISFYING SERVICE you are offered at BARKER BROS.' GREAT ESTABLISHMENT—the popular home-furnishing HEADQUARTERS of the Southwest—
—where you are afforded NEWEST AND LARGEST STOCKS in ALL Home-furnishing lines—most DEPENDABLE QUALITIES in every grade—LOWEST PRICES—and HELPFUL home-outfitting advice.

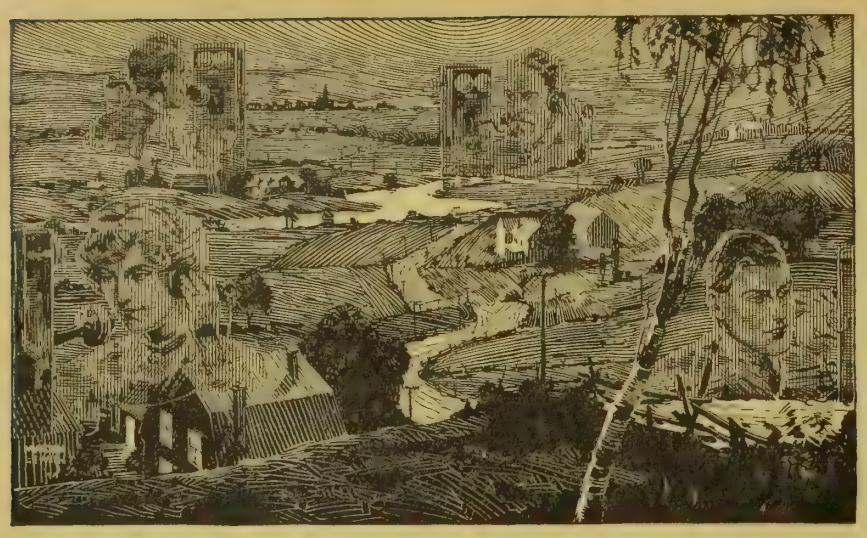
If You Can't Come to Los Angeles, Buy By Mail at Barker Bros!

—it's just as satisfactory as visiting our store in person. Write us for information and prices on any goods you may need. Take advantage of the many special offerings we are continually featuring in all lines.

724-738 South Broadway

Barker Bros ESTABLISHED-1880

Los Angeles, Calif.



Neighborizing the Farmer

One of the most significant facts of our telephone progress is that one-fourth of the 9,000,000 telephones in the Bell System are rural.

In the days when the telephone was merely a "city convenience," the farms of the country were so many separated units, far removed from the centers of population, and isolated by distance and lack of facilities for communication.

But, as the telephone reached out beyond cities and towns, it completely transformed farm life. It created new rural neighborhoods here, there and everywhere.

Stretching to the farthest corners of the states, it brought the remotest villages and isolated places into direct contact with the larger communities.

Today, the American farmer enjoys the same facilities for instant, direct communication as the city dweller. Though distances between farms are reckoned in miles as the crow flies, the telephone brings every one as close as next door. Though it be half a day's journey to the village, the farmer is but a telephone call away.

Aside from its neighborhood value, the telephone keeps the farmer in touch with the city and abreast of the times.

The Bell System has always recognized rural telephone development as an essential factor of Universal Service. It has co-operated with the farmer to achieve this aim.

The result is that the Bell System reaches more places than there are post offices and includes as many rural telephones as there are telephones of all kinds in Great Britain, France and Germany combined.

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
AND ASSOCIATED COMPANIES

One Policy *One System* *Universal Service*

SALT LAKE ROUTE

THE WAY TO THE EAST

EXCELLENT SERVICE TO EASTERN POINTS

We ask your attention to the service of the Salt Lake Route to all points that can be reached through Salt Lake City. From Southern California the popular **Los Angeles Limited and Pacific Limited** afford the best of service to **Chicago, St. Louis, St. Paul, Minneapolis, Omaha, Kansas City, Denver, etc.** They run every day on fast schedules, without change to Chicago, and with through or connecting sleeping cars to other points. The Overland Express has a through tourist sleeper to Chicago also.

EASTERN EXCURSIONS

will commence June 14th and continue on various dates during June, July and August. Greatly reduced fares for round trip to many cities from Salt Lake to the Atlantic coast.

Yellowstone and Glacier Parks

Excursions will commence June 15th and continue daily until September. Excellent service and reduced fares to these American wonderlands. Ask our agents for booklets and full information about going via the

SALT LAKE ROUTE

Los Angeles Offices at 601 So. Spring and First St. Station

When writing advertisers, mention The Cultivator.

The Household Department

MAY IS BUILDING HER HOUSE

May is building her house. With apple blooms
She is roofing over the glimmering rooms;
Of the oak and the beech hath she builded its beams,
And, spinning all day at her secret looms,
With arras of leaves each wind-swayed wall
She pictureth over, and peopleth it all
With echoes and dreams,
And singing of streams.

May is building her house. Of petal and blade.
Of the roots of the oak is the flooring made.
With a carpet of mosses and lichen and clover,
Each small miracle over and over,
And tender, traveling green things strayed.

Her windows, the morning and evening star,
And her rustling doorways, ever ajar
With the coming and going
Of fair things blowing,
The thresholds of the four winds are.

May is building her house. From the dust of things
She is making the songs and the flowers and the wings;
From October's tossed and trodden gold
She is making the young year out of the old;
Yea, out of winter's flying sleet
She is making all the summer sweet.
And the brown leaves spurned of November's feet
She is changing back again to spring's.
—Richard LeGallienne, in "Harper's Magazine."

A WALK IN THE RAIN

By Alfred D. Robinson

I HAVE been for a walk in the rain, not purposely for I was too ignorant for that, but because muddy roads had relegated the auto to an infrequent ease of contemplation of its own smell, and the sun had broken through the clouds for a delusive few minutes. All the extra accoutrement usual to an expedition when it has rained, is raining or may be about to rain had been mislaid, so I sallied forth unencumbered by anything that might remind me that I really ought not to have come. When the sun had lured me exactly half way between home and my destination, he hid behind a cloud and said to it "now you have him" and that cloud promptly began to sprinkle. A trifle annoyed I hurried along sheltering my basket of perishable freight under my coat, and was inclined to quarrel with fate when, my errand accomplished, I found it still raining. I considered my well-worn shoes, that a Belgian might have disdained, my jacket that even the maker had never guaranteed rainproof, my futile little cap that had already skillfully directed its drips down my neck and thought "If I am to get wet, here goes," and I sallied forth thinkiing myself the old fool that has no counterpart.

No sooner had I started than my attitude changed. I felt that the countless nature fairies who revel in the rain had bidden me to their feast and my interest wandered outside my unimportant self. The rain was soft and warm, it beat upon my face and hands like the caress of loving fingers, and I smiled as the thought occurred, how good for the complexion. The path led over a hill still covered with the aromatic wild shrubbery and every little bush and plant was smelling its very sweetest. At the back of the last house a Leghorn pullet perched on top of a wild mahogany bush, and her comb was aflame with appreciation of the weather. A rabbit sat on the path ahead and washed his face, evidently reluctant to leave the job and make way for the man. With a whirr, a covey of quail crossed so close that the movement of their wings could almost be felt and alighted within a handspring, leisurely disappearing in the brush. A California flicker flew past in long dips crying his call and a flock of little canaries rose up to him out of the chaparral and asked what was the matter. Then half a dozen meadow larks executed a half circle, showing their yellow breasts with the maroon horseshoe and settled again, the white feathers in their tails vanishiing last in the tall brown grass of last year. All these chaps were so happy because of the rain; they were out in it because they loved it, not simply for what it meant in grass and grubs in the future, but for the feel and joy of it in the present. They called to one another, "It's raining, come out and play," and their spirit raised me out of my shoes that now were frankly sodden and had given up any pretense of keeping out anything. Under the old-man bush I saw the yellow violet running and making leaves, beside it the shooting star was building its whorl and a hundred green things were growing with all their tiny might as if to say "Let us make growth while the rain rains, for the dry summer comes when no plant can grow."

I stooped and plucked a white forget-me-not and put it in my buttonhole and laughed to feel my coat wet: the tiny blossom further opened my eyes

Timely Advice to Mothers

For Children's Lunch

All healthy children require something to eat now and then between meals. The careful mother, solicitous for her little ones' health, shrinks from giving them too much cake, cookies, and similar dainties which most children appear to like best. The most satisfactory substitute—one that is thoroughly wholesome and nourishing—is good home-made bread thickly spread with Karo Syrup. Nothing can take the place of Karo for this purpose. It is clear and sweet as honey, without the cloying quality which makes honey distasteful to some, and unwholesome if eaten freely. You can give the little tots Karo spread thick on bread without the slightest hesitation. They will not only relish it keenly, but will actually thrive upon it.

You can also use it as an accompaniment for waffles and griddle cakes, as well as in the preparation of puddings and gingerbread, while the candies made from it are pure and delicious.

If you have not yet tried Karo Syrup, order some from your grocer today and make the children happy—just as thousands of other mothers are doing all over the country. Insist, however, upon Karo—it costs no more than ordinary syrups, and is superior in every way.

A. B. C. Washers
SOLD BY
ARNOTT & COMPANY, Inc.
General Agents for California
112-118 So. Los Angeles St., Los Angeles, Cal.

so that I could see; the bloom of the wild mahogany caught my attention, and also a patch of purple nightshade bordering the path; over on one side three Blackeyed Susans made a speck of color in the sea of green. I stepped off into the grass to investigate a fleck of pale yellow under a bush and found it a nasturtium strayed from the haunts of men and very frightened to be out in the rain, just as if it were a human, and later I came on oxalis and sweet alyssum also straying.—California Garden.

Various Uses for Cornstarch

Interesting Facts Regarding This Delicious Food Product

The average housekeeper would be greatly surprised at the wide range of uses developed for cornstarch in the preparation of various foods and delicacies. In fact, it has become an indispensable adjunct to present day cooking. Every housekeeper, therefore, should become thoroughly familiar with its use.

For instance, in making pastry, cakes, etc., by simply adding cornstarch to her regular bread flour in the proportion of one part cornstarch to three to five parts flour (according to the amount of gluten in the bread flour she is using) the housewife can prepare a pastry flour of the finest quality—one which will insure a soft, fine texture to the pastry, and eliminate the tendency to toughness prevailing where straight wheat flour is used.

Most pleasing results can also be obtained by using cornstarch in the making of custards, shortcakes, waffles, chocolate eclairs, and dozens of other delicacies—but to insure the results desired, it is absolutely essential that the best quality of cornstarch be used. Housekeepers all over the country who obtain the best results with cornstarch recipes always depend upon Kingsford's. This brand is carried by all modern grocers, and costs no more than ordinary kinds. Order a package of Kingsford's today, and ask for their book of recipes.

The Stephenson PATENT COOLER

NO ICE REQUIRED

Perfect Ventilation. Absolutely Sanitary.

Awarded first prize wherever exhibited. If not for sale at your dealer's, write for particulars and prices.

L. ANDERSON CO., Mfrs.,
Martinez, Cal.

Almost Driven Out of Business by Ants

How a Los Angeles Grocery Store Conquered This Aggravating Pest

Anyone who has ever suffered with a place overrun by ants will appreciate the experience of a prominent grocery man in Los Angeles, who was almost driven into giving up his business by this aggravating pest. He had tried various methods of exterminating them without success, until a remedy devised by a baker in the same city—who had had a similar experience with ants—was brought to the groceryman's attention, with most remarkable results.

All sufferers from ants will be interested to know that this remedy is being put up for general use under the name of Kellogg's Ant Paste, and can be obtained at any drug store. Each package has a patent rattle cap, which assures the purchaser that it is the original article, and provides a warning day or night that the contents are poisonous.

Insist upon Kellogg's, and make sure that it has the patent rattle cap.

HOUSEHOLD QUERIES

Coloring Carpet Rags

Please give directions for coloring carpet rags. Wish to color green, yellow, brown, blue and red.—Subscriber, Santa Ana.

Tear and sew the rags and wind in skeins before coloring. We have found best success in coloring carpet rags by the use of Diamond dyes. Prepare the dye bath according to directions given on the envelope, making a separate bath of course for each color. Immerse the rags and stir frequently to prevent the color setting unevenly. Allow the rags to cool, then drain off the dye and rinse thoroughly. Hang out to dry, being careful not to allow the hot sun to strike them and bleach them out. When thoroughly dry wind in balls. For a heavier rug and to secure a pretty effect in the weaving twist the rags by winding two balls of contrasting colors together, and then winding back a second time. Rags sewed "hit and miss" are also much prettier and more serviceable if the rags are twisted, the borders and fringe of course to be of a solid color. For a "Dutch blue" use one package of light blue and one package of dark blue (navy) dye.

IDEAS FOR THE COOK.

Written for the California Cultivator.
By Isabel Cottle.

Breakfast

Prunes in Syrup
Cornmeal Mush Cream
Egg Toast Bacon
Coffee

Lunch or Supper

Creamed Salmon Baked Potatoes
Asparagus
Cottage Cheese Green Onions
Rock Cakes Tea

Dinner

Pot Roasted Pork Chops
New Potatoes in Cream
Spinach with Egg
Fruit Salad Graham Rolls
Prune Cake Coffee

Egg Toast.

Melt one rounding tablespoon butter, add one tablespoon flour. Stir until smooth and add gradually two-thirds cup rich milk or cream and salt to taste. Let boil, remove from fire and add chopped hard-boiled whites of two eggs. Pour over squares of hot buttered toast and sprinkle over top of each piece the hard-boiled yolks of eggs run through a sieve.

Pot Roasted Pork Chops.

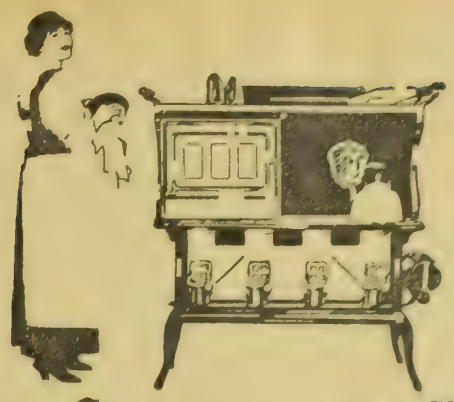
Choose neck or shoulder chops only medium fat and somewhat thicker than usual. After browning the chops on each side in the frying pan add an onion, cut fine, and pepper and salt. Then cover with water and let simmer on the back of the stove for about an hour and a half. Sprinkle in a little flour to thicken the gravy, and serve.

Prune Cake.

Beat half a cup of butter to a cream; gradually beat in one cup of sugar, the beaten yolks of two eggs, half cup of nut meats and one cup of cooked prunes, cut in bits, and, alternately, one cup of the liquid in which the prunes were cooked and two cups and one-half of sifted flour, sifted again with one teaspoon of soda. Lastly, beat in the whites of two eggs beaten dry. Bake in a pan 7 x 11 inches about half an hour. Cover the inverted cake with boiled frosting. A teaspoon of cinnamon may be added to the cake if desired.

Rock Cakes.

One and one-half cups sugar, one and one-half cups walnut meats, one and one-half cups seedless raisins, three cups flour, one cup butter, one scant teaspoon each of cinnamon, allspice, ginger and cloves, three eggs, one teaspoon soda dissolved in a little water.



Gas-Stove Convenience with Kerosene

A good oil stove is like a gas stove—ready at the touch of a match. Any degree of heat you want *instantly* by simply raising or lowering the wick.

New Perfection Oil Cook-Stove

For Best Results Use Pearl Oil

Burns oil, the clean, cheap fuel. It roasts, toasts, broils, bakes—better than your kitchen range. No wood, coal or ashes to lug—no soot or dirt—no odor—does not taint the food. And your kitchen is always *cool*. Several sizes and styles. Ask your dealer. See Exhibit, Palace of Manufactures, Panama-Pacific Exposition.

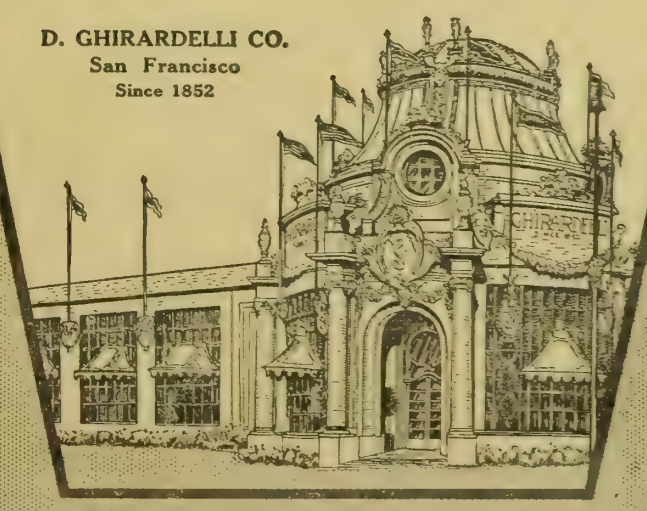
STANDARD OIL COMPANY
(California)
Los Angeles

There is no secret about the making of

Ghirardelli's Chocolate

Visit the building at the entrance to the Zone at the Panama-Pacific International Exposition and see it made—the ingredients are pure—the manufacture cleanly—the description interesting.

D. GHIRARDELLI CO.
San Francisco
Since 1852



FRUIT GROWERS HEADQUARTERS

When in Los Angeles, stay at Hotel Clark. Ideal location. One-half block from Central Park. Close to all stores. Extremely reasonable rates. 555 rooms with bath. Excellent grill service—popular prices.

Hill Street Between 4th and 5th.

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, May 12, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade 3 to 4 cents above following quotations:
Creamery Extras 23
Firsts 21
Country 20
Ladle 19

CHEESE

Prices to trade, 1 and 2 cents higher:
California Fresh ....13@14
Cheddar ....19@20
Domestic Swiss ....20@21
Eastern Daisy ....18½@19
Oregon Triplets ....17@17½
Longhorn ....19@19½
Imported Swiss ....30@32

EGGS AND POULTRY

Prices to trade, 3 cents higher than following quotations:
Fresh Ranch, case counts..........22
Candled ....24@26
Petaluma—Santa Rosa 24
Northern Case Counts 23
Other Outside Stock..........20

Prices to producers:
Hens, lb. ....15@18
Roosters, old ....6@8
Broilers, lb. ....20@23
Fryers ....24@25
Roasters, lb. ....20@24
Turkeys ....16@20
Ducks ....15@18
Geese 16
Squabs, doz. 2.00

LIVE STOCK

The following quotations are f. o. b. Los Angeles on all stock:
Hogs, 175 to 200 lbs., per cwt..........8.50
Prime Steers ....7¼@7½
Heifers ....6¼@6½
Calves, lb. ....8½@9
Sheep—
Ewes, head 4.50
Wethers 5.00
Lambs, head ....4.50@4.75

POTATOES

Wholesale selling prices:
Idaho Russet 2.40
Idaho Rurals ....1.90@1.95
Highland Burbanks 1.90
Sweets, lug ....85@95
New Early Rose, lug..........90@1.00
Northern Burbanks, cwt..........2.00@2.25
Salinas 2.25
Wisconsin Burbanks 2.00
Lompocs ....2.60@2.75

ONIONS

Wholesale selling price:
Australian Brown, cwt..........1.00
Bermudas—
Imperial Valley, crate..........90
Crystal Wax, crate 1.15
Oregon Globes ....1.25@1.40
Yellow Danvers ....1.15@1.35
Sets—
Yellow 10
White 12
Garlic ....21@24

VEGETABLES

Wholesale selling price:
Asparagus ....8@13
Artichokes, Northern, doz..........25@60
Brussels Sprouts, lb..........15@20
Beets, doz. ....30@35
Beans—
String 6
Green ....4@5
Wax ....4½@5
Kentucky Wonders 10
Cabbage, sack ....90@1.00
Carrots, doz. ....30@35
Cauliflower, doz. ....1.10@1.25
Celery, crate ....5.50@6.00
Chicory ....35@40
Cucumbers, box ....80@90
Egg Plant, lb..........18@20
Escarole, doz. ....35@40
Horseradish, lb. ....10@12
Leeks, doz. ....35@40
Lettuce, crate ....75@85
Mint, doz. ....35@40
Mushrooms, Outdoor ....35@40
Onions, Green, bunch..........15@20
Oyster Plant, doz. ....35@40
Parsnips, doz. ....35@40
Parsley, doz. 15
Peas—
Small ....4@6
Telephone ....6@7
Peppers—
Bell, lb. ....35@40
Chili, lb. 30
Pumpkins, lb. ....1¼@1½
Radishes, doz. 15
Rhubarb—
Crimson Winter, box ....65@75
Strawberry ....1.10@1.25
Giant ....70@75
Spinach, doz. ....15@18
Squash—
Cream, lug 60
Summer, crate ....75@85
Tomatoes, Mex., crate..........2.50@2.75
Turnips ....30@35

FRESH FRUIT

Wholesale selling price:
Apples—
Pippins ....1.65@2.00
Rome Beauties 2.25
Pearmains 2.25
Avocados, doz. ....8.00@12.00
Bananas ....4@4½
Berries—
Strawberries, basket ....4@8
Raspberries ....7@9
Loganberries, box ....12@15
Gooseberries, lb. ....8@10
Cherries—
Black 11
White ....7@11
Cherimoyas, lb. ....20@25
Loquats, lb. ....9@10
Pears, Winter Nelis, lug..........1.25@1.35
Pineapples, lb. ....8@9

CITRUS FRUIT

Wholesale selling price:
Lemons ....1.00@2.25
Grapefruit, Seedless ....1.50@2.75
Navels ....1.75@2.50
Tangerines, lug 90
Limes, basket 1.00

DRIED FRUITS

Wholesale prices to retailers are:
Evaporated Apples, Fancy, lb.
Boxes 7¾
Apricots ....8½@10
Nectarines 12½
Peaches ....5¾@6¾
Pears ....10@11
Prunes ....7@12¼
Plums 10

HONEY

Wholesale selling price:
Comb, Fancy, Water White..........14
White 12
Light Amber 12½
Extr. Water White 7
White 6½
Light Amber 5½
Beeswax 32

NUTS

Prices named by California Walnut Growers' Association are:
No. 1 ....16½
Budded Walnuts 20
Jumbos 19
No. 2 12
Culls 9
Prices fixed by California Almond Growers' Exchange, f. o. b. California.
Almonds—
Nonpareil ....21@22
I X L ....19@19½
N P U..........17½@18½
Drake's Thinshell ....18@18½
Pecans 17
Peanuts—
California, Raw 6
Japan 7½
Eastern 7½
Rice Corn ....5.00@5.25

RICE

Wholesale selling price:
California ....4.75@5.00
Broken ....3.75@4.00

BEANS

Wholesale selling price:
Producer's price not far from one dollar under these quotations:
Limas 6.00
Bayous ....6.00@7.00
Lady Washington ....5.75@5.85
Pinks ....4.90@5.00
Black Eyes ....6.75@7.00
Lentils ....13.00@14.00
Small White ....5.90@6.00
Garbanzos ....8.50@9.00

HAY

Prices to producer f. o. b. Los Angeles:
Barley Hay ....9.00@13.00
Wheat Hay ....8.00@11.00
Tame Oat ....9.00@14.00
Alfalfa ....8.00@11.00
Volunteer ....5.00@7.00
Straw ....5.00@6.00

GRAIN

Wholesale selling prices f. o. b. Los Angeles:
Corn, Yellow 2.20
Corn, White 2.30
Wheat ....2.50@2.55
California Red Oats..........1.85
Oats, White 2.15
Oats, Hulled 2.55
Egyptian Corn 2.20
Barley Seed 1.55
Barley Hulled 1.95
Milo 1.90
Rye 2.30
Sunflower Seed 7.50

FEED STUFF

Wholesale selling prices f. o. b. Los Angeles:
Bran, Heavy 1.85
Alfalfa Meal 1.15
Alfalfa Molasses. per cwt.......... 1.20
Beef Scraps 3.00
Beet Pulp 1.25
Cracked Corn, cwt. 2.25
Cracked Wheat. cwt.......... 2.65
Cotton Seed Meal 1.80
Bone Meal 1.95
Meat Meal 3.00
Bone, Green 1.65
Charcoal 2.00
Oil Cake Meal 2.50
Fish Meal ....3.15@3.25
Rolled Oats 2.20
Middlings 2.15
Rolled Barley 1.55
Feed Meal 2.30
Scratch Feed ....2.20@2.40

San Francisco Market

SAN FRANCISCO, May 11, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

The tide has been turned and now California is shipping butter to Australia. Contracts are also made for liberal shipments in the future.

Prices to trade, 4 cents above following quotations:
Extras ....20@23
Prime Firsts 22½
Firsts 22

CHEESE

Wholesaler to retailer.
Oregon Y. Am..........14
Young America 12½
California Flats ....8@11½
Cheddar 20
Oregon Twins 13½

EGGS AND POULTRY

Prices to trade 3 cents higher than following quotations:
Extras 22½
Firsts 21
Select Pullets 20
Seconds 18

Price to producer:
Hens, lb. ....16@18
Fryers ....30@32
Broilers ....25@28
Roosters, Young ....20@22
Old ....10@12½
Broilers ....32@36
Squabs ....2.00@3.00
Ducks ....15@17
Geese ....2.50@3.00
Belgian Hares, lb..........7@8
Dressed ....10@12½
Turkeys, live ....16@18

LIVE STOCK

San Francisco prices. gross weight:
Steers ....4@6¾
Cows and Heifers ....3@6
Calves, lb., live weight..........6@9¼
Hogs ....5@8
Wethers ....6½@7
Ewes ....6@6½
Milk Lambs, lb..........8@8¼
Shorn stock ¾@1c less

POTATOES

Wholesale selling price:
Idaho ....1.40@1.60
Idaho Russet ....1.60@1.90
Delta Burbanks ....1.40@1.70
Salinas Burbanks ....1.50@1.75
Oregons ....1.75@2.00
Shimas ....1.00@1.40
New Potatoes, lb. ....2@3
New Garnets ....3@3½
Sweets, cwt. ....2.00@2.10

ONIONS

Wholesale selling price:
Onions, cwt. ....75@1.00
Australian Browns ....3.75@4.00
Oregon ....90@1.00
Garlic, new ....6@10

VEGETABLES

Wholesale selling price:
Asparagus, box ....1.50@2.25
Beans—
String ....5@7
Wax ....4@6
Brussels Sprouts, lb. ....3@5
Celery, crate ....75@1.50
Cucumbers, Hothouse, box ....75@1.50
Lettuce—
Southern, crate ....75@1.10
Local, small crate ....50@75
Egg Plant, lb. ....10@15
Florida ....15@20
Peas—
Small ....2½@3
Large ....3@3½
Peppers—
Bell, lb. ....20@25
Chili, Mexican ....10@20
Rhubarb—
San Jose ....75@85
Alameda ....50@75
Squash, Summer, crate ....75@1.00
Tomatoes, Mexican, lug ....2.25@2.75

FRESH FRUIT

Wholesale selling price:
Apples—
Newton Pippins ....1.15@1.30
Other varieties ....40@75
Berries—
Strawberries—
Southern, crate ....75@1.25
Fresno, crate ....65@75
Watson, chest ....3.00@6.00
Banner, chest ....5.00@7.00
Longworths, chest ....6.00@8.00
Other varieties, chest ....2.50@5.00
Blackberries, basket 15
Raspberries, basket 15
Gooseberries, lb. ....7@10
Oregon Gooseberries ....5@6
Bananas, Hawaiian, bunch..........1.50@2.25
Cherries, box ....75@1.00
Black Tartarian ....1.00@1.25
Cherries, bulk, lb. ....4@8
Pineapple. doz. ....2.00@3.50

CITRUS FRUIT

Wholesale selling price:
Grapefruit, Seedless, new crop.1.25@3.00
Lemons ....1.50@3.25
Lemonettes ....1.00@1.75
Navels ....1.75@2.75
Limes, case ....4.00@5.00
Tangerines, halves ....75@1.75

DRIED FRUITS

Wholesale prices are:
PRUNES—1914 crop, bulk basis: 30-40s, 5¾c; 40-90s, 5½c. The above are for both Santa Clara prunes and the stock from outside sections.

Other Fruits, 50-lb. boxes—	Standard	Choice	Extra Choice	Fancy
Evap'r'd apples ...		6¾c	7¼c	7¾c
Apricots	7 c	7¾c	8¼c	9¼c
Peaches	3¾c	4 c	4¼c	5 c
Pears	7 c	8 c	9 c	10 c

RAISINS

The following prices are f. o. b. Fresno, as given out by the Associated Raisin Company, for immediate shipment, and are guaranteed against a decline till June 1st:

Fancy seeded, 16-oz., 7½c; 12-oz., 5⅞c; bulk, 6c; choice seeded, 16-oz., 6⅞c; 12-oz., 5⅝c; bulk, 5½c; Thompson seedless, No. 1, 16-oz. pkgs. 7c; 12-oz., 6¼c; 50-lb. cs., 6½c; loose, Muscatels, 1-crown, 5½c; 2-crown, 5½c; 3-crown, 5⅞c; 4-crown, 6c; Sultanas, 50-lb. cs., 5¾c; bulk, layers, 50-lb. bxs., $2.75; in 20-lb. boxes, 6-crown, $2.75; 5-crown, $2.25; 4-crown, $1.60; 3-crown, 5-lb. bxs., $1.50; on all bulk stock, 50c additional. Cartons—Clusters, 20 to cs., No. 1, $1.70; No. 2, $2.10; No. 5, 4 to cs., $2.25. Local representatives of the Associated are asking about ¼c higher, while several of the largest independent packers are quoting ½c under these figures.

NUTS

Local stocks of all nuts practically cleaned up.

ALMONDS—Prices fixed by Almond Growers' Exchange to the trade, f. o. b. California:
Nonpareil ....11@13
I X L..........11@13
Ne Plus Ultra..........11@13
Drakes 10
Wholesale selling price:
Peanuts—
Unpolished ....5@8
Polished ....6@6½
Shelled, Jap ....6¼@6¾
Italian Chestnuts ....6½@7

BEANS

Wholesale selling price:
Limas ....5.20@5.30
Pink ....3.90@4.10
Black Eyes ....6.00@6.25
Cranberry ....5.00@5.25
Small White ....5.25@5.30
Garbanzos ....6.25@6.75
Large White ....4.90@5.00
Bayou ....5.30@5.40
Manchurian Speckled Bayous..........3.75@4.00
Manchurian Butters ....4.50@4.75
Red Mexican ....5.30@5.40
Red Kidney ....5.90@6.00
Horse Beans ....3.50@4.00

HONEY

Wholesale selling price:
Comb, Water White..........15
Light Amber ....10@12
Amber ....7@10
Extracted White ....6@7
Light Amber ....3½@4½
Dark Amber 2
Beeswax ....27@32

HOPS

1914

Wholesale selling price:
Sacramento Valley ....12½@14
Sonoma-Mendocino ....12½@15
Oregon Clusters ....12½@15

HAY

Under date of May 8, Scott, Magner & Miller say:

Receipts of hay amounted to 4219 tons for the week ending today. The market is easier than it was a week ago at which time there was a slight feeling of firmness. There is active demand for fancy quality.

The recent rain has been most beneficial to the late sown grain, but has damaged the first cutting of alfalfa and

WEATHER CONDITIONS

May 8, 1915,

Report from the various California stations of the United States Weather Bureau by George H. Wilson, director, San Francisco.

	Rainfall Data			Temperature Data —Past Week—	
	Past Week	Seasonal to Date	Normal to Date	Maximum	Minimum
Eureka	.13	40.92	43.23	64	42
Red Bluff	.03	32.89	23.73	74	44
Sacramento	.49	14.90	19.40	66	44
San Francisco	.88	25.12	21.58	68	46
San Jose	1.57	21.63	16.24	70	42
Fresno	.18	10.16	9.19	76	40
Independence	.04	3.47	9.03	72	..
San Luis Obispo...	1.20	27.46	19.87	68	38
Los Angeles	.85	16.92	15.32	68	44
San Diego	.14	14.22	9.73	66	44

quite a lot of volunteer that was down prior to the rains.

We quote the average wholesale prices in carload lots on today's market as follows:

Fancy Wheat Hay (lt. bales)	11.50@12.50
No. 1 Wheat or Wheat and Oat	9.50@11.00
No. 2 Wheat or Wheat and Oat	7.00@9.00
Choice Tame Oat	11.00@12.00
Other Tame Oat	6.00@9.00
Barley	5.00@8.00
Wild Oat	6.00@8.00
Alfalfa	6,00@9.00
Stock Hay	4.50@5.00
Straw, per bale	30@45

GRAIN

Alfalfa Seed	16½
Wheat, Cal. Club	2.25@2.27½
Corn, Egyptian White	1.75@1.80
Corn, Eastern Yellow	1.80@1.81
Barley Feed	1.25@1.27½
Oats, Red, Feed	1.52½@1.60
Oats, White Feed	1.80@1.82½
Millet	2½@3¼
Flaxseed	5@5¼
Rye	2.00@2.25
Sunflower	5@5½

FEED STUFF

Wholesale prices.

Alfalfa Meal, car lots	14.50@15.50
Bran, ton	26.50@28.50
Feed Cornmeal	40.00@41.00
Cracked Corn	40.00@41.00
Rolled Barley, ton	27.50@28.50
Rolled Oats, ton	37.00@37.50
Middlings	32.00@34.00
Shorts	29.00@30.00
Oilcake Meal	38.00@39.50
Cocoanut Oilcake Meal	24.00@25.00

Citrus Fruit Market

Los Angeles, May 12, 1915.

Notwithstanding storms stopped picking in many of the orchards enough fruit has gone forward so that more than 1000 cars of California oranges were disposed of last week and the price is materially in advance of that of a week or two weeks ago. The weather of the present is permitting picking in all sections and navels will probably be cleaned up within the next week or two. Valencias are beginning to go forward.

The lemon market is rather stronger and the large quantity in packing houses will soon be going forward. If some good old summertime weather can be secured over the East the large amount in California packing houses will soon be disposed of. The receipts of Mediterranean lemons at Eastern ports has been rather lower during the past few weeks, this because of the war situation, but if present rumors as to the settling of the trouble between Italy and Austria prove true it is presumed that shipping may be released so that immense quantities of foreigns may soon be coming.

Shipments

Shipments of oranges from Southern California since Nov. 1, 1914, to date: 22,029 cars; lemons, 3148; total, 25,177. Last year to same date: Oranges, 23,264; lemons, 1299; total, 24,563. Tulare and central counties: Oranges, 5242; lemons, 192; total, 5434. Last year to same date: Oranges, 4723; lemons, 30; total, 4753. Northern counties: Oranges, 628; lemons, 2. Last year to same date: Oranges, 398; lemons, 5.

NEW YORK, May 10. — Thirty-five cars of Navels, one Navelencias, four budded, three sweets, one bloods, three mixed cars and two cars lemons sold. Oranges strong, higher; lemons unchanged.

NAVELS—	Avg.
Mahala, L. V. W. Brown	$2.55
Swastika, L. V. W. Brown	2.35
Native Son of Ame. King Ft. Co.	3.00
Salt Lake(King Ft. Co.	2.85
Regatta	2.45
Globe	2.35
Orangedale Blue, O.D. Groves	2.40
Orangedale Red, O.D. Groves	2.15
Queen	2.15
Biplane, Crafton Mentone Hgts.	2.40
Dirigible, Crafton Mentone Hgts.	2.15
VALENCIAS—	
Autumn Leaf, ventilated	$3.40
Modjeska, ventilated	3.10
BLOODS—	
Native Son of America	$2.75
Fates	2.45
Redlands Best	3.10
Mercury	2.90
Redlands Best	3.15
Mercury	2.95
Sweet Marie	3.15
SEEDLINGS—	
Golden Harp	$3.05
Mocker	2.85
Cal. Maid	2.85
Green Top	2.50
Dos Palmas	2.70
El Toreador	2.25
Slover Mountain	2.65
Mission Bells	2.95
Mission Memories	2.85
SWEETS—	
Green Top	$2.50
Mother Colony	3.15
Carnival	2.90
Spanish Bayonet	3.05
Coyote	2.80
Royal Knight	2.85
ST. MICHAELS—	
Redlands Best	$3.10
Mercury	2.95
Cal Maid (red)	2.90
Apex	3.25
LEMONS—	
Excellent, ventilated	$2.85
Pet, ventilated	3.25
Greyhound, ventilated	2.85
Homer, ventilated	2.55
Camel, ventilated	2.35

CLEVELAND, May 10. — Seven cars sold. Market is strong.

NAVELS—	Avg.
Green Crown, A.C.G. Ex.	$2.40
Green Crown, A.C.G. Ex.	1.80
Tallyho, S.B. Ex.	2.90
Big R, S.B. Ex.	2.70
Tiger, S.B. Ex.	2.75
Floral, S.B. Ex.	2.60
Fort Pitt, A.C.G. Ex.	2.65
LEMONS—	
As-you-like-it, L.G. F.G.A.	$2.25

CINCINNATI, May 10. — Nine cars sold. Market is unchanged.

NAVELS—	Avg.
Jupiter, Amer. Ft. Dis.	$2.15
Silver Foam, Colton O.G.A.	1.95
Hawk, S.A. Ex.	1.85
Hawk, S.A. Ex.	2.30
California, A.C.G. Ex.	1.75
LEMONS—	
Hill, Or. Ex.	$3.25
Corridor, S.T. Ex.	2.60
Patio	2.35

BOSTON, May 10.—Twenty-one cars sold. Market is strong.

NAVELS—	Avg.
Carnation, Speich & Co.	$3.00
Orchard, National O. Co.	2.95
Upland Emperor, Upland M.O.A.	2.75
Green Banner, Suth. Ft. Co.	2.75
Upland Queen, Upland M.O.A.	2.70
Standard, National O. Co.	2.70
Popular, Speich & Co.	2.60
LEMONS—	
Trail, A.C.G. Ex.	$2.95
Canyon	2.10

PHILADELPHIA, May 10. — Sixteen cars sold. Market is steady.

NAVELS—	Avg.
San Antonio Blue, S.A. Groves	$2.90
San Antonio Red, S.A. Groves	2.50
Pansy, Colton O.G.A.	2.45
Silver Foam, Colton O.G.A.	2.30
Braeside, Riv. Ex.	2.25
Hunter, A.C.G. Ex.	2.35
Hawk, S.A. Ex.	2.45
Basket Ball, S.A. Ex.	2.35
LEMONS—	
Pony, S.B. Ex.	$1.70
Caballero	1.50
Evergreen, Or. Ex.	2.00
Blue Scroll, O.K. Ex.	2.90
Red Scroll	2.70
Diamond S.	2.25

ST. LOUIS, May 10. — Twelve cars sold. Market is easier.

NAVELS—	Avg.
Caledonia, Placentia M.O.A.	$2.20
Albion, Placentia M.O.A.	2.15
True Blue, Q.C. Ex.	2.30
Corona Queen, Q.C. Ex.	2.15
Gavilan, Riv. Ex.	2.60
Braeside, Riv. Ex.	2.35
La Vista, Or. Ex.	2.15
Carrier, R.H. Ex.	2.00
LEMONS—	
Gold Buckle	$2.80
Belt	2.55
Green Crown	2.30
Rough Diamonds	2.65
LEMONS—	
Arrowhead	$2.50

PITTSBURGH, May 10.—Fifteen cars sold. Market is steady on oranges, easier on lemons.

NAVELS—	Avg.
Orchard, National O. Co.	$3.20
Standard, National O. Co.	2.70
Orchard, National O. Co.	3.15
Standard, National O. Co.	2.85
Lotengo, Sparr Ft. Co.	2.65
Circus, Sparr Ft. Co.	2.75
LEMONS—	
Tunnel, S.T. Ex.	$2.00
Urchin	1.75
Rey, S.T. Ex.	2.30
Tunnel	2.35
Summerland, C.S. Co.	2.10
Miramar	1.95

CHICAGO, May 10.—California cherries are arriving in increasing quantities and selling well. Boxes, ten pounds, black sweets, 1.80@2.25; white, 1.75@2.00. Oranges, boxes, California navels, 2.75@3.50; seedlings, 2.50@3.15. Lemons, boxes, California, 2.75@3.25; Messinas, 2.75@3.00. Grapefruit, boxes, 2.00@3.50. Apples, boxes, western stock, 1.25@2.50; barrels, 2.50@6.00. Pineapples, crates, 2.40@2.65. Strawberries, cases, 24 quarts, Illinois, 2.50@3.00; Louisiana, 2.00@2.25; Mississippi, 1.50@1.75; Sanford carriers, very fine, 2.25@2.50. Tennessee, 2.00@2.25.

HARD WORKED

"I think I will take my phonograph along when I take my vacation," said Mr. Homely.

"That's a good idea," assented Mr. Nextdood. "It certainly needs a vacation."—Cincinnati Enquirer.

THE CORN EAR WORM

A farmer in northern Arizona set a commendable example of preparedness for combating insect pests in writing recently for advice in regard to the control of the corn ear worm. Concerning this the following statement has been prepared by the station entomologist, Dr. A. W. Morrill.

"Sweet corn is attacked in two places by the corn ear worm. The young growing plants are attacked in the bud. This results in holes being cut in the leaves but it is supposed that there is no effect of this attack upon the productivity of the plants. When the silks appear the adult moths greatly prefer to lay their eggs upon these silks and the attack from this time on is almost entirely limited to the corn ears.

"Frequently from 50 to 100 eggs are laid upon the silk of a single ear. Many of these eggs are parasitized and few of the worms which hatch from them ever become established in the tip of the ear. Of those which do become established it is rare that more than two grow to full size, owing to the fact that they are subject to the attack of certain wasps and other natural enemies, and especially to the fact that they are cannibalistic and whenever two of the worms meet one is almost invariably destroyed.

"The problem of protecting the young ear from infestation consists in poisoning the apex of the ear where the newly hatched worms first begin to feed. This may be accomplished by using a half and half mixture of powdered arsenate of lead and flowers of sulphur. A small pile of this mixture, perhaps a quarter of a teaspoon, should be placed either with a perforated tin can or with gloved hands on the silk so that this mixture will gradually sift downward onto the ear of corn. By this means it has recently been shown in experiments conducted in an eastern state that about three-fourths of the corn ears may be protected from infestation.

"When the bud of the growing plant is severely attacked, poisoning is sometimes resorted to in order to reduce the numbers of the next generation of worms which give most of their attention to the ears. The same poison mixture mentioned above is applied. The leaves are opened at the bud and a little of the poison sifted in by means of a perforated tin can as suggested for use in poisoning the silks.

"Aside from the foregoing direct methods of protecting sweet corn against the ear worm attention should be given during the winter season to thoroughly plowing and harrowing land which has been planted in corn during the previous season. The insects spend the winter in the ground in pupal cells. When these are broken up by plowing and harrowing many of the worms are exposed to attack by birds and to the action of frost. Others are buried in such a manner that the adults when they appear are unable to reach the surface."

WRP ?

VACATION 1915

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No. 7

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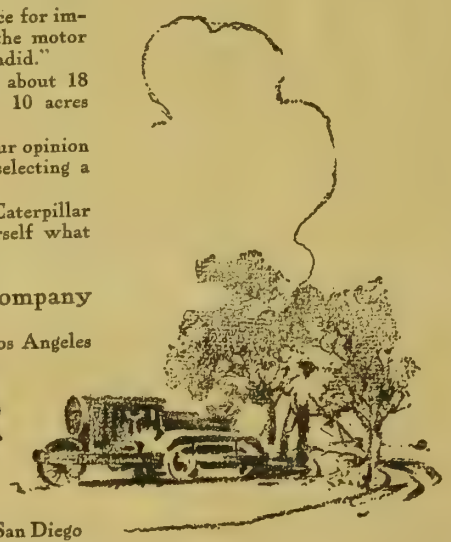

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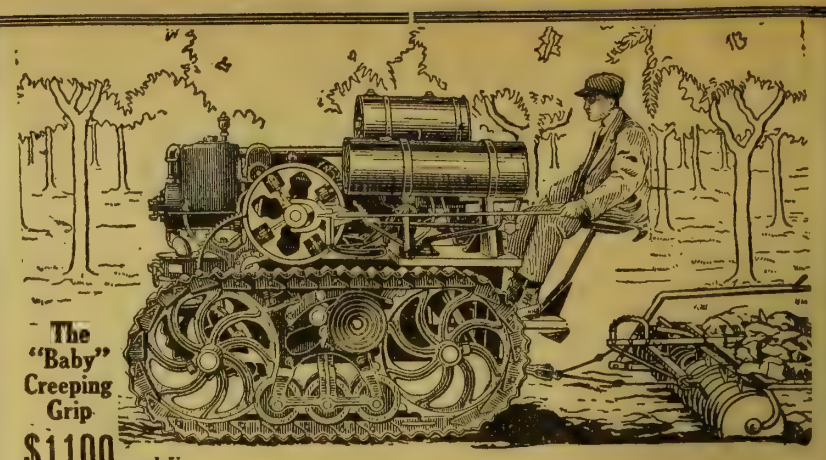

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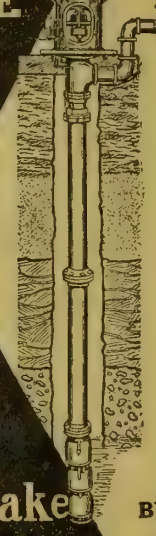

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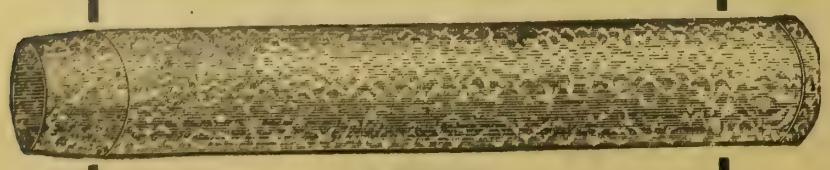

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LOS ANGELES May 20, 1915 SAN FRANCISCO

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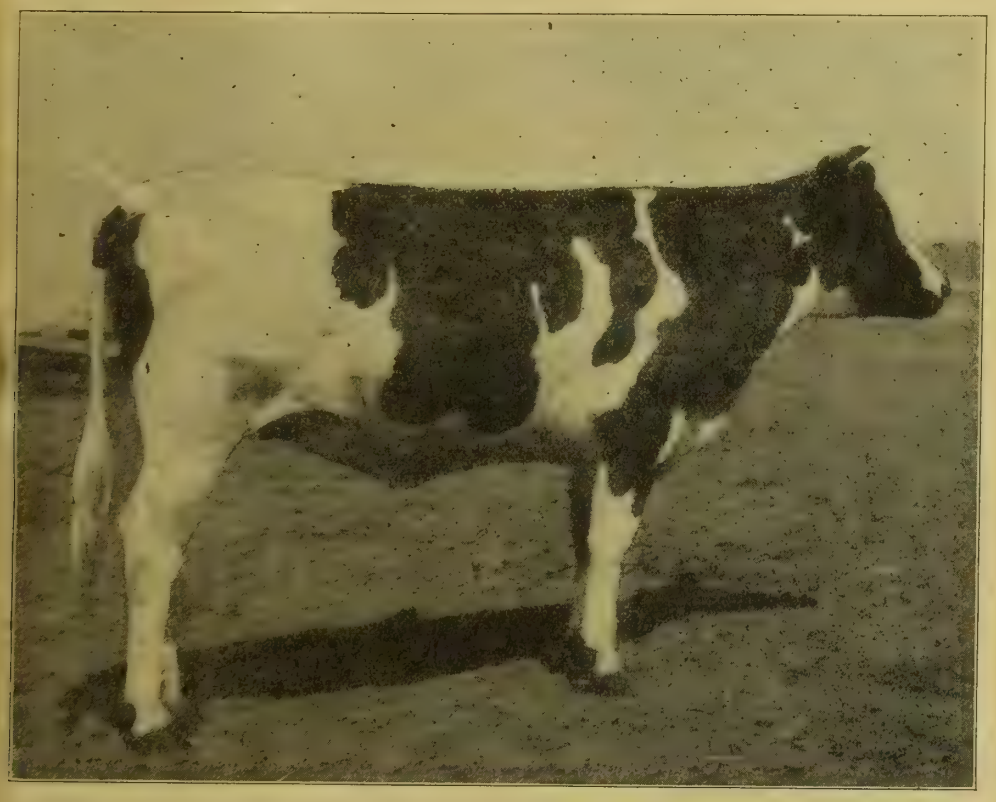

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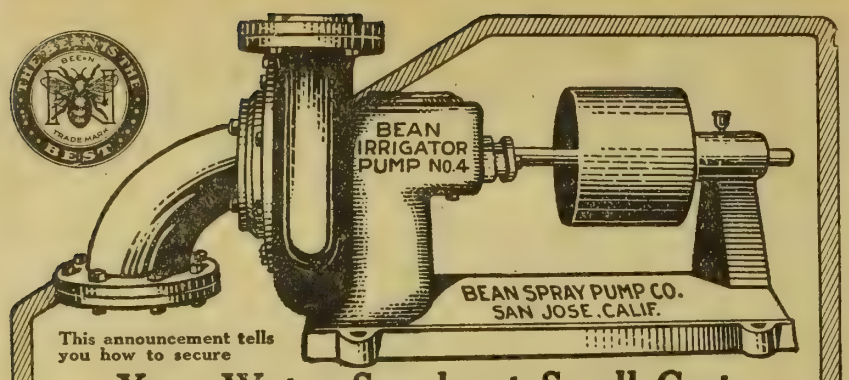

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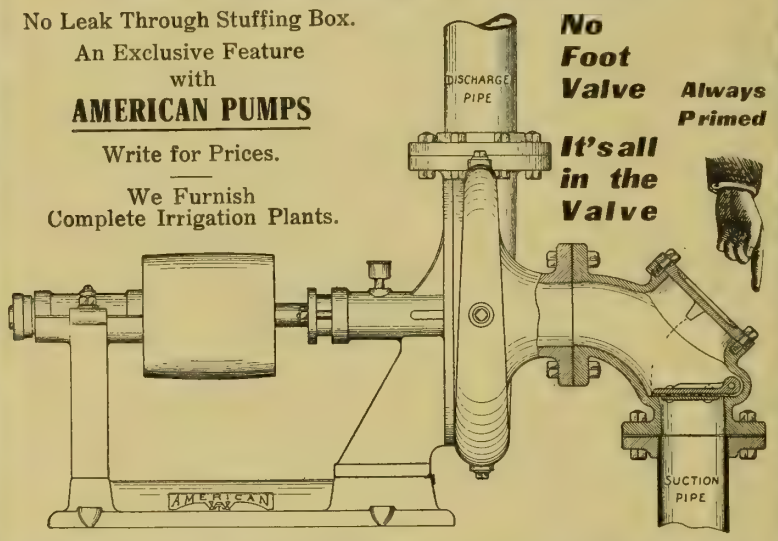

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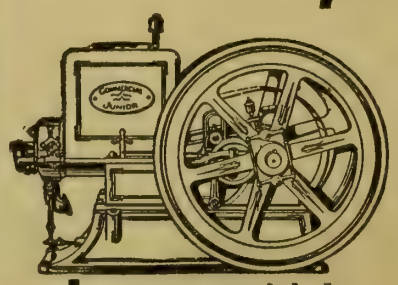

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California Cultivator

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Vol. XLIV No. 20 LOS ANGELES: THURSDAY, MAY 20, 1915 One Dollar Yearly

Col. Ben F. Rhoades, Auctioneer, and the McAlisters

Left to right: G. A. Smith, Holstein breeder of San Jeaquin Valley enjoying his luncheon; Harold McAlister, who assisted at the sale; J. W. McAlister, Jr., who feels much elated at its success; R. W. Stellar, son of E. A. Stellar, who stands next; owner of the Merci Ranch at Modesto. The next picture shows the stock waiting its turn in the sale ring.

Mr. Penrose, of the firm of Cannon & Penrose of Colorado, breeders of much of the stock at the sale, and Frank Morris, who came from the Sacramento Valley to attend the sale.

Greatest Live Stock Sale on the Pacific Coast

Sixty-six Holsteins Bring $28,150, Making a Record Over All Sales of Live Stock West of the Rockies. Remarkably Fine String of Holsteins Disbursed Will Remain in the State.

HOLSTEINS covered themselves with glory at the Schumacher dispersion sale in Los Angeles Wednesday, May 12. The herd, including some calves of two or three months, brought an average of $415. The top-notcher was Alba Sadie Cornucopia Creetia, purchased by Mrs. Anita Baldwin for $1500. For California this price was a long one, though as Holsteins go in the East the blood she possesses fully justifies the price. Mrs. Baldwin purchased many others, amongst them Dora Abbekerk Johanna, commanding $1075, also Day Beauty De Kol of Windsor, $750. The Whittier State School, of which Mr. Taylor is the farmer, purchased Gertrude De Kol 2d and Leeuwarder Day, paying $1250 for the two. Mr. Geo. Ennis of Riverside purchased one of the top-notchers, White House Belle, for $975.

Mr. J. W. McAlister, Jr., may well feel gratified at his success in handling this sale. Mr. McAlister is one of the younger dairymen of California, who has taken pride in building up a manificent herd on the McAlister Ranch near Chino. His success has been such that he has been made secretary of the California Holstein-Friesian Association. He has worked hard in making known the merits of this stock which was purchased by Mr. Schumacher from Penrose & Cannon, Colorado.

Mr. Rhoades has long been known as one of the best auctioneers of the West, and the success of this sale establishes his position as the equal of any in the country, for in average returns this sale ranks the fourth highest of any ever held in the United States.

The day was a perfect one, and Ascot Park because of its seclusion is an ideal place for the holding of such sale. Many of California's best live stock breeders were present. The best comment which can be made upon it is the list of animals and the prices secured.

Sales List

The following list gives animals purchased, with buyers and prices paid:

Alba Sadie Cornucopia Creetia, $1,500; Cornucopia Karen, $900; Mrs. A. M. Baldwin.

Cornucopia Karen, 2nd, $550, Whittier State School.

King Kasteleintje Segis (bull), $655, Xelis Gephart.

Geertrude Windsor Johanna, $320, A. Ramish.

Geertrude De Kol, $600, L. B. Van Blaricon.

Geertrude De Kol, 2nd, $700, Whittier State School.

Georgie View Union, $385, Bixby Land Co.

Georgie Pontiac, $540, Van Blaricon.

Georgie Gerben Sarcastic, $325, O. M. Polin.

Lincoln Neko De Kol, $445, A. Romish.

Leewarder Day, $550, Whittier State School.

Day Beauty De Kol of Windsor, $750, Mrs. A. M. Baldwin.

Daphne Aaggie De Kol, $355, A. Ramish.

White Gougher Leda, $320, Bixby.

White Aaggie of Windsor, $475, Whittier State School.

Merci King Pontiac Artis (Bull), $410, J. Y. Oldham.

Sir Beets Pontiac (Bull), $305, L. B. Van Blaricon.

Queen Karen of Windsor, $340, Satterberg.

Nemea Karen, $435, Bixby.

Nemea De Kol of Windsor, $500, Whittier State School.

Miss Karen Sarcastic, $350, Bixby.

Nemea De Kol Pontiac, $260, S. E. Lawrence.

Gerben Sarcastic, $250, L. Denni.

Nemea Aaggie of Windsor, $485; Windsor Karen Pontiac, $375, C. W. Johnson.

Parthenea Korndyke De Kol (Bull), $650, Chas. M. Schultz.

Prince Hengerveld De Kol Burke (Bull), $255, J. W. Hagerman.

Bertha Chloie De Kol, $350, C. Escallier.

Bertha Johanna, $390, C. W. Johnson.

Windsor Chloie Aaggie, $515, L. B. Van Blaricon.

Ada Pontiac, $450, Allison Peck.

Ada Wayne De Kol, $360, A. Ramish.

Ada Wayne Sarcastic, $310, Bixby.

Jennie Karen Sarcastic, $320, A. Satterberg.

King Gewina Beets (Bull), $225, C. B. Billows.

Stem Winder Karen, $500, S. E. Lawrence.

Union Karen, $415, L. B. Van Blaricon.

Union Karen Segis, $340, C. W. Johnson.

Lady Pontiac Segis of Windsor, $450, C. Escallier.

Dora Karen of Windsor, $350, C. L. Powell.

Dora De Kol of Windsor, $495, C. W. Johnson.

Dora Abbekerk Johanna, $1,075, Mrs. A. M. Baldwin.

Abbekerk Dora Karen, $500, A. Ramish.

Dora Karen Pontiac, $250, C. W. Johnson.

White House Belle, $975, Geo. H. Ennis.

Launa Karen, $360, Bixby.

Windsor Maid De Kol, 2nd, $525, Mrs. A. M. Baldwin.

Windsor Milk Maid Karen, $585, L. B. Van Blaricon.

Windsor Milk Maid Segis, $405, Whittier State School.

Bernice Ormsby of Windsor, $600, Mrs. A. M. Baldwin.

Martha De Kol Johanna, $290, O. Polin.

Bull Calf of Abbekerk Dora Karen, $125, B. S. Cummings.

Heifer Calf of Day Beauty De Kol of Windsor, $250, Bixby.

Bull Calf of Lincoln Neko De Kol, $85, R. A. Todd; Bull Calf of Leewarder Day, $110, R. A. Todd.

Heifer Calf of Ada Pontiac, $210, Bixby.

Bull Calf of Alba Sadie Cornucopia Creetia, $305, F. Anderson.

Heifer Calf of Cornucopia Karen, $290, A. H. Smith.

Bull Calf of Windsor of Milk Maid Karen, $160, A. H. Smith.

Bull Calf of Geertrude De Kol, 2nd, $145, W. F. Kobabe.

Heifer Calf of Georgie Pontiac, $240, A. Satterberg.

Heifer Calf of Nemea De Kol of Windsor, $275, Bixby Land Co.

Heifer Calf of Geertrude Windsor Johanna, $135, Bixby Land Co.

Miss Johanna Pontiac, $325, S. E. Lawrence.

Heifer Calf of White Gougher Leda, $150, A. H. Smith.

Bull Calf of Union Karen, $75, R. Bourland.

Heifer Calf of Bertha Chloie De Kol, $250, L. Denni.

Bull average, $492.50.

Bull calves average, $170.50.

Heifer calves average, $225.

Heifer average, $406.

Cows average, $531.50.

The Pistachio Nut in California

Written for California Cultivator by J. Eliot Coit

THE pistache was introduced into California many years ago and specimens may now be found growing in many parts of the state. So little attention has been paid to this interesting and valuable plant that the product in California has not assumed commercial proportions, yet the pistache is adapted to a much wider area in the arid Southwest than the date palm which has received such a large amount of scientific study.

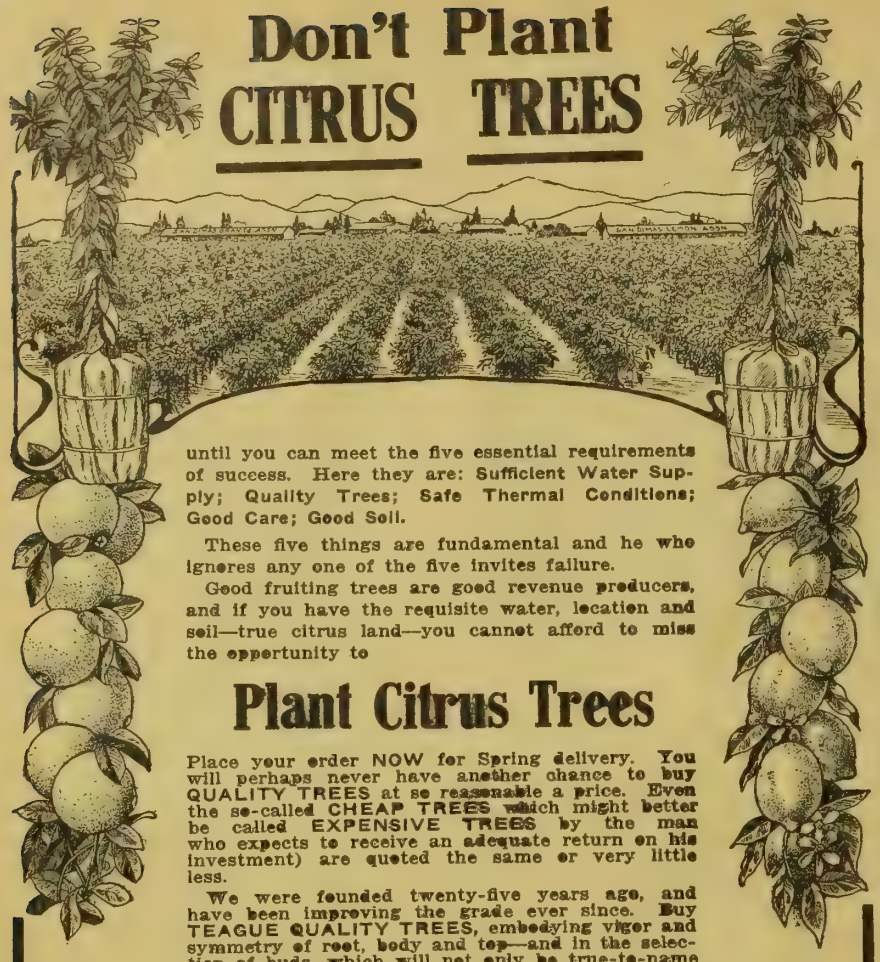
Pistachio nuts are consumed in this country in considerable quantities. They retail in Pacific Coast cities at from 75 cents to $1.25 per pound. All the supply is imported from Sicily, Greece and Turkey. In the reports of the United States department of commerce pistachio nuts are not segregated, but are grouped with "other nuts," and it is therefore impossible to give the exact amount imported into this country.

The genus Pistacia embraces about a dozen species, most of which are native to the region around the eastern end of the Mediterranean Sea. Some are found as far east as Afghanistan, while one species is found in the Canary Islands and one in Mexico. The genus belong in the family Anacardiaceae and is kin to the mango on one side and to the sumacs and poison ivy on the other. The species which bears the nuts of commerce is Pistacia vera. This is a scraggy, weak-growing shrub which is practically always grafted on species of greater stature and vigor, such as P. terebinthus, which produces the Chio turpentine used in medicine and a kind of gall on the leaves is used as a dyestuff.

Pistacia lentiscus is another species common in Turkey which produces a gum or resin known as mastic, used for chewing gum by Turkish women. Pistacia chinensis is a very large-growing tree recently introduced from China into the United States. It is very hardy and may possibly make a good stock upon which to graft P. vera. A species from the Sahara Desert, P. Atlantica, is also used for root-stocks.

(Continued on Page 582)

Don't Plant CITRUS TREES



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Citrus and Tropical Fruits

UNFERMENTED POMELO JUICE

Written for California Cultivator
By W. V. Cruess

AN unknown but considerable amount of freshly expressed pomelo, grapefruit, juice is served on the breakfast tables of restaurants, cafes and hotels. If this juice could be made cheaply from culls and put up in attractive form, there would doubtless be a demand for at least part of the possible output. The juice also makes, when sweetened to taste, an agreeable beverage for home use; hence the housewife should be interested in putting it up. Therefore a few hints for its commercial and home production should be of interest.

From experiments recently carried out in the zymology laboratory of the University of California it was shown that pomelo juice, unlike orange or lemon juice, retains its flavor after sterilizing. It is this property of the juice that makes it possible to preserve it satisfactorily.

Extraction of Juice

The oil from the skins is not desirable in the juice; therefore the juice from the pulp only should be used. For extracting the juice commercially from citrus fruits a machine has been devised. This machine removes the pulp and juice from the halved fruit without extracting juice or oil from the skins. The juice can then be pressed from the pulp in an ordinary cider press. The machine requires considerable hand labor, but seems the most practical device so far used.

In extracting the juice for home use the fruit may be cut in half and the juice removed on a large glass orange juice cone. These cones are larger than lemon cones but of the same design. Any department store can supply them for about 35 cents.

Clearing the Juice

Pomelo juice has the best flavor if not clarified in any way. However should it seem desirable to clarify the juice it may be done by use of about 12 pounds of Spanish clay per 100 gallons, heating the juice to 145 degrees Fahrenheit, drawing off of clear juice after 24 hours' settling, and filtration of the sediment. This method has cleared the juice perfectly in our laboratory tests. The clay may be obtained from any winery supply firm or any large drug and chemical supply company for about six cents per pound. It is prepared for use by mixing with juice or water and grinding and agitating in the liquid until a homogeneous, finely divided, thin mud is obtained. About ten pounds of the clay to each gallon of water or juice is the right ratio in which to mix the stock solution of clay for use. Then this thin mud is used to clarify the larger lot of juice. The juice should be heated only in aluminum, glass or tin, and 145 degrees Fahrenheit should not be exceeded. Any of the commercially used wine filters could no doubt be used to filter such juice; a small Seitz filter has been used successfully in the laboratory.

Where the juice is bottled cloudy the coarse particles of pulp should be removed by straining through a coarse cloth.

Bottling, Corking and Capping

Grape juice, beer or wine bottles may be used. Those closed with patent caps are most convenient and attractive. Probably bottles of half pint size would be most popular because of the small size drink ordinarily taken. Bottles should be thoroughly cleansed to reduce the number of mold spores. They may be filled about one-half to one inch below the cap. The caps or corks should be dipped in boiling hot paraffin to sterilize them. (Use care with boiling paraffin; it is inflammable.) While still very hot apply them to bottle. The caps and corks carry heat resistant spores that might otherwise spoil the juice.

For home use and small scale production small hand-power capping machines are available for ten dollars or less. However, plain wine bottles may be used and corked with ordinary medicine bottle corks dipped in boiling paraffin and the corks tied down with a string to hold them in during sterilizing.

Sterilizing

The contents of the bottles should be heated to 145 to 155 degrees Fahrenheit, but no higher or lower. If higher than this the flavor is injured; if much lower, spoilage may result. A convenient pasteurizer may be made of a wooden trough about 18 inches deep, fitted with a false bottom. The bottles are placed on their sides (so hot juice will sterilize corks); the trough filled with cold water to cover bottles; steam turned on and the water heated until the juice in the bottles reads 145 to 155 degrees Fahrenheit. The bottles are then taken out and the juice allowed to cool. This pasteurizer is now used successfully for cider, grape juice and vinegar on a commercial scale.

A home pasteurizer for fruit juices is very easily made by putting a quarter-inch mesh heavy metal screen in the bottom of a wash boiler. This protects the bottles from the direct heat of the fire. A thermometer can be fitted through a cork to fit one of the bottles of each lot of juice so pasteurized.

The juice can be preserved by heating to boiling and pouring into ordinary fruit jars and sealing; but boiling of the juice is very objectionable because of the injury to its delicate flavor. Hence this method is not recommended.

Use of Sugar

Various amounts of sugar were added before pasteurization. Amounts of 20 to 50 per cent and over spoiled the flavor, but 10 per cent added before pasteurization seemed to aid in retaining the flavor. This would be about 12 ounces per gallon.

Summary

Very palatable pomelo juice retaining most of the fresh aromatic flavor of the fruit has been made in the laboratory by: Pressing out the juice from pulp only; straining out the coarse particles of pulp; bottling; sealing bottles with corks or caps sterilized in boiling paraffin and pasteurizing bottled juice at 145-155 degrees Fahrenheit. It is not recommended that the juice be clarified. Ten per cent or 12 ounces per gallon of sugar added to the juice before sterilization greatly improves the flavor.

CALIFORNIA AHUACATE GROWERS' ASSOCIATION

Shall we call it alligator pear, avocado or ahuacate? The Cultivator has maintained that with avocado fairly well established it was better to stick to that than to endeavor to change to ahuacate, but growers of this delicious fruit in convention assembled last Friday discussed the pros and cons and decided that the original name is to be preferred. It was said that the word avocado, which means advocate, was adopted as the name of the fruit because of a misunderstanding of the name as pronounced by the natives of Mexico. The word ahuacate is easier of pronunciation but it remains a question as to whether people will take kindly to it. It is pronounced a-wa-ka-ta, with the accent on the third syllable. The last a has the sound of a in ale, the others the sound of a in arm. In any case let us discontinue the use of alligator pear.

The convention was called for the purpose of organizing a State Ahuacate Growers' Association. The attendance was surprising. Every chair in the assembly hall of the Alexandria Hotel in Los Angeles was filled and others were necessary to accommodate the attendants. Many addresses were made calling attention to the de-

sirability, healthfulness and nutritive value of the fruit, and it was deemed wise that growers should organize, not only to encourage best marketing methods and discourage extravagantly long prices for the fruit but to advertise and make known its good qualities.

A committee consisting of F. O. Popenoe, E. G. Hart and C. B. Messenger was appointed to nominate officers for the association. The committee deemed it wise to recommend only a board of nine directors which should meet and elect its own president, secretary and treasurer. Those recommended and elected for the board of directors are C. P. Taft, W. A. Spinks, D. W. Coolidge, Judge Charles Silent, J Eliot Coit, Joseph Sexton, W L Rideout, Edwin G. Hart and F. O. Popenoe. This board will meet and organize within a short time and it is presumed that a series of meetings or conventions will be held, for the interest shown by those attending was very great

The meeting was called to order by Mr. Killick, who made a statement of the needs of such an organization. A temporary organization was effected by the election of D. W. Coolidge, temporary chairman, and Mr. Killick, temporary secretary. It was recommended that the temporary chairman be empowered to call the board of directors together and that Mr. Killick be made secretary pending organization of the board.

It was decided that a membership fee of five dollars should be fixed and on circulation of the roll for membership 38 growers signed up. The first meeting of the board of directors has been called by Chairman Coolidge to meet at Mr. Hart's office, Room 917 Union Oil Building, Los Angeles, on May 29 at 11 a. m.

DRAINAGE OF IRRIGATED LAND

The United States department of agriculture has just issued Bulletin 190, Drainage of Irrigated Land, by R. A. Hart. Anyone confronted with irrigation problems will find this a most valuable bulletin.

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SHALL THE FARMER'S HOME BE IN THE TOWN OR AT THE FARM?

By Levi Chubbuck, Bureau of Farm Management, United States Department of Agriculture

PACIFIC Coast agriculture differs quite markedly in methods from that of the Middle West and Atlantic coast. As an instance, the farmers in the Atlantic states and the Mississippi Valley, as a very general rule, live on and operate their farms. If the farmer is not the owner and operator he is the renter and operator, and his home is on the farm.

On the stock ranches of the intermountain states, the wheat ranches of Washington and Oregon, and the fruit and alfalfa farms of California, in a considerable proportion of instances, the owner and operator does not live on the place, but in town— possibly in another state. This is particularly the case in the citrus industry of California, so much so that "absentee ownership" of citrus groves seems to be the rule rather than the exception.

It seems to me that this must be a serious handicap to the citrus industry, and that its future prosperity is dependent in no small measure on the location of homes at the groves in which the owners and their families will live.

On the great cattle ranches in the sparsely settled districts of the range country and on the 500 and 1,000- acre wheat ranches, homes would be so widely separated as to make home life for the women and children quite undesirable, but with the 5, 10 and 20-acre units which prevail in the citrus belt of California, and present-day means of communication and transportation, it would seem that the social needs of the citrus grove homes would be amply met.

Unquestionably if the one whose income is dependent on the net returns from the grove made his home there, to do the work called for in the manner and at the time required, it would make for increased efficiency.

This is the phase of farming that especially interests the office of farm management of the United States department of agriculture. Our work is to investigate methods of farm management for the purpose of discovering ways and means of increasing the efficiency of the system of farming in vogue in a community and on individual farms to the end of reducing cost of production and increasing net returns to the operator. If it appears that the farmer's cost of production is nearly equal to, possibly greater than, his returns, leaving little or nothing for his labor, we ask why it is so, and try to determine if the cause is wrong management on his part, and in what particulars.

In my investigation of the citrus industry, it has seemed to me that groves owned by people who live in town, near or remote, possibly in distant states, and have their groves cared for by hired labor, by contract or by the day or month, do not give best results in low production cost and large yields.

The old English proverb, "The ox fattens best under the eye of the master," will apply to citrus trees or any other farm crop. There may or may not be an intelligent sympathy between the tree, plant or animal and one who is interested in having them do well, but it is a fact that the personal attention of the master gets better results than does the indifferent care of a wage-earner.

In conversation recently with a citrus grower, he told me of a neighbor of his who had uniformly grown good crops of oranges. His methods of cultivation, irrigation, fertilization, pruning, etc., were practically the same as those of his neighbors. My friend said to him, "How is it that you are so much more successful with your grove than are your neighbors?"

His reply was that all he did that was different from what his neighbors did was to potter around among his trees and give them individual attention as they seemed to need.

But there is another important economic result coming from the owner and his family making their home at the grove, and that is the considerable portion of the living expenses of the family that will come from the premises without the pay-

(Continued on Page 599)

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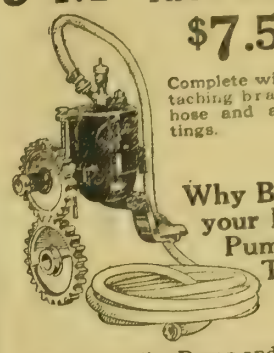

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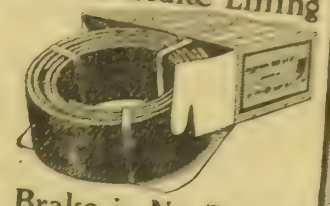

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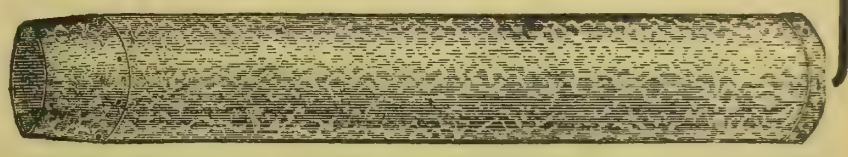

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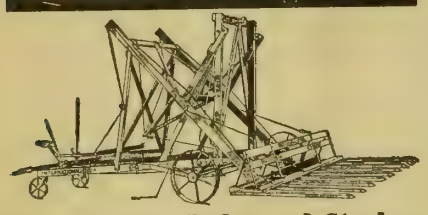
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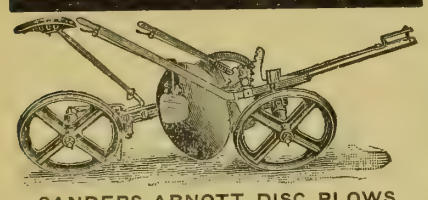
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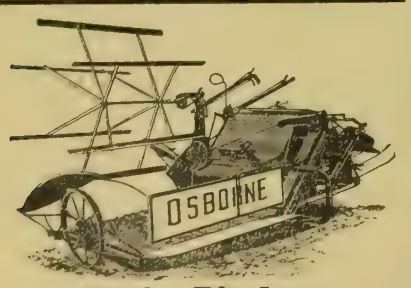

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THE TENT CATERPILLAR

THE conspicuous, unsightly nests or tents of the apple tree tent caterpillar are familiar objects in the spring in trees along roadways, streams and fences, in neglected orchards and elsewhere. Several methods of checking the depredations of this caterpillar are given in a new publication of the department of agriculture, Farmers' Bulletin No. 662.

These gregarious caterpillars construct the tents for their protection, and these, at first small, are gradually enlarged often to a foot or more in height and diameter, the size varying with the number of individuals in the colony. The caterpillars feed upon the foliage of the trees, stripping the leaves from the limbs adjacent to the nest, and if there be several colonies in a tree, as is frequently the case during periods of abundance, the foliage may be quite destroyed, leaving the branches as bare as in midwinter.

Species of the tent caterpillar are found quite generally over the entire United States. The moths deposit their eggs by early midsummer or earlier in the South. By fall the embryonic larva is practically full grown within the egg where it remains until the following spring. With the coming of a warm spell the larvae escape by gnawing through their egg-shells, often before there is foliage out for food, and under these circumstances they may feed upon the glutinous covering of the egg mass.

Methods of Control

The tent caterpillar feeds principally on wild cherry and apple trees, but will attack many other plants, and where such trees can be removed without disadvantage this should be done, thus lessening its food supply.

During the dormant period of trees, when the leaves are off, the egg masses are fairly conspicuous, and with a little practice may be readily found; it is then that they should be cut off and burned. Trees infested with larvae during the early part of the year, or those in the immediate vicinity, are perhaps more likely to be chosen by the parent moth for the deposition of her eggs, and such trees at least should be searched if it is not practicable to extend the work to the orchard as a whole. This work may be combined with pruning to good advantage, and a lookout should be kept not only for the eggs of this insect but for the eggs and cocoons of other injurious species which pass the winter on the trees.

When two egg masses are deposited close together, the resulting caterpillars may form a common nest. These nests are gradually enlarged and soon furnish ample protection. If the caterpillars are destroyed as soon as the small nests are detected this will prevent further defoliation of the trees, and the rule should be adopted to destroy them promptly as soon as discovered. In this work either of two practices may be adopted, namely, destruction by hand or with a torch.

When in convenient reach the nests may be torn out with a brush, with gloved hand, or otherwise, and the larvae crushed on the ground, care being taken to destroy any caterpillars which may have remained on the tree.

The use of a torch to burn out the nests will often be found convenient, especially when these occur in the higher parts of trees. An asbestos torch will be satisfactory, or one may be made simply by tying rags to the end of a pole. The asbestos or rags are saturated with kerosene and lighted and the caterpillars as far as possible cremated. Some caterpillars, however, are likely to escape, falling from the nests upon the application of the torch. In using the torch great care is necessary that no important injury be done the tree; it should not be used in burning out nests except in the smaller branches and twigs, the killing of which would be of no special importance. Nests in the larger limbs should be destroyed by hand, as the use of the torch may kill the bark, resulting in permanent injury.

Spraying With Arsenicals

Tent caterpillars are readily destroyed by arsenicals sprayed on the foliage of trees infested by them. Any of the arsenical insecticides may be used, as Paris green, Scheele's green, arsenate of lead, etc. The first two are used at the rate of one-half pound to 50 gallons of water. Milk of lime from two to three pounds of stone lime should be added to neutralize any caustic effect of the arsenical on the foliage. Arsenate of lead is used at the rate of two pounds to each 50 gallons of water.

Even in the small home orchard of a dozen or more trees it will be found highly profitable to adopt a system of spraying which will control not only tent caterpillars but such serious pests as the codling moth, cankerworms, various bud and leaf feeding insects, and which will greatly reduce injury from the curculio.

On stone fruits, such as cherry, peach and plum, arsenicals are likely to cause injury to foliage and must be used with caution if at all. On such trees the arsenate of lead is preferable, as it is less injurious to foliage, and on all trees sticks much better. In spraying for the tent caterpillar only, applications should be made while the caterpillars are yet small, as these succumb more quickly to poisons than those more nearly full grown, and prompt treatment stops further defoliation of the trees.

THE PISTACHIO NUT IN CALIFORNIA

(Continued from Page 579)

Pistachio nuts are really one-seeded drupes like almonds. The outer flesh of the olive-like fruit dries and falls away and the thin shell dehisces, exposing the large kernel. The kernel is covered by a red pellicle somewhat like that of a peanut. The meat of some varieties is green and is on this account especially valued as a coloring agent in ice cream, to which it also adds a distinctive flavor. The shells may be easily opened with the fingers. The flavor is very rich and pleasing, somewhat like that of the pinon of the Rocky mountains. In this country the kernels are made into a paste which is largely used in various ways by confectioners. Pistachio nuts are also eaten out of hand to some extent; in fact, there is no reason why they should not be widely used as a table nut, served like the almond, as soon as they become better known.

The pistacia is typically a desert plant, thriving in dry air and on rocky hillsides and needing comparatively little rain. The trees require plenty of sun and prefer a southern exposure with a well-drained soil. In fact, wet soils are very detrimental to the growth of the trees. Many of the pistaches grown in California which have failed to do well have been too frequently irrigated. The pistache abhors wet feet. The finest and most thrifty pistache trees which the writer has seen in California grew under the thorough summer cultivation of a dry-farm near Fair Oaks in Sacramento County. This would seem to be the best way to handle the crop wherever the winter rainfall is 12 inches or more. Some trees have fruited heavily at Whittier and others at Fresno, showing the possible wide range of climatic adaptation.

The pistache will endure a temperature of 15 degrees Fahrenheit and is fully as hardy as the fig and olive. The trees do not blossom sufficiently early to be in much danger of spring frosts. The trees when grafted on P. terebinthus are long lived, sometimes bearing for a hundred years or more. They come into bearing five or six years after planting in the orchard and should be planted about 20 feet apart.

One peculiar thing about the pistache is its dioecious character, the male and female flowers being borne on separate trees. Male trees must be scattered through the orchard in the proportion of one to eight or ten females. This is another reason for grafting the plants, for not only should the largest fruited females be selected for propagation, but the proper number of males must be included, and it is not easy to tell the sex of the plants before they flower. Some growers in

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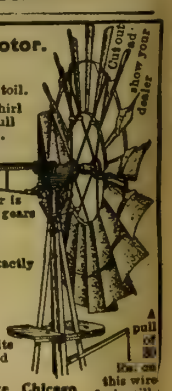

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Turkey bud one branch of the male tree into each female tree, but this requires too much work in subsequent pruning, unless indeed only one tree is desired for home grounds, when this plan will probably be desirable.

When the pistache is budded it is customary to cut the stock back previously so as to force out strong shoots. Dormant buds are placed in these shoots in the fall to be forced into growth by pruning the following spring.

If a female tree comes into blossom before the adjoining male tree, a few branches may be cut from a blooming male tree, brought from a distance and hung up in the female tree with their stems inserted in a bottle of water to keep them fresh.

In Southern Europe where wild pistaches are indigenous to the dry hillsides, the wild plants are often topworked to improved varieties where they stand. It is a simple matter to leave a few male trees here and there for pollenization purposes. It thus comes about that the nuts of commerce will, if planted, usually produce hybrid plants which are so variable as to render them undesirable as stocks. For the same reason good fruit should not be expected from seedlings unless it be known that the seeds are pure P. vera unaffected by pollen of wild species.

The fruit must not be harvested before it is perfectly ripe. The best time for gathering it is when the wrinkled skin is assuming a darker yellow color and the clusters are changing color and drying up. The pistachios separated from the clusters are then placed in the shade on trays to dry, being turned occasionally. When they have sufficiently dried so as not to ferment they may be stored in a dry place beyond the reach of mice.

The United States department of agriculture has introduced a number of the best varieties from Europe, Asia and Northern Africa, as well as a number of different species for stocks. These are being experimented with by Mr. G. P. Rixford, who has given much attention to the pistache. California nurserymen are now beginning to offer a few grafted trees for sale. It is to be hoped that more interest will be taken in the culture of this worthy nut which was so highly prized by the ancients. The information at present available is not sufficient to warrant the planting of any large commercial orchards. While we do not know how high an average yield may be expected or just what is the best method of cultivation, plant lovers will find the pistache an interesting and promising subject for experimentation. It should be remembered that the trees prefer a hot dry summer climate with moderate winter rains. The less irrigation and the more cultivation, the better.

The writer wishes to make his collected data on fruiting pistaches as complete as possible and will be glad to correspond with anyone who may have a tree in bearing.

Bunch of Immature Pistachio Nuts

A Seedling Pistache Fruiting Heavily in a School Yard at Fresno

FARM BUREAU NOTES

Ventura County

Farm bureau meetings will be held in Ventura County on the following dates. These are changes from the meetings announced in the Cultivator of May 13:

Santa Paula, May 21.
Moorpark, May 24.
Mound, May 25.
Simi, May 26.
Annual Farm Bureau meeting.

The annual meeting of the Ventura County Farm Bureau will be held in Foster Park Saturday, May 29th, at 12 noon. The farming population of the county will participate in a basket picnic to be held under the trees in Ventura County's most beautiful park. The following program will come immediately after luncheon:

Rural Credits, by Thomas Forsyth Hunt, Dean of the College of Agriculture, University of California.

Farm Bureaus in Other Counties, by Prof. B. H. Crocheron, State Leader in the Farm Adviser work.

Progress and Result of the Ventura County Farm Bureau, by A. C. Hardison, Director-at-large.

The Women's Part in the Farm Bureau Movement, by Miss Lillian Clark, of the Department of Agricul-

(Continued on Page 595)

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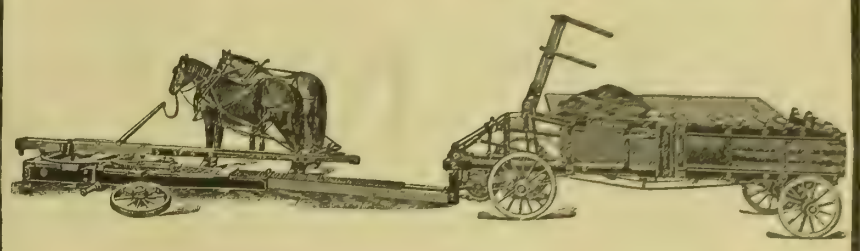

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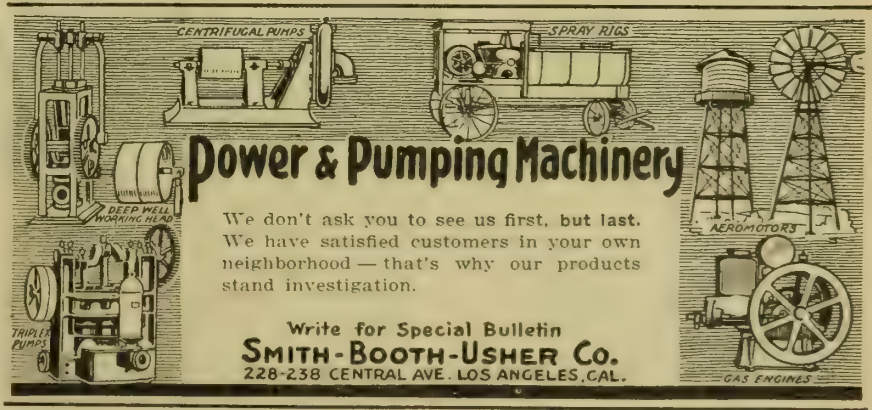

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Written for the California Cultivator
By D. F. Reichard

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The soil best adapted for garlic growing is light loam, naturally moist or in which moisture may be retained by cultivation or one for which irrigation is available; but soil of a heavier nature may be used so long as it is kept in a friable condition for the development of the bulbs.

In preparing the soil for garlic it should be deeply plowed and well pulverized. On soil that is naturally moist enough to mature a crop, planting on the level six inches apart in rows one to two feet apart is more satisfactory, but where irrigation is necessary, plant on ridges a foot wide and three feet apart, setting two rows of the bulblets on each ridge. The sets should be covered nearly an inch and well firmed in to prevent the new roots from pushing them out of the ground as growth begins.

Planting may be made any time from October to the first of May, but January and February are the best months. Cultivate with as fine toothed a cultivator as practical. Thorough hoeing after the first two cultivations will eliminate practically all the weeds. If irrigation is required it is usually necessary to make three and some years four applications of water at intervals of ten days to insure steady growth. After each irrigation as soon as the ground is dried out enough, which takes from two to four days according to the nature of the soil, the patch should be cultivated, using an eight or ten-inch furrower on the rear of the cultivator, thereby leaving the ground in shape for the next irrigation. By the time of the last cultivation bulbs should be forming and then it is necessary to let the plants dry down. When the tops begin to turn yellow and bend over it is time to begin the harvest. Put the whole plant, as pulled in the field, into trays, and store in dry place, unless the market is good, in which case cut the tops off an inch or so from the bulb and pack for market as convenient. If stored after drying down cut the tops off an inch from the bulb.

It requires 250 to 300 pounds of bulbs to set an acre and the product is about one and a half tons.

CHAMPION TOMATO RAISER TELLS HER STORY

MISS ELOISE PARSONS of Clarinda, Iowa, is the young woman whose record in the department of agriculture's garden and canning clubs was the best of the thousands made by members in the 33 northern states. Miss Parsons obtained a yield of 5318 pounds of tomatoes from her tenth-acre plat. Her costs were $15.61, and her net profits were $115.57. Her costs cover every item of expense in raising the crop, including rent of land, her own time (estimated at 10 cents an hour) fertilizers and sprays. She describes some of her difficulties in obtaining this result as follows:

"I decided I would try and have ripe tomatoes very early and so obtain good prices for them. So in the latter part of February I planted the early variety in three boxes which I placed on a shelf in front of the south windows in the dining room. In a short time they came through and grew rapidly. But they began to grow tall and spindly, so in the latter part of March I transplanted part of them into small pasteboard boxes, one plant in each. By doing this I could move them to the open without disturbing the roots and hindering the development of the plants. Then as soon as it was warm enough I set the rest in a cold frame, four inches apart each way. In the first of April I planted the late variety in the hot bed. Those in the cold frame and in the pasteboard boxes developed a great amount of roots and were very strong, some in bloom, when I transplanted them to the open on the 22nd of May. The plants in the hot bed did not develop such strong roots, and because of this fact, and also that it was very dry, I lost quite a few of them when I transplanted them. After filling in for the fourth time a few vacant places still remained, as it was almost impossible to get them started because of the early drought. In all I had over 600 plants."

"I hoed them after each rain and whenever I thought it necessary. As we moved to this place this spring, and the garden was not plowed in the fall, many weed seeds were not destroyed, and I had a very hard time keeping the weeds down. The plants did not grow very large, and as it continued very dry, I decided it not best to stake the plants. The plants did not make a very great growth and very few needed pruning. I hoed them until the tomatoes began to ripen and the plants were too large."

"I picked my first ripe tomatoes on the ninth of July. From then on the pickings every two or three days grew larger. At first I received ten cents a pound, but soon the price began to fall so that after the first of September I received only two cents a pound. As my father runs a dairy, he took the tomatoes with him and sold them very easily to the hotels, restaurants, and milk customers. He was able to sell almost all of them until the green ones were gathered. As long as we could get a dollar a bushel for the tomatoes fresh and as we were so very busy with the work of a dairy, I thought it best not to can them."

"After school began I was kept very busy in picking the tomatoes. For several weeks it took me three evenings of the week to get over the entire patch and I often gathered over ten bushels. During the second and third weeks of September we had so much rainy weather that I could not gather the tomatoes, and after the rains they began to ripen so rapidly that many of them split. On the 12th and 13th of October I had to gather the green tomatoes. I gathered 1083 pounds. There was no sale for these. We used all we could and I gave some to the neighbors, and still a great many went to waste, as they were wet when they were gathered, and as it turned warm again, they rotted very fast. As we had a great deal of company this summer, and because our other garden vegetables were not as good as usual, we used more tomatoes fresh."

"I made a collection of canned fruits, vegetables, and meats, which consisted of the following: Tomatoes, beets, white wax beans, green podded beans, celery, carrots, pickled onions, beet greens, pumpkin, shelled beans, pears, apples, plums, peaches, cherries, strawberries, raspberries, white and purple grapes, sausage, chicken, corn, watermelon pickles, and gooseberries. I exhibited this collection at the state fair and won a first, a second, and a fourth on it and my other club work. I did all this canning by the cold packed, hot-water bath process. I also canned, alone, 30 quarts of windfall apples, ten quarts of gooseberries, six pints of beans, 100 quarts of tomatoes. I also helped with the canning of the strawberries, cherries, peaches, tomato butter and catsup, apple jellies and gooseberry jam."

"As a summary I will state that my expenses were $15.61 and my profit $115.57, besides winning $23 in prizes at the state fair. I have enjoyed this work, although it has been long and sometimes a bit lonesome. It has been a way by which I could not only have my own spending money and pay my expenses at the Farm Camp, but I also have a bank account of $60."

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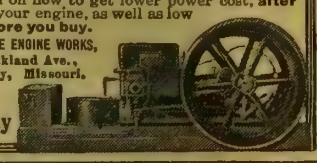

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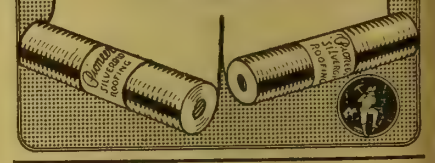

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AN INVITATION

ON this page we have endeavored to bring to the attention of our subscribers certain things which should be of special interest to them. By using this page as a guide you will be sure not to miss the displays here listed. Other weeks will be added items touching upon exhibits of particular interest, and of course each special feature on the program will be mentioned in sufficient time to keep our readers in touch with all events of agricultural interest.

Vice President Thomas R. Marshall, after visiting the Panama-Pacific, said:

"If there be any one in America with a thirst for knowledge and for beauty and a longing for a liberal education such an one can here obtain it. This is the university of the world. It has a chair fully endowed to meet the wants and needs of each. The eye, the ear, the mind, the heart, the soul, each may have its horizon here enlarged."

P. P. I. E. PROGRAM

Events at P. P. I. E. for the next two weeks are:

May 20, North Carolina day; National Congress of Mothers; Redlands day.

May 21, Reno day.

May 22, California Federation of Women's Clubs.

May 24, Empire day; New Jersey day; Eureka day; Redding day.

May 26, Red Bluff day.

May 27, Chico day.

May 28, Marysville day.

May 29, Wisconsin day; Napa day; Sacramento day.

May 30, Decoration day.

June 1, Ukiah day; Kalamazoo, Michigan, day.

June 2, Santa Rosa day.

June 3, Alameda day; Royal Neighbors' day.

June 4, American Sweet Pea Society day; Berkeley day; Peace day.

June 5, Denmark day; Oakland day.

June 5-9, world's light harness races.

COMING CONGRESSES

These are to be held in or near San Francisco.

Cereal Conference, under direction of University of California and United States department of agriculture.

Merced, May 24.

University of California, May 25.

Davis, May 26.

Chico, May 27.

Prof. John W. Gilmore, University of California, Berkeley; Prof. M. A. Carlton, United States department of agriculture, Washington, D. C.

California County Librarians, Berkeley, June 3-9.

J. L. Gillis, president, Sacramento; Alice J. Haines, secretary, State Library, Sacramento.

American Sweet Pea Society, San Francisco, June 4.

Lester L. Morse, president, 48 Jackson Street, San Francisco; Harry Bunyard secretary, 342 West Fourteenth street, New York.

EXPOSITION PICTURE

The illustration at the head of this page in the issue of May 6 is from a copyrighted picture taken by Mr. Edward H. Mitchell, 3363 Army Street, San Francisco. Any one desiring a large picture in colors may secure it by remitting ten cents, coin or stamps, to Mr. Mitchell.

The eggs which the little Buff Leghorn hen Betty produced in one day have been prepared for exhibition and will be shown in the pen in which she has her home. The bantam hen with her brood of chicks is located in the main corridor of the poultry building within the yard inclosure which holds the cage of a Japanese long-tailed rooster, whose tail now measurers more than eleven feet.

An interesting exhibit in the department of live stock are the silkies sent by Japan. These birds are pure white in color, with black faces and combs. They are small and their great peculiarity lies in the fact that their feathers have no quills.

The Percheron Society of France has made an offer of six very valuable objects of art to be awarded in its name to the Percheron horses placed on exhibition in the live stock department this fall.

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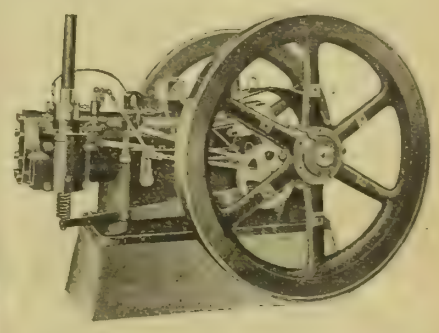

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The present demand for apples in the United States, including those used for export, is placed by the Department of Agriculture at 55,000,000 barrels. If that many apples were raised in this country there would be no overproduction. Figures from the Department of Agriculture show there has been an average annual decrease of 25 per cent in the apple production during the last nine years. The serious shortage that exists for apples is attributed largely to the dying out of the old orchards and the insufficient plantings of new ones.

The Yucaipa Valley, eight miles from Redlands, altitude 2400 to 3000 feet, is the place to plant an apple orchard, and this is the time of year to visit Yucaipa and see what you would have if you had planted four years ago. It is not too late to make a start.

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General Agriculture

SOIL SURVEY OF SACRAMENTO VALLEY

WITH the aid of irrigation, the subdivision of large holdings, and an increase in the number of farmers the Sacramento Valley promises to develop rapidly, according to a reconnoissance soil survey of the region, which has just been published by the United States department of agriculture in a report of 148 pages, with a map and seven illustrations. The possibilities of the valley, says the report, have not been even approximately developed, and by far the greater acreage is devoted to grain growing at a small profit, although an important though smaller acreage produces a wide diversity of fruits and other specialized crops. The tendency is towards dairying and an increased production of fruits and truck crops.

The region included in the survey covers an area of 6274 square miles, including the main valley floor, the valley slopes, and portions of the lower rolling or foothill areas joining the Sierra Nevada and Coast Range mountains. With the San Joaquin Valley, the Sacramento Valley constitutes the most extensive agricultural section in California. The region is semiarid, the annual rainfall varying from 14 inches in the southern part to about 25 inches in the northern. The mean annual temperature is from 60 degrees Fahrenheit to 62.5 degrees. The low humidity makes the high summer temperatures less oppressive. Killing frosts are ordinarily confined to the winter months, different parts of the valley varying greatly in the danger from this source.

In the agriculture of the valley irrigation is an important factor. It has long been practiced in this region, but its development up to the present has not been rapid. The total supply of water is great, but it can only be made available for all parts of the valley by large expenditures of money. It is, however, generally recognized that irrigation is highly desirable, and in many parts of the valley it is the controlling factor for all crops except grain.

An equally pressing problem is the control of flood waters. A great deal of money has already been spent in the construction and maintenance of levees, and a fairly efficient system now protects much of the valley. Comprehensive plans are also being worked out for additional improvements, and systems have been installed to relieve certain soils of sluggish internal drainage. There is no doubt that properly placed reservoirs will aid in protecting the main valley from floods and the valley slopes from intermittent overflow.

At the present time large areas, particularly on the west side of the valley, suffer from excessive quantities of alkali, and the reclamation of these will involve a large expense. Important areas of alkali soils are also found in the southeastern portion of the territory covered by the survey. Thorough drainage is declared to be the first requisite for the reclamation of all this alkali land, but no specific plan that will be suitable for all cases can be recommended.

The many different groups of soils occurring in the valley are broadly divided into four province groups or divisions—residual soils from consolidated rocks; soils derived from old valley-filling material; soils derived from alluvial and recent alluvial-fan deposits; and lastly, wind-laid soils. In addition there are five types or groups of a miscellaneous character. The residual soils comprise seven soil series, and are found largely along the valley margins. They are used largely for pasturage, the rolling ground in many cases being unsuited for cultivation. In many areas, however, there are successful orchards.

Ten series are found among the soils derived from old valley-filling material. These occupy positions along the outer valley slopes or rolling areas, and are usually somewhat lower than those of the residual soils. The Redding and San Joaquin series occupy, by far, the largest areas. Redding soils are not well adapted to fruit culture without irrigation, and in consequence a large part of the series is devoted to pasturage. Nearly all the remainder is under grain production. With irrigation, however, the shallower areas produce a wide range of shallow-rooted fruits, berries, and olives, while the deeper-rooted fruits can be profitably grown on the areas of deeper soil. The San Joaquin soils are often locally known as "red hardpan" lands. At less than six feet a red or mottled relatively impervious hardpan is encountered. This limits subsurface drainage with the result that during the rainy season the ground is often boggy, and during dry periods, hard, flinty, compact, and baked when not cultivated. The San Joaquin soils are largely devoted to dry-farmed grain, but under irrigation have proved well adapted to a wide range of fruit crops.

The third province group consists of 16 soil series derived from alluvial and recent alluvial-fan deposits. These soils occupy the lower parts of the valley or the valley slopes, and it is upon them that the greater part of the intensive agricultural development of the region has taken place. Of the Madera and Gridley loams group, for example, it is said that it is safe to predict a rather rapid development until practically all of this group comprising 94,144 acres is devoted to the production of fruit and truck crops. The Yolo clay loams and clays comprising 90,496 acres will also, it is said, eventually be devoted to intensive crops. At the present time grain predominates in point of acreage.

Only one type of wind-laid material—the Oakley sand—was encountered in the valley, and it covered only 2752 acres. Under natural conditions, this type supports a scanty vegetation, being partly used for the production of grains, almonds, grapes, asparagus, and peaches by dry farming.

Of the miscellaneous materials, the Muck and Peat group is the most important, comprising 187,520 acres, much of which is near the confluence of the Sacramento and San Joaquin Rivers, and extending for some distance up their courses. Much of the land is only a few feet above sea level, and consists of a great number of islands of varying sizes. A great deal of reclamation work has been done, but some of the reclaimed areas have been submerged again through the breaking of the levees. Under cultivation and drainage, muck and peat lands settle considerably, so that the maintenance of the levees becomes increasingly difficult. Special crops on these areas are cultivated largely by Asiatics accustomed to furnishing the vast amount of hand labor and skill necessary to success under these conditions. The soil is admirably adapted, however, to many kinds of vegetables and some forage crops. The other miscellaneous materials such as riverwash, tailings, and tidal marsh are of little agricultural importance.

HONOR TO GOODHUE

In our April 1st issue the editorial correspondence on first page referred to the genealogy of exposition architecture at the Panama-California Exposition at San Diego, giving the credit to Mr. Frank P. Allen for both architecture and landscape work, also referring to him as being the architect of the exposition buildings at Seattle. On this point we have a letter from Mr. Russell C. Allen of San Diego, a member of the California State Commission, Panama-California Exposition.

"My attention has been called to your appreciative notice of the Panama-California Exposition at San Diego. You speak of the genealogy of exposition architecture and state that the architectural work was under the direction of Mr. Frank P. Allen. Mr. Allen was not the architect of the exposition but its director of works, a

very different thing. This was the position which he occupied at Seattle also and it was because of the qualities which he developed there that we employed him at San Diego where he has shown marked ability, especially as an executive.

"When it was decided to adopt the Spanish Colonial as the uniform type of architecture for the exposition, the building and grounds committee looked about for a master in that line and found him in Mr. Bertram G. Goodhue of the firm of Cram, Goodhue & Ferguson, of Boston and New York. It was this firm which did the fine buildings at West Point. Mr. Cram is the architect now in charge of the immense cathedral of St. John the Divine in New York City and Mr. Goodhue built the beautiful church of St. Thomas on Fifth Avenue and is now engaged on a cathedral in Baltimore which is to cost over $5,000,000.. Mr. Goodhue is recognized among architects as their foremost exponent in the Spanish Colonial, and when one views the California and Fine Arts permanent group as so well shown in your illustration he hardly wonders that this is so. The plans for this group—which is the architectural glory of the whole exposition—were the personal work of Mr. Goodhue in New York and the buildings were erected by contract independently of the works division.

"The main buildings along the Prado were designed under Mr. Goodhue's direction and control by his accredited representative on the ground, Mr. Carleton M. Winslow, with certain exceptions. The Puente Cabrillo, Commerce and industries, San Joaquin, Sacramento Valley, and various of the smaller buildings were designed by the division of works under Mr. Allen's direction after Mr. Winslow had resigned from the division of works and had assumed the superintendence of construction of the California and Fine Arts group.

"The Southern California Counties Building was sketched by Mr. Goodhue personally during one of his visits here and the plans were then worked out by Mr. Winslow.

"As the architecture at San Diego has called forth much admiration and some confusion seems to exist as to its authorship, it seems well to correct any statement which might give a wrong impression."

Later a letter came from Mr. Allen rendering full credit to Mr. Frank P. Allen for his portion of the work in making this beautiful exposition, as follows:

"In my former letter I spoke only of the architectural work and not of the landscaping. Mr. Allen should have full credit for the latter. His work in that seems to me very remarkable and demonstrates his administrative ability. We originally engaged the Olmsted Brothers, who are probably the leading firm in that line in the country. They resigned before work had actually begun, but even if they had stayed it does not seem possible that their work could have been better than Mr. Allen's."

AMERICAN SYNDICALISM

"American Syndicalism, The I. W. W.," by John Graham Brooks, published by the Macmillans, New York, at $1.50 net.

The preface entire is as follows:

"A considerable part of this volume was given as lectures at the University of California in 1911. For present purposes the material has been recast and wholly rewritten.

"The space given to the more general socialist movement and to the European origins of syndicalism is justified on the ground that our tantalizing I. W. W. are not otherwise to be understood. Beyond socialism these represent the most revolutionary phases of social and economic revolt.

"This combative, frontier character of the movement is so reflected in its literature and among its followers, that almost any statement one may make about syndicalist principles will meet direct denial. Between the higher and more theoretic syndicalists and the practical fighting members in the field of agitation, the differences in the interpretation of principles are radical to the point of confusion. This could not be otherwise in convulsive mass-action like that which characterizes syndicalist strategy."

One is inclined at times to get the opinion that the book supports much that is usually condemned in methods often employed by labor agitators. However, we believe the author is endeavoring to induce his reader to study a perplexing problem from the standpoint of the so-called down-trodden.

There are 19 chapters touching the labor problem as no other publication has attempted to do. To give an idea of the contents, these different chapters touch upon the socialist invasion, more immediate danger, plague of misconceptions, history of disappointment, forerunners of the I. W. W., war of the classes, "direct action," sabotage, constructive suggestion, service of the awakener, and some of our own duties. It is a book which causes one to stop and think.

SOIL CONSERVATION.

"Unto him that hath shall be given; and from him that hath not shall be taken away even that which he hath."

Like many other scriptural expressions the above does not mean exactly what it says. It certainly would not be possible to take something from nothing although it would be possible to give to a person who already had. As applied to soil and soil culture, however, the quotation continually comes to the mind of a person who has worked much with growing things. A lean or worn out soil will not grow much of a crop and those who have had experience know very well that a run down soil is a very difficult thing to build up and put into good condition for fair crops. The leaner and poorer the soil is, the greater the tendency to become still more impoverished, and necessarily, the poorer the crops secured. In other words, "from him that hath not shall be taken away even that which he hath."

On the other hand, with a soil which is in good tilth and well filled with humus and the necessary chemical elements, it is indeed easy to maintain the state of fertility unless unusually exhausting crops are grown. This does not mean, however, that due diligence and care should not be exercised in maintaining the state of fertility, as once on the down hill grade the arresting of the depreciation is difficult. A liberal supply of humus or decaying vegetable matter is the most important factor in the keeping up of soil in condition for securing maximum crop yields. If the soil is well filled with humus the necessary chemical elements may be supplied in the form of commercial fertilizer in proportion to the rapidity with which these elements are removed by the particular crop grown. The maintaining of humus is a very easy matter in soil which is already well supplied. In fact the tendency with some crops is to increase the humus content of the soil rather than diminish it. Soil rich in humus and otherwise in a fertile condition everyone knows will give big crops. In such cases "Unto everyone that hath shall be given."

Poor soil tends to produce smaller crops, and rich and fertile soil, if well handled, tends to produce larger crops. —Madison Cooper.

The Riverside public library is planning for a summer school for the training of young people in the library service. The school will begin June 28 and continue until August 7.

HOW TO ESCAPE FROM A SMALL JOB

Every little while there comes to me a letter from some youngster who tells me that he hears Opportunity calling him to go to New York or some other big city. He has figured that his home town offers him no chances.

Perhaps it doesn't.

Few towns ever offer anything to anyone. That much I've discovered in what little wandering I've done.

It doesn't take one very long to discover that the wise young man is spending mighty little time looking for chances to get, but is, as a westerner would say, "some industrious" in looking for chances to give. And, as those who have tried it know, New York and every other big city is calling for givers.

In the city where every faculty must ever be on the alert only the great giver is the great getter. Many of my friends have tried the pace in the big town and after playing the game for a few months, gone back. Some less wise are still struggling on. A few have succeeded and are steadily climbing ahead.

It is another case of "many are called but few are chosen."

Only the fit survive. The unfit perish.

The wise young man is he who gives until the institution or individual employing him can receive no more.

Until one can swim across the creek, one had better refrain from attempting to swim the river.

The advice of the cowboy, "Shoot from where your gun is," is good ad vice.

Serve where you are.—Character.

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Irrigation Pipe—of galvanized steel for surface use, made of 24 guage steel, 10 ft. lengths only; 4 in., per 100 ft., $14.40; 5 in., $18, and 6 in., $21.60.

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Pruning shears, 50c; saws, 45c.
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6 or 8 in., Stilson wrenches, 75c.
Spading forks, 75c.
Manure forks, $1.10; with 6, 13 inch oval tines.
Hay Forks with 4, 15 inch oval steel tines, $1.
Square point, long handle shovels, 75c.
Garden hoes, 6 in. blade, 60c.
Coes' knife handle monkey wrenches, 6 in. size, 50c.
Agricultural monkey wrenches, 6 in. size, 25c.
Expansion bits, ½ to 1½ inches, 75c.
Large steel measure squares, both sides, 35c.
4½ in., try squares, 20c.
Car soldering sets, complete, 40c.
12 oz. claw hammers, 25c

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Inside door locks, nickel finish, 50c each; dull brass, antique copper, or sand blast, 45c.

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Cupboard turns, cast brass, T handle, antique copper, dull brass, sand blast or nickel plated, each 40c.

Drop handle drawer pulls, same finishes as above, 20c each.

Flush sash lift, antique copper or dull brass, 7c; sand blast, 8c each.

Bungalow front door handles with plate and thumb latch but no lock, antique copper, dull brass or sand blast, $3.25, or complete with lock, $7.

Store door lock, very serviceable, cylinder lock, bolts and night latch with three bit keys, any of above finishes $5.75, complete with brass escutcheon.

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OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

DOERS, NOT LOOKERS

An admirer of the Holstein cow defines her as "a mouth, wide open, a big stomach carried strongly on four legs, udder the size of a large pumpkin or a small cock of alfalfa hay. She is made up of 25 per cent appetite, 25 per cent good digestion, 25 per cent milk and the other 25 per cent is variously distributed." In other words, what the dairyman, and the world in general, demands today is an animal with capacity for large consumption and large production.

WHEAT CROP

Estimates are that this year's wheat crop of the United States will greaty exceed that of 1914. There are over 40,000,000 acres to be harvested. Its condition is 92.9 per cent as compared with 87.4 per cent, the ten-year average. Of this acreage California has 440,000, which shows that as a wheat producing state we are rather low in the scale. There are an even dozen states which produce in excess of a million acres. Kansas is a long leader with an acreage of 8,472,000. From California's 440,000 acres it is expected there will be harvested 8,300,000 bushels of grain. Kansas will harvest—if there are no unfortunate weather conditions—well up toward 141,000,000 bushels. The total for the United States is expected to be 700,000,000 bushels. Prices on May 1 averaged the United States over practically $1.40, while the average on May 1, 1914, was 83.9 cents. It now appears that Europe will have great need of our surplus and that good prices will prevail.

SUCCESSFUL SALE

The management having in charge the Schumacher sale of pure bred Holstein-Friesian cattle in Los Angeles has reason to be proud of the most important event pulled off in live stock circles in this state. With an average of $415 on nearly 70 head of cattle a new record is set which will probably be held for a long period. It indicates that the tendency is in the right direction, that our farmers are demanding the best that money can buy. They are demanding it because of the satisfaction there is in handling pure bred dairy animals by reason of their greater production at the pail and the greater prices secured for stock which is not desired on the ranch, and all of this at a cost not exceeding that of the ordinary grade animal excepting the initial or purchase price.

The best part of this sale is that every one of these animals was sold to a California producer. With the impossibility of introducing new blood from the eastern states—and this impossibility will remain until the foot and mouth quarantine is raised—it is desirable that our pure bred stock be used to build up as great herds as possible. It was predicted prior to this sale that because of the dissatisfaction among dairymen near Los Angeles there would be little spirit in the bidding, but with producers coming to buy from several hundred miles away the Southern California dairymen were inspired with a desire to get some of the excellent blood offered in this dispersion, and nearly all of the animals will be kept in the south.

35 CENT DOLLAR

If the orange grower feels that he has a corner on misery because of the small portion of the consumer's dollar he receives, he may take some comfort in the complaint of the wheat grower. The Rural New Yorker has given much attention to the "35 cent dollar" of the farmer and gives the following as proof that 35 cents is rather above the ordinary as the producer's end of the returns:

"A pound loaf was bought at a corner grocery. This loaf weighed 12 ounces including the sanitary wrapper. The best of milling will convert from 70 to 73 per cent of the wheat into flour. We need not ask if the bakers of New York are shrewd enough to buy to the best advantage. One bushel of wheat will yield about 44 pounds of flour. According to the statements of the best bakeries, seven pounds of flour must yield about nine pounds of bread. This means 57 pounds of bread to the bushel of wheat. This means 76 loaves, and the loaf cost six cents on the day it was bought. The poor people of New York therefore were paying $4.56 for the flour in a bushel of wheat. In addition to the flour the miller or somebody else received the benefit of the bran, middlings, or other offal which sold for at least 1½ cent per pound. Here then we have $4.56 paid by people of New York City for the flour obtained from one bushel of wheat. In spite of the high prices daily reported in the papers, we find that the majority of our readers have received not over $1.25 a bushel for their grain. A large proportion of them were obliged to sell last fall for one dollar or less."

SOME ROADS

The editor recently returned from a 400 mile trip over some of the good roads of Southern California, receiving visible demonstration of the great addition these have made to California's wealth. As one, who is an attorney in Cleveland, Ohio, and has come in contact with people who are travelers, remarked, "These roads will bring thousands of dollars to your state in the pockets of tourists who like to enjoy the pleasures of automobiling." This same attorney was unbounded in his admiration of our scenery and our climate which enables its fullest enjoyment. In addition he referred to the greater ease with which all products were moved to market. We believe the wisest step California has ever taken is that towards these improved highways. The country over there is only eight-tenths of a mile of good roads for every square mile of territory. We do not know what California's average is, but it is doubtless below that of the entire country because of the thousands of square miles which are in mountainous and desert sections. In the more populous and developed sections, however, we do not believe any state can exceed us. This is not entirely due to our enterprise in building concrete and macadam roads, for some of our exceptionally fine highways are well graded dirt roads. One county over which the recent trip extended was San Diego. In its valleys and mesas there are hundreds of miles of fine graded roads which are almost equal to concrete Some sections are not so happily located and there a good foundation must be made, but let us encourage more building of substantial and permanent roads by both state and county.

POULTRY COMMISSIONER

California should certainly produce more poultry. We are importing Middle Western eggs and poultry and sending away good gold in payment. The poultrymen of California have been seriously handicapped by the high prices of feed. True, climate has been in favor of the poultryman, but when 25 cents worth of feed is required for 25 cents worth of eggs, even the best of management fails. But it is possible to make investigations which will lead to cheaper feeds, to more effective poultry management, and possibly to cooperative marketing which will enable our state to produce enough for its own requirements.

To that end the poultrymen of the state have appealed to the legislature for the creation of the office of poultry commissioner. The legislature saw fit to grant the request and we believe the bill a most wise one. Now the poultry people fear the governor will fail to sign the bill, and the following circular is being mailed by the Federated Poultry Association of California:

"We have been advised that great pressure may be used to influence the governor to veto Assembly Bill 1539 providing for a state poultry commissioner. The poultrymen of the state convinced the legislature that we should have such a commissioner, but they must now place the governor in a position to know that the poultry keepers of California greatly need this help and urgently request him to sign it in order that it may become a law. This must be done at once.

"T. E. Quisenberry, who is the poultry commissioner of Missouri, says that state exports over fifty million dollars worth of surplus poultry products annually and that California has many advantages for poultry production over that section of the country. We should be exporting to other states instead of importing poultry and eggs from Missouri."

We believe every poultryman and everyone who wishes to see our state enriched by producing its own so far as possible should write the governor and inform him as to the importance of this industry to the state and of the necessity for its encouragement.

Agricultural Notes

The first jitney busses for Hawaii have arrived at Honolulu.

Large quantities of eggs are imported into Argentina from Italy and Spain. The summer price averages 25 cents per dozen, the winter price, 42 cents.

The girls of the garden and canning clubs in Iowa sold a total of $716.71 in fresh vegetables during the year, 3,360 quarts of fruits and vegetables being canned. One member put up 1,000 quarts of these herself.

The Great Central Railway of England is making experiments to see how far women can be employed as railway porters to set free men of military age. At present two women are being employed at Marylebone in this capacity.

In the analysis of the agricultural appropriation act which recently was passed by the United States congress, there is mention of the item of $20,000 for a federal display at the International Soil-Products Exposition at Denver, September 27-October 9.

A large demand for cattle has arisen in Russia and Siberia, in consequence of which large exportations from Chosen, Korea, are taking place. The latest order is for 50,000 head, 20,000 of which are to be Korean cattle, the balance to be supplied by Shantung Province in China.

One hundred and sixty-three cooperative cow-testing associations were in operation last year in the United States. This is considered to be a rapid growth when it is remembered that the first association in this country was organized in Fremont, Michigan, in 1905, and that as late as 1908 only six associations had been formed.

Authority is given the secretary of agriculture by congress to grant leases for national forest land for periods not exceeding 30 years and in areas of not more than five acres each, to responsible persons or associations, for the construction of summer homes, hotels, stores, or other structures needed for recreation or public convenience.

Owing to the difficulty of securing skilled workers, the high cost of land and water, and the increased cost of labor, rice production in Hawaii (which has been averaging over 25,000,000 pounds annually) is decreasing at the rate of 10,000 bags a year. It is estimated by a Hawaiian paper that the 1915 crop will be 60,000 bags less than that of 1909.

A press despatch from Seward, Alaska, reports that on Thursday, April 29, the first spike on the new government railroad was driven by Martha White, who was the first white child born in that region. The engineering commission in charge of the construction of the railroad has issued notices discouraging men looking for work; but very few are to be employed this season.

Announcement was made May 1 of a regular steamship service to Archangel, Russia. The steamer Queensford, flying the British flag, left New York May 18 with a cargo which included 5,500 bales of cotton, several thousand tons of metals, and a deck load of automobiles. Three boats have left for Archangel this season from New York, and regular monthly service will be maintained throughout the open season, which ends October 1. With the opening of the White Sea the port of Archangel will assume increasing importance because of the blockading of the Baltic Russian ports.

Agricultural News Notes of the Pacific Coast

Northern California

Cherry picking is in order in all cherry growing sections.

Woodland, Yolo County, has hopes of securing a milk condensary.

There is a 3000-acre plantation of rice in Colusa County between Colusa and Princeton.

The State Fruit Growers' Convention will assemble at Stanford University the last week in July.

Two 100-ton silos have just been completed for H. E. Coil, a dairyman of Woodland, Yolo County.

The Coombsville farm center of Napa County has established a free employment bureau for benefit of members.

Peach growers of the state are aghast at the load of fruit on the trees which will necessitate great expense in thinning.

The Ferndale Cow Testing Association of Humboldt County has completed six years of work. Approximately 3,800 cows have been tested during the past year.

It is reported that practically 75 per cent of the first crop of Sacramento strawberries was destroyed by the heavy rainstorm the first of the month. Cherries were also injured.

The Humboldt County Dairymen's Association will hold its next meeting at Loleta the first Tuesday in June. Members are interesting themselves in securing funds for a cattle exhibit at the Panama-Pacific Exposition.

Dairymen of Yolo County have found the work of the cow testing association during the last year very profitable. Members are being signed up now for the coming year's work. About 500 cows have already been pledged.

A Durham cow made the highest record for butter fat production for the month of April in the Gridley Cow Testing Association, producing 76.94 pounds of butter fat. Sixteen of the cows tested yielded more than 50 pounds of butter fat during the month.

Estimates of the coming fruit crop indicate that it will be one of California's largest. Canners are refusing to make any very definite statement as to the extent of their operations the coming season. This is said to be because of the high price of sugar.

The California Swine Breeders' Association has elected officers for the coming year as follows: A. M. Henry, Farmington, president; C. B. Cunningham, Mills, vice-president; J. I. Thompson, Davis, secretary-treasurer. J. K. Fraser of Denair, A. B. Humphrey, Mayhews; Alex. D. McCarthy, San Francisco, and J. L. Thatcher, Tracy, were added to the board of directors.

The Yolo County Hog Raisers' Association has appointed a board of hog cholera control consisting of George Colby, Clarksburg; H. N. Van Tassel, West Sacramento; Frank Edson, Knights Landing; J. M. Bray, Dunnigan; Harold Long, Blacks; Richard Jones, Yolo; William Gould, Woodland; Dr. Hayes, Davis; Fred Wilson, Winters; Byron Archer, Madison; H. Hartwig, Esparto; John Winter, Capay Valley.

Central California

Alfalfa candy is the latest.

Experiments are being made at Visalia in raising Belgian tobacco.

There are now 230 acres of grain growing in the old bed of Tulare Lake.

Tulare County estimates a crop of 10,000 cars of oranges the next year.

McKittrick, Kern County, wheat fields were greatly benefited by last week's storm.

Snow fell to the depth of 18 inches in the Sierra Nevada during last week's storms.

A movement is on foot at Fresno to dispose of all of the hold-over 1914 peach crop at once.

Tulare County is sending refrigerator cars filled with strawberries to Seattle and Portland.

The packing of Valencia oranges will soon start in Tulare County. The crop is not large this year.

Beans are becoming an important crop in Stanislaus County. The acreage this year will be large.

It is urged that 100,000 acres now in the bed of Tulare Lake be made into a great reclamation district.

The association of merchants and growers at Turlock has secured $10,000 in subscriptions to its stock.

Wheatville, Fresno County, reports some damage from lodging of grain caused by the recent storms.

Citrus growers of Tulare County met with supervisors at Visalia recently to talk over plans for the control of gray scale.

On one day of last week Gill Brothers of Porterville shipped 600 head of beef steers to San Francisco. The steers were fed on grass alone.

Horticultural Commissioner Collins of Tulare County estimates a 100 per cent crop of figs, berries and peaches; apricots not more than 75 per cent.

Manager Madison of the California Associated Raisin Company will be in Lindsay, Saturday, May 22. He will talk on the benefits of cooperative marketing.

The stormy weather of the first part of the month has seriously disarranged the spraying calendar for apple growers. It will make the schedule about three weeks late.

Citrus growers of the Lindsay district of Tulare County have united to fight gray scale. A permanent organization was effected at a meeting held the 15th at Lindsay.

The Apple Annual Association at Watsonville has elected the following directors for the ensuing year: O. D. Stoesser, J. E. Gardner, W. R. Porter, Mateo Lettunich, Luke Scurich, Geo. W. Sill, J. H. Thompson, E. A. Hall, J. H. Rowe, W. J. McGrath, R. H. Goodchild, E. Steinhauser and C. H. Baker.

The Tulare County Growers' Association has elected W. B. Kiggens of Lindsay president, C. H. Doyle of Porterville, vice-president, and H. L. Pomeroy, Porterville, secretary. This association owns the Porterville cannery and numbers among its members growers from Porterville, Lindsay, Exeter and Farmersville districts.

Southern California

Some small shipments of tomatoes have been made from Heber in Imperial County.

The Anaheim Sugar Company has decided to use natural gas for fuel instead of oil.

Wednesday, May 12, the Northern San Diego County Chamber of Commerce met at Fallbrook.

The Exchange By-products Company has been organized. The site for its location has not yet been chosen.

Over 550 date palms will come into full bearing at the government date farm at Heber in Imperial County.

The storm which recently swept the Pacific Coast piled great quantities of kelp on the state highway between Oceanside and San Diego.

Although the new packing house of the San Fernando Heights Lemon Company has not been completed several carload shipments have been made.

The Ventura County farm bureau has taken up special work for the year along the lines of squirrel control, bud selection and seed selection of lima beans.

Barley growers representing at least 100,000 sacks of grain met recently at Brawley, Imperial County and discussed the matter of organizing a grain growers' pool.

Imperial County claims to replace Humboldt as the biggest dairying county in the state, with a record of $2,495,000 as proceeds from the dairy industry of the county the past year.

Bean growers of Santa Barbara County are interested in the reduction announced in freight rates on beans between California and Atlantic Coast points. The present rate is 85 cents, the new rate will be 53¾.

At the recent annual meeting of the stockholders of the Beaumont Fruit Growers' Association the old board of directors was re-elected with the exception that W. J. Dwyer succeeds J. D. Funk. The year's business showed receipts of $2,412.50.

Walnut growers of the Moorpark section of Ventura County have organized a branch of the California Walnut Growers' Association with a capital stock of $5000. Directors are: William Bauer, W. S. Dunshee, J. C. Thompson, Jno. Laughlin, D. S. Hendry, J. M. Cornett and S. L. Gisler, all of Moorpark.

An extended experiment has been conducted in a Covina citrus orchard in mulching some 400 acres with stable manure. The manure has been entirely placed under the trees. Other experiments in the same orchard have been conducted with straw, alfalfa and other substances. The experiment will be continued and if possible the entire surface covered with a mulch.

The Tri-Counties Reforestation Commtitee met last Thursday at San Bernardino. Among other matters discussed was the plan of spreading the waters of the Santa Ana wash by constructing a dam of wired webbing filled with rock. At present about 7000 inches of water are being spread monthly. The next meeting of the committee will be held in Riverside.

The Coast

Prunes will be short crop is the report from Eugene, Oregon.

The Arizona Farm Improvement Association now has 17 local branches.

The first crate of berries from Kennewick, Washington, was shipped on April 26.

Brogan, Malheur County, Oregon, has sheared in excess of 100,000 sheep, this spring.

Wheat is reported in finer condition than ever before in Eastern Washington.

The Spokane fruit growers have withdrawn from the North-Pacific Fruit Distributors.

The cooperative cannery at North Yakima, Washington, starts out with a capital stock of $100,000.

At a sale of work horses recently held at Lewiston, Idaho, the average price per head was $127.50.

Potato acreage has been greatly increased at Stanfield, Oregon. Alfalfa fields plowed up give large returns.

Klickitat County, Washington, suffered seriously from late frosts, which caused loss of many potato crops. Other than that the crops are looking fine.

The purchase of a band of horses for artillery and cavalry service was made at Okanogan, Washington, recently. The price paid for the bunch was $8000.

Stockmen of Custer County, Idaho, have organized to prevent outsiders from driving in herds of stock on the ranges. The idea is that home stock is entitled to the pasture.

The Idaho legislature has just passed a law creating the office of director of farm products. In addition to aiding the farmers in marketing their products he will maintain supervision of real estate deals.

Awards have been made in the boys' cotton contest at Tempe, Arizona. Results show that every boy entering the contest produced over 300 pounds of lint per acre. The first prize winner was Claud Medlock.

Farm Adviser James A. Armstrong of Maricopa County, Arizona, is interesting dairy farmers in cow testing. It is now proposed to hold a Maricopa County midsummer fair at Mesa this year instead of Phoenix.

The Northwest Fruit Distributors has been reorganized. The president is Frank A. Reeves, Wenatchee; secretary and general counsel, N. C. Richards of North Yakima. The general manager will be J. H. Robbins.

Mohair growers at Brownsville, Washington, organized a pool and sold their entire clip at 33⅛ cents. There were about 12,000 pounds in the pool. A pool of mohair growers at Junction City, Oregon, sold the clip for 32¾ cents.

The Cow Testing Association at Tillamook, Oregon, has a cooperative calf marketing committee. One feature of this association's annual work is a prize of $50 to the best, $30 for the second best cow in the association, and a third prize of $20. In addition there are other prizes for young heifers.

Is your cream can being ROBBED?

Is your separator the thief ?

SUPPOSE you found that some one was stealing even a little of your cream every day. You wouldn't rest easy until you had put a stop to it.

If you are using an old or inferior cream separator, the chances are ten to one that each time you use it you lose some cream. Your cream can is being robbed just as surely as if some one were stealing cream from it.

Some people go on using their old separator even if they know that it is not working right. They fail to realize that if the separator doesn't run right it can't possibly skim clean. They overlook the fact that a De Laval will soon pay for itself just from what it saves over an inferior or half worn-out machine.

If your present cream separator is not skimming as close as two one hundredths of one per cent it will easily pay you to

trade in your old separator on account of a new

DE LAVAL

68,000 users did so last year 34,873 in the U. S. and Canada

You can never get your money back by continuing to use a worn-out or inferior cream separator. The longer you keep it, the greater your loss.

The quickest and best way to satisfy yourself as to the comparative merits of the De Laval and your old machine is to ask the local De Laval agent to bring a machine right out to your place.

He will be glad to let you have a free trial alongside your present machine; and, if you decide to purchase, will make you an exchange allowance on your old machine, whether it be an old De Laval or some other make.

If you don't know the De Laval agent, write to the nearest De Laval office below, giving make, number and size of your present machine and full information will be sent you.

Why not take this up at once? Stop your cream losses and have the satisfaction of knowing that you have a separator that you can depend upon.

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101 Drumm St., San Francisco 1016 Western Ave., Seattle

50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER

USE EKVALL SANITARY MILK STRAINER

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Live Stock and Dairy

EDUCATIONAL BUTTER SCORING CONTEST

By L. M. Davis

WITH 28 buttermakers participating the butter sent to the second entry of the University of California educational butter scoring contest received an average score of 92.19. As a whole the butter was quite a fair lot, no entry scoring lower than 90½, while 32 per cent of the entries scored 93 or above, and over 71 per cent scored 92 or above. The butter was scored in San Francisco after being held in a refrigerator a day to firm it. With the exception of those who do not wish their scores published, the following is a list of scores as placed by T. J. Harris, official inspector of the San Francisco Wholesale Dairy Produce Exchange; L. M. Davis and H. S. Baird of the dairy division.

P. Bernasconi, Harmony Valley Creamery, Cayucos, 93.

B. Berthelsen, Los Angeles Creamery Co., Hanford, 92.

V. De Carli, Elite Creamery, Nicasio, 99½.

Glenn Decow, Mission Creamery, Perris, 92.

E. L. Dilley, McFarland Creamery, McFarland, 93.

W. J. Grinsell, Libby, McNeill & Libby, Loleta, 93.

Ed Hooper, Spreckels Market Creamery, San Francisco, 92.

J. N. Jensen, Visalia Cooperative Creamery, Visalia, 93.

D. P. Johnson, Riverside Dairy Co., Riverside, 92.

L. Kloekler, Sierra Creamery, Madera, 91.

Simon Koppes, Montague Creamery, Montague, 92.

L. Larsen, Sunset Creamery, Loleta, 94½.

W. W. Leffingwell, Stonyford Creamery, Stonyford, 92½.

A. LeRoy, Exeter Creamery, Exeter, 92.

O. Lommel, University Farm Creamery, Davis, 91½.

R. H. Nelson, Pt. Reyes Cooperative Creamery, Pt. Reyes, 91.

N. C. Nelson, Crescent Creamery, Reno, Nevada, 91½.

E. C. Newman, Lamoille Creamery, Lamoille, Nevada, 93.

P. Petersen, Valley Flower Creamery, Ferndale, 93.

J. C. Phillips, Delta Creamery, Imperial, 91½.

G. G. Plunkett, Visalia Creamery, Visalia, 92.

Wm. Roby, Willows Creamery, Willows, 92.

W. T. Scheld, Inyo Cooperative Creamery, Bishop, 92.

J. W. Smith, Santa Rosa Creamery, Santa Rosa, 93½.

H. Sutton, Minden Butter Mfg. Co., Minden, Nevada, 92½.

G. W. Wright, Woodland Creamery, Woodland, 91.

———, Ceres Creamery, Ceres, 90½.

Cuts for Mechanical Defects

Mechanical defects are a heavy drain upon the score of much of our butter at the present time. In the absence of all cuts under body, color and salt, the average score of the 28 cubes would have been 93, a decided improvement in view of so many lots, each coming from a different creamery and a different locality. Every new season presents its difficulties to the buttermaker, until the making of butter has become a task requiring the closest study and application. One of the points which is of greatest concern to some buttermakers just now is the matter of color. One buttermaker remarks on his method blank that he is having some difficulty at times in keeping the color of his butter from resembling a "U. S. Weather Bureau Map" because of streaks. The close relation between the condition of body and color, and the composition of the butter demands a buttermaker's careful study in deciding upon the details which he shall follow with regard to washing, working, etc. Bad color is especially objectionable on the markets, as a few makers have found out. One market, for example, grades mottled butter a "Second" regardless of its other qualifications. Grade is not determined by score alone, but price is determined by grade. It is perhaps safe to say that most of our creameries could improve the score of their butter by at least a point, by avoiding the defects which must be charged to the creamery. Some buttermakers are crowding the salt limit too closely. This is doubtless done on acount of overrun, but the time must surely come when the folly of sacrificing for overrun those points which make for successful marketing will be realized.

Improvement Noticed in Flavor

That in the absence of cuts for mechanical defects the average score of the butter would have been 93 is evidence of the fact the flavor of the entire lot was generally good. The feed flavor which was so prevalent in the March butter was noticed in but two or three cubes. Suggestions of summer weather were found in some of the cubes, and it is high time that the cooling and proper care in handling cream be urged upon dairymen. A mild feed flavor is less objectionable to the ordinary user of butter than an unclean flavor. Of the 24 method blanks received, 20 or over 83 per cent, report pasteurizing and the same number used starter. Four of the 20 pasteurized entries were made without starter. Four entries were not pasteurized, but starter was used in them. Compared to the reports of contests a few years ago this shows commendable effort on the part of creamerymen to make butter of good flavor. If the same effort would be made to improve the cream before it reaches the creamery, as is made to improve it afterwards, California butter would reach a high standard of quality. Therein lies the greatest hope in the future.

MORE HOGS NEEDED IN ARIZONA

Arizona is short on hogs! Only one state in the Union has a smaller number. The last census gave us a total of 17,208 in the state. Since then the numbers have increased to about 25,000 animals, but this is entirely out of proportion to the place hogs merit in the agriculture of the state, states Dr. R. H. Williams, animal husbandman of the University of Arizona agricultural experiment station. Hogs are especially adapted to many systems of farming throughout Arizona. They thrive especially well and are profitable on irrigated farms where alfalfa, barley, milo maize, skimmed milk and other foods are abundant. Large numbers of pigs may be grown on a small acreage. On one particular farm the owner maintains as many as 700 on 40 acres of alfalfa. They are easily cared for and no other kind of livestock may be turned into money in so short a time and make such large returns.

It is hard to find a reason why more hogs are not grown in Arizona, for we have abundant proof that the conditions of climate, soil, crops and markets obtaining here are especially favorable for their production. Diseases are not as bad here as in the corn belt, and all that is required is that the farmers get interested in hog production. In some parts of the state hogs do well on range alone. The sows are farrowed some time in June and July when the rainy season commences. By the time the acorns fall in July and August the small pigs are large enough to secure considerable feed from this source. Farmers have told me that their pigs will take care of themselves entirely without any feed and dress about 75 pounds when seven to ten months old. Such semi-wild pigs scent dead cattle as far as a coyote, and make splendid gains on the carcasses. This is not a good way of managing pigs, but it is interesting to hear such reports.

Those interested in beginning with hogs should follow some special system of development. The first consideration should be to prepare suitable facilities for handling them, such as buildings, enclosures, pasture and feeds. Each farmer will have to plan his equipment to suit his conditions, but good animals and the best of care will always pay. Those who have a small number of pigs should exercise great care to select only the largest, smoothest sows that make the best mothers. Farmers who have no pigs and wish to stock up should select a few females and gradually increase the number of the herd by keeping the best sows. It would be wise in making purchases to select animals from a first-class herd that has been carefully managed for many years. These old breeders have better stock than can be found by going to a neighbor and buying a "sow." It will also be possible to look over the ancestors of the animals selected and make sure that they are of the correct type and quality.

Farmers who undertake to increase their hog supplies need have no fear of finding a market. Recently a certain man in the state advertised a number of bred sows for sale. He was immediately besieged by people anxious to buy, and in a few days over 30 prospective buyers appeared at his place and offered extraordinary prices. Another man said: "I am an old man now, but if I were ten years younger I would start in the hog business, for there is more money to be made out of hogs than any other way of farming in the Salt River Valley." This indicates that the Arizona farmers are beginning to realize that the future for hog production is assured and want to take part in the profitable business.

SWINE BREEDER'S TEN COMMANDMENTS.

Following are ten commandments that should be obeyed by every intelligent swine breeder:

1. Breed from mature stock.
2. See that they have dry, clean sleeping quarters.
3. See that they are never overfed and no sudden changes made in their feed.
4. See that they have free access to pure water.
5. See that they have good shade during the warm weather.
6. See that they are not obliged to eat their feed in filth or mud, and what is still worse, in the dust.
7. Never feed an exclusive corn diet.
8. Do not inbreed.
9. See that their surroundings are kept clean. In warm weather dust fresh lime around any places that are apt to give off a stench.
10. Keep the following mixture in a dry place where they can help themselves the year round: One load ashes, 100 pounds salt, 50 pounds sulphur 20 pounds copperas, one barrel lime; mix thoroughly. In addition feed charcoal and soft coal.—National Stockman and Farmer.

WHY COOPERATIVE CREAMERIES ARE SOMETIMES A FAILURE.

Cooperative creameries are very important in developing a section along dairy lines, but so many have been started in the wrong way that farmers have cone to believe to a great degree that the small cooperative creamery is a failure. However statistics from Wisconsin and Minnesota show that the large number of cooperative creameries have been greatly instrumental in increasing the output of dairy products, in improving the quality of those dairy products, and in raising the price paid for butter fat in those states.

In the first place too many creameries have been started by promoters who were interested only in getting a good price for their machinery and building, and were little interested in the welfare and future prospects of the creamery. These promoters have created sentiment among the business men of certain towns and have caused them to believe that a creamery would be a great boom to the town and locality. Oftentimes there were only a few cows within a radius of six miles, and perhaps the farmers were not interested in dairying but were following some other line of farming. Four hundred and fifty dairy cows should be available within this radius to make it reasonably safe to start a creamery.

Too often the creamery is organized and operated by the townspeople, and the farmers have little to say in regard to its operation. In order to make a creamery truly cooperative and successful it should be operated entirely by the farmer. The business man in town might be permitted to buy stock and receive dividends, if such were issued, but they should have no word or vote in the operation and control of the creamery unless they are milking cows and sending cream to the creamery.

Poorly qualified butter makers or managers are sometimes responsible for the failure of creameries after they have been organized and started. A butter maker should not be placed in charge of the butter making room simply because he has agreed to work for a smaller salary than another. He should be thoroughly examined as to his qualifications and ability to make butter, and as a rule it is generally safer to employ a $100 man than a $75 man. A butter maker or manager should be educated in making butter and in the operation of the creamery, and should have some experience before being employed as head butter maker or manager.—O. W. Holmes, Idaho Agricultural College.

DAIRY PROFITS AND THE 'DOBE HOLE.

To secure profitable results from the dairy the good health of the individual cow is absolutely necessary. When dairy cows are not in good health they have short appetites and therefore fail to make suitable yields in milk production. The much used term, "No money in dairying," is spread broadcast by the man who thinks his cows can drink stagnant water, eat moldy feeds and still produce a normal flow of milk, declares Prof. G. W. Barnes, livestock specialist of the University of Arizona agricultural extension service. Dairy cows, like human beings, are susceptible to various unfavorable conditions in their environment. So it is important to bear in mind in dairying the necessity of furnishing plenty of clean, pure, wholesome drinking water.

It requires but little searching in the Salt River Valley for one to realize how this important factor for success in dairying has been neglected. The practice of allowing the cows to obtain their drinking water from ponds or puddles in which they are permitted to stand is an undesirable and filthy practice. Not only do the animals contaminate the water which they are required to drink, but this contamination finds its way to the udder. An infection thus started may spread widely as the result of carelessness to every cow in the herd.

More inquiries have come to me about udder troubles than any other one matter and upon investigation at the places I have never found a farm yet which did not have a pond or mud puddle. In some cases a complete quarter of the udder was infected. The herds on these farms were also very thin in flesh and below normal in milk flow. Why should the cows be in this condition of flesh and milk flow? Because the tax upon the system in combating and getting rid of the contamination and filth was so great that the bulk of the food supply went for this purpose and not for flesh and milk production.

Remember that the dairy cow is the hardest worked animal on your place, and do not overload her system with impure water, thus causing a decrease in milk flow of anywhere from 15 to 25 per cent. It is well worth the trouble for any stock farmer (whether he has dairy cattle, hogs, horses or poultry) to provide a clean water supply in troughs or in some other way to prevent the animals from contaminating their own drinking water.

HISTORY OF THE POLAND CHINA

The Standard Poland China Record Association has issued a Pedigree Manual and Short Story of the Early History of Poland Chinas, which it will mail upon request. The secretary is Ray Davis, Maryville, Missouri.

CHOWCHILLA

In our agricultural news note page we recently referred to Chowchilla, Mariposa County. To this the Madera Tribune takes exception and asks us to move that rich section back into Madera County where it properly belonogs. We should perhaps have known this, but being somewhat uncertain which county it was in we turned to the Rand-McNally Pocket Map and Guide of California. This definitely located the town in Mariposa County so we took it for granted the atlas could not lie. We now note that the 1915 edition of the same atlas locates the town properly in Madera County. We are glad to be corrected in this matter.

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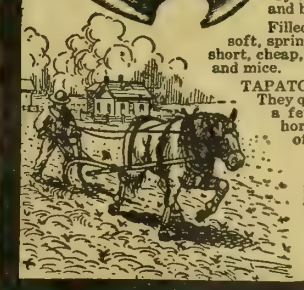

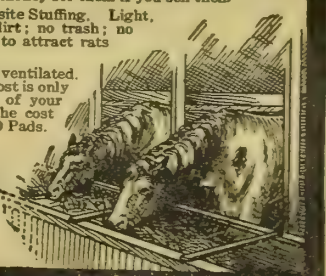

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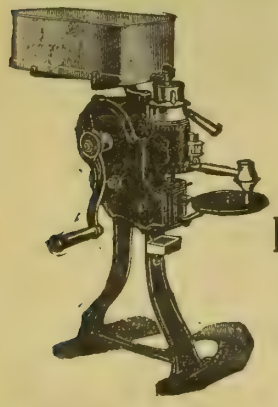

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IRISH PIG-FEEDING EXPERIMENT

By Sanders Spencer, in the London Farmer and Stock Breeder

The first reported experiment was said to be entered upon to ascertain whether pigs could be profitably fattened without potatoes. The six pigs used for the experiments were divided into two lots of three each. The first lot were fed on equal parts of Indian meal and pollard for 122 days; the second lot were fed on potatoes and on equal portions of Indian meal and pollard. The increase in weight of the two groups was nearly the same, but was a little superior in the case of the first. Calculating the price fetched by the animals and the cost of their food, it appears that, as the average price of marketable potatoes in Ireland is more than $9.70 per ton, a mixture of Indian meal and pollard costing $1.95 per hundred pounds would generally be a more profitable pig-fattening food than a mixture of the three foods named. The experiment gives no conclusive data, as no mention is made of the percentage of dead to live weight, or of the quality of the meat.

The second experiment was carried out for the purpose of comparing the values of barley meal and maize in the fattening of pigs. In this case also six pigs divided into two lots of three were used. The experiment lasted 76 days. The first lot were given maize, potatoes and skim milk; the second lot received barley meal and a similar addition of potatoes and skim milk. The pigs in lot one appear to have made a greater increase by seven pounds each than the barley-fed lot, but this small variation does not seem to have influenced the reporter greatly, since it is recorded that "the difference in the results from the two foods was so slight that it may be assumed that barley meal is as satisfactory a food for pigs as Indian meal, and it possesses the advantage that it can be produced on the farm."

Similar experiments having the same objects in view were carried out in County Cork, but the details given are fuller and the number of pigs greater.

In the first of the two experiments eight pigs were utilized; they were cross-bred large Yorkshire pigs, presumably the offspring of a boar of this breed out of locally bred sows. The eight pigs were divided into two lots of four animals each. From November 12 to the beginning of February the first lot was fed on potatoes, barley and separated milk, while the second received potatoes, maize and separated milk.

The total increase in weight in the two lots was about the same, while the proportion of dead weight to live weight was 74 per cent in the case of the first lot and 75.4 per cent in that of the second.

A second experiment was carried out, also with eight pigs, no separated milk was given, the animals being fed in the first case on potatoes and maize meal and in the second on potatoes and barley meal.

The daily increase of weight was larger in the pigs given barley meal. The animals showed a decided preference for the latter and would have consumed larger quantities of it than of maize meal. The subsequent examination of the meat showed that, as a rule, the flesh of barley-fed pigs is firmer and of better quality than the meat from pigs fattened on maize. Mention is also made of the fact that some of the pigs fed on maize meal suffered from so-called cramp, while those fed on barley meal were unaffected.

THE DAIRY INDUSTRY.

There is food for a good deal of reflection in the following statistics:

The number of dairy cows in the United States in 1870 was 8,935,332; in 1880, 12,463,120; in 1892, 16,319,500; in 1900, 17,135,633; in 1910, 20,625,432.

The number of acres of improved land in 1870 was 188,920,099; in 1880, 284,771,042; in 1890, 357,616,735; in 1900, 414,438,487; in 1910, 478,451,750.

In 1870 the number of pounds of butter produced was 514,032,683, almost wholly farm butter; in 1880, 806,672,071; in 1890, 1,205,446,605; in 1900, 1,491,752,602; in 1910, 1,619,415,263.

In 1870 the amount of cheese produced was 162,927,382; in 1880, 243,157,850; in 1890, 256,749,683; in 1900, 298,344,629; in 1910, 320,532,181.

Neither the production of butter nor cheese has kept up with the increase of population.

This wonderful growth has added enormously to the material wealth of every community and state where dairying has been the ruling agricultural pursuit. It has also been a powerful aid, wherever it has been conducted intelligently, in conserving the fertility of the soil. This gain to the wealth of the nation can hardly be computed in dollars and cents, but it is great, nevertheless.

One powerful incentive to the expansion of dairy farming has been the great improvement in the quality of the product and consequently the increased price which has come to the farmer. In 1870, practically the whole of the butter and nearly all of the cheese, except in New York and Ohio, was made on the farm.

SOME DIFFERENCES.

Here and there amongst our dairymen are such splendid results attained that one can only be astonished at the complacency with which other so-called dairymen continue to be content with the pitifully small average yields of milk per cow. Why do the huge differences exist?

Just a few miles from here is one of those poor herds, six cows with an average of only 3,338 pounds of milk: the highest yield only 4,000 pounds.

In contrast to that two good herds in western Ontario indicate the possibilities for the man whose eyes are open to what milk records have to teach. One herd of 12 grades averaged 10, 657 pounds of milk and 317 pounds of fat; the second herd of 22 grades averaged 10,542 pounds of milk and 350 pounds of fat.

These marvelous differences in herd yields drive home hard facts. Men differ in their methods of feeding and handling cows, feeds differ in value, cows differ considerably in their inherent capacity as milk producers, they are not all cast in the same mould.

In the above two good herds the constant use of milk records has proved an excellent lever in raising the production. Cow testing pays.—C. F. W.

MAKING FARM LABOR EFFICIENT

The average farmer has within recent years come to investigate carefully the records of live stock that he buys. He has not, however, reached the point where he investigates with the same care the qualifications of men whom he employs. Yet big business concerns have often found a greater loss from inefficient employees than from improper equipment and supplies.

It is true that heavy demand for farm labor at certain seasons of the year often leads to the employment of hands without sufficient investigation of their qualifications. This need not be the case, however, at ordinary times, and in busy seasons it will be worth while for the farmer to pay a higher wage and demand greater efficiency.

A Wisconsin dairyman in securing his help considers whether the prospective employee has strength and alertness; skill in a variety of farm tasks; habits of industry; liking for the principal lines of farming; ability to keep up to schedule; intelligence and faithfulness; intention to earn what he is paid.

In order to obtain the greatest possible efficiency from his help, this farmer plans his work by these rules:

"Do no rainy day work when it is not raining if there is outdoor work needing attention.

"Do no wet land work when the land is dry if there is dry land work to be done.

"In rush season keep busy but do nothing today which can be put off until tomorrow.

"In seasons when there is no rush work the reverse is true—put off nothing until tomorrow which can be done today."

A combination of more efficient help and more efficient planning of farm work will add distinctly to the profitableness of agriculture as a commercial enterprise.—Kansas Industrialist.

TONICS FOR HOGS

Hogs are omnivorous animals and especially sensitive to a lack of variety in their feed. Under domestication they make rapid growth and it is hardly possible to supply them with sufficient quantities of all the food nutrients they require to make the most economical gains. On this account they often become restless and have a craving for certain constituents lacking in the diet, states Dr. R. H. Williams, animal husbandman of the University of Arizona agricultural experiment station. The following mixture has given satisfactory results: Charcoal, 8 pounds; air-slacked lime, 8 pounds; common salt, 6 pounds; hardwood ashes, 8 pounds; powdered sulphur, 4 pounds; powdered blue stone, 2 pounds.

These should be thoroughly mixed and kept in stock so that a small supply may be before the hogs at all times. A low box makes a useful container. Such a mixture is especially cheap and will return big profits in the way of increased gains. It should be mentioned that this preparation is more of a tonic to keep the hogs in good condition rather than a safeguard against disease. At the present time we have no hog food that will save pigs from contracting or dying from hog cholera. This tonic, however, has a beneficial effect in making the animals more vigorous and maintaining them in better condition to overcome the attack of diseases.

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PREVENTING DISEASE

(Continued from Last Week)

Drainage

Dampness in houses, mud puddles in runs, are among the most prolific causes of roup. Indeed, dampness is sometimes put at the very top of the list of disease producers. Dryness means drainage, some way for the water to run off. I know poultrymen, many of them, who succeed admirably on level ground, but this is because they understand the importance of dryness in houses and runs and maintain it without the great advantage which a slight slope gives. It doesn't matter how you avoid dampness, only avoid it as you would smallpox. Good drainage simplifies the matter considerably, but sunshine and ventilation are the two great enemies of both dampness and disease.

Once roup is discovered in the flock, steps must be taken to prevent its spread. First, isolate all sick birds. This is very important. Second, disinfect the roosts and houses where they have been. Kerosene and crude carbolic acid, one part carbolic to three or four of kerosene applied with a brush after the walls have been well washed with the hose, is an excellent disinfectant. Cresol disinfectant, the recipe for which I have given a number of times, is highly recommended. Carbolineum, Zenoleum or any of the coal-tar disinfectants, are all good. Only do the work thoroughly, that not one guilty germ may escape. Third, put some antiseptic in the drinking water to prevent the spread of the disease. Permanganate of potash is generally used for this and is recommended by all experiment stations. Some people use kerosene, just enough to make a slight film on top of the water, but it must be very disagreeable to the birds. Fourth (I should have put this first), clean up thoroughly and find out what is the cause of the trouble.

There is one other cause of roup which is perhaps more important than any other, that is roupy breeding stock. Fowls with roupy ancestry are more susceptible to roup than those of vigorous constitution. If roup were of constant recurrence in my flock, after all sanitary precautions had been taken, I should think it advisable to eat or market my whole flock and begin over again. But before I adopted so radical a measure, I should certainly try that suggested by Dr. Pearl of the Maine Station, and band every bird that ever showed any symptoms of roup or even of a common cold, with a band that never could be mistaken, so that it could never by any chance be used in the breeding pen. We are much too careless about such apparently trifling matters as this. The average poultry keeper (amateur, side-liner, rancher, everybody but professionals) pays very little attention to this fundamental rule of breeding, and puts the best-looking birds, or at the most, the best layers, in the breeding pen, if indeed he does not do worse yet and breed from his whole flock, good, bad and indifferent. If we want to get rid of roup, and the same thing is true of many other diseases, we must stand firm on this principle, that like begets like. Roupy stock breeds roupy stock; vigor begets vigor. There can be no half-way ground.

What has been said of roup applies to nearly all diseases. Chicken pox is more directly contagious, but the germs may be kept alive for years in dark, dirty houses. Prevention implies great care in introducing new birds to the flock. Birds that have been in the shows or are newly purchased should be quarantined a couple of weeks before being allowed to run with the flock, and any appearance of the disease should be the signal for isolation and thorough cleaning and disinfection. Aspergillosis, a disease of the air passages which is caused by mouldy feed or litter, is very similar to roup in its symptoms, and search for mold or mildew should go hand in hand with other cleaning. Moldy food should never be given to fowls of any age. The same lack of ventilation which causes roup is also the chief cause of bronchitis, pneumonia and cold of all kinds. In short, there are just two essentials for preventing disease: Vigorous stock, cleanliness (clean air, clean houses, clean runs, etc.)

FEEDING BROODER CHICKS

Mrs. Whitaker, head of the poultry department of Washington State College, writes:

"I do not think there is any one definite, specific ration that can be used by a sort of rule-of-thumb method for the feeding of all varieties of chicks under varying conditions. Learning to feed baby chicks is cultivating one's judgment in adapting rations to a specific case rather than the adopting of some prescribed method. The care and management of the flock is just as vital as what is fed.

"During the first 48 hours of a chick's life it requires only comfortable, even temperature, sleep, and, toward the end of the period, a drink of water with the chill removed. Care should be used to see that the chicks do not get wet in the drinking fountain or drink water that has become foul or stale. The floor of the brooder should be covered with coarse sharp sand over which is scattered chaff or straw litter.

"At the college the chicks are fed the first ten days rolled oats (breakfast food form) alternated with finely cracked wheat free from bran. The first two or three times we feed upon paper plates or clean cedar shingles, but later scatter the food in the straw litter. By feeding little and often the chicks are induced to scratch vigorously from the start. We keep before the chicks from the beginning all the sweet skimmed milk they will drink. We consider clabbered milk excellent and recommend it in cases where there is a tendency to bowel trouble. The feeding of sometimes sweet milk and sometimes sour to the same flock is not recommended.

"When the chicks are 10 days old, we add to their ration bran with finely sifted beef scrap or granulated bone in proportion by weight of ten parts of bran to one each of beef scrap and bone. This is kept in hoppers which are opened for two hours in the morning and two more in the early afternoon.

"When the chicks are two weeks old the danger of bowel trouble is practically over, and a good grade of corn meal replaces three pounds of bran in the mash. If ground oats are available another two pounds of bran can be well replaced by the oats. From the 21st day on, the oat meal is gradually replaced by sprouted oats. Cracked corn is used to gradually replace part of the cracked wheat until wheat and corn are fed half and half by bulk.

"Where a good grade of commercial chick food can be had at a reasonable cost it can be profitably used in small flocks in place of cracked wheat or cracked corn after the tenth day. We do not recommend the feeding of any corn meal or cracked corn before the tenth day for the reason that sometimes it ferments in the chick's digestive tract, and causes bowel trouble. Moreover, just before feeding one always needs to examine any finely cracked corn or corn meal to be sure that it has not heated in the sack or become mouldy.

"From the third day finely granulated charcoal and chick-size grit is scattered in the straw litter, and a plentiful supply of tender, juicy, finely-cut green food is kept before the chicks from morning till night. Wilted green food is dangerous, and tough green food is useless. Chick weed, dandelions, lawn clippings, clover, alfalfa leaves, etc., make good green food. Of course, a range which supplies green food affords the ideal condition."—Jean A. Koethen.

SOFT SHELLED EGGS.

The frequent laying of soft shelled eggs occasions a considerable market loss in the spring of the year. Mrs. Whitaker of the poultry department of the state college of Washington, offers the following explanation of the causes and the remedies:

The yolk of the egg is fully formed when it breaks from the hen's ovary and drops into the funnel shaped mouth of the oviduct. It is at this point that fertilization of the egg takes place, probably within a few minutes of the breaking loose of the yolk, and in about three hours time the formation of the thicker albumen is completed. The next section of the oviduct secretes the shell membrane, which ordinarily requires about three hours. By the expansion and contraction of the walls of the oviduct the egg is forced forward into the shell gland where the lime of the egg is deposited, and within 12 to 24 hours the egg is laid. One can readily see that anything that would have a tendency to make the egg pass too rapidly through the lower two-thirds of the oviduct would cause the hen to lay soft shelled eggs.

The first and usual cause of soft shelled eggs is that the bird is too fat. The muscular movement of the oviduct is hindered by layers of fat, and instead of the egg being controlled by firm muscles it merely slides through a flabby mass without getting its shell on. The difficulty will vanish if the birds are made to scratch hard in a clean dry straw litter for all their grain, and the ration fed is not over fattening. Sprouted oats will be a valuable food, as they are less fattening than either wheat or corn. In some cases it might be advisable for a few days to omit all mashes, especially moist mashes, from the ration.

The second source of soft shelled eggs is lack of lime in the hen's ration. In this case the shell secreting part of the oviduct fails to do its work because of lack of material. Clam shell is not so readily soluble as oyster shell. What is commercially known as beach shell is preferable to clam shell. It is claimed by some poultrymen that the use of a limestone grit also helps to supply shell material to the hen. It is often recommended that old plaster be broken up and thrown in a box in the pen for birds to pick at as a source of lime.

The third cause of soft shelled eggs is the forcing of hens for too frequent egg production. A second yolk breaks off from the ovary and drops into the funnel of the oviduct, and the first one is forced too rapidly on its way for it to be completely formed when laid.

The fourth cause of soft shelled eggs comes from scouring, that is, from feeding a too loosening ration to your birds. Beets or mangels will sometimes produce this result. The droppings normally should be a dark slate or dull black color, firm enough to maintain a spiral shape as seen on the dropping boards.

If possible, the children, the girls, mind you, as well as the boys, should have some means of acquiring the money necessary to their needs. If every girl had this training, then would the woman consider an income from some source her just due, and not in the nature of a gift, as is too often the case.

All the poised balances of God would swerve,
Did men not get the blessings they deserve;
And all the vigorous scales of Fate would turn,
Did men not get the punishment they earn.

—Edward Markman.

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will commence June 14th and continue on various dates during June, July and August. Greatly reduced fares for round trip to many cities from Salt Lake to the Atlantic coast.

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TREES

Rialto Seedless Lemon Trees—Write or phone for Brief History and it will be mailed to you. The coming Lemon for California. Also Seedless Grapefruit—Valencias, Washington Navels—Eureka and Villa Franca Lemon—Mexican Lime—Ganter and Harmon Avocado Pears. We are making special inducements to planters. Prices on application. We have first-class stock and can make deliveries from San Bernardino, San Diego and Los Angeles Counties. We are not jobbers but selling our own grown trees. Buds selected from the best bearing trees. 25 years in Southern California growing and handling citrus trees. Yours for good business.
CALIFORNIA ORCHARD DEVELOPMENT CORPORATION
303 South Hill Street
Main 884 Los Angeles, Cal. F-7406
or
Cyrus W. Wilhite
Home 303 Glendora, Cal.

Lease Expires Next Spring—Must sell. Have left about 2,000 Eureka lemons, three-quarters inch and up, buds selected from trees producing heavy crops of fancy fruits. 2,500 Valencia Late five-eighths inch up, 2,000 Marsh Seedless grapefruit five-eighths inch up. These are stocky and especially adapted for desert planting. Will sell with loose roots or balled. Prices as follows for loose roots: Eureka lemon, three-quarters up, $16.00 per hundred; Valencia Late, five-eighths up, $15.00 per hundred; Marsh seedless grapefruit, five-eighths up, $12.50 per hundred. All information cheerfully given. E. J. Van der Sluis, Glendora, Cal.

AVOCADO TREES
The Avocado is the most valuable of all fruits and the most important future industry before the people of California today. Vigorous, field-grown, budded trees of standard frost-resistant variety; from four to seven feet high, $2.00 to $3.00, according to size. Write for literature. W. A. Spinks, Duarte, Cal.

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Blake, Fowler, Harman, Ganter,
Taft, Walker, Murrieta, Trapp, for immediate delivery. Royal, Challenge, for future delivery.
MAGEE BROS., R. D. No. 2, Pasadena.

Very Fancy Citrus Stock—Eureka lemons, Valencia and navel oranges and grapefruit. Very strong one and two year old trees, heavy root growth. Very low prices. Get our quotations for any quantity wanted. Smith Citrus Nurseries, 619 Oakland Ave., Pasadena. Colorado 4089.

Eureka Lemons, Late Valencias, Washington Navels—⅝ up. Thrifty, clean stock, 20c open root, 25c balled. Quality considered, you can not beat it. Plant now. Call or write Wilbur K. Howard, Loraine avenue and Santa Fe crossing, Glendora, Cal.

Two-Year-Old Eureka Lemons—Washington Navels and Valencia buds, A1 stock; 15c loose root, 20c balled. Harmon Avocado buds, 3 to 7 feet, $1.00, $1.50 and $2.00. A. Z. Lane, Glendora, Cal., Box 331.

Prices Reduced—Ganter and Harman Avocados, 4 to 7 ft., extra fine field grown trees with large, even heads; on rented ground and must be sold. Our prices will surprise you. Citrus also reduced. Magnolia Nursery, Whittier, Cal.

For Acacias, Avocados, Budded Loquats, Citrus trees, Evergreens, Feijoas, Palms, Roses and all kinds of trees, shrubs, vines, etc. Write for our new catalogue. Robertson Nurseries, Fullerton, Cal.

For Sale—Navel, Valencia and lemon trees, three-quarters inch and up, 20c loose root, 25c balled. Budded Avocados, 4 to 7 feet high. Address Box 54, Glendora, Cal.

For Sale—2000 Late Valencia Orange trees, two years from bud. 1800 Washington Navel, one year from bud; A1 stock. Address H. H. Eshelman, Soldiers' Home, Cal.

The 1200-Acre Nursery, growers of 1500 varieties of trees and plants. OREGON NURSERY CO., Orenco, Oregon. Sales office, 522 Chamber Commerce, Los Angeles, Cal.

Budded Avocado—Select field-grown trees of standard varieties for the home or orchard. Sapota, Feijoa, etc. Catalogue free. Semi-Tropic Nursery, Monrovia, Cal.

For Sale—Finest Valencia and Washington navel trees in the country, 20c loose roots, 25c balled f.o.b. Small orders promptly filled. B. C. Dodson, Glendora, Cal.

Very Fine Sweet and Sour Orange Seed-Bed Stock — PRICE REASONABLE. MIGHT TRADE FOR GOOD AUTO OR TEAM. ORANGE COVE NURSERIES, OROSI, CAL.

For Sale—Eureka Walnut Trees, budded on Native Black Walnuts. Choice stock. Order immediately. Don't delay. Wm. Holve, Fullerton, Cal.

100,000 Citrus Trees—Choice Seedlings and Buds. Wanted, a budder. Butler's Morning Side Nursery, Lamanda Park, Cal.

For Sale—Field-grown budded avocados, Harman, Ganter, Taft; 2 feet to 7 feet high, $1.00 to $3.00. Home Phone 444. A. B. Rogers, Glendora, Cal.

Before Planting Olives, Avocados, Feijoas, Rhubarb or Cactus, get my free booklet. Bishop's Nursery, Highland, Cal.

Nurserymen—Pot grown conifers, palms, shrubs and ferns for lining out or potting. Ballou's Nursery, Pasadena, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

Cactus and Trees—Cash Nurseries, Sebastopol, Cal.

KODAK FINISHING

Developing, 10c per roll. Printing, 2¼x3¼, 2½c; 2½x4¼, 3c; 3¼x4¼, 3c; 3¼x5½, 4c. Denver Store, 706 S. Hill St., Los Angeles.

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For Exchange — Absolutely pure reliable Sudan grass seed. The grass you read so much about. The dependable and profitable hay crop. Relished and good for all stock. Here is your chance. Will trade pure dollar Sudan seed for cows, hogs, turkeys, chickens, ducks, guineas, pigeons or rabbits. Anything can use on farm. Try a few pounds; you will never regret it. Booklet sent on request. Will also furnish seed on shares, small or large acreage. Address, Sudan Farm, R. F. D. 7, Box 53-A, Los Angeles.

Sudan Grass Seed—Pure, recleaned, clear of Johnson grass, 20c lb. cash, orders of 20 lbs. or over 15c lb. Sudan grass makes better feed than Cane or Millet and twice as much per acre; can be sown any time in May or June. 3 lbs. of seed per acre makes hay crop in 60 days, and seed in 90. Instructions for planting, cultivating and harvesting with each order. F. M. Grundy, Lubbock, Tex.

Spineless Cactus — Plant now. Tremendous yield of our plants makes possible these prices: Per 100, $10; per 1000, $75. Special collection of 20 fruiting and forage varieties, only $3. Parent stock purchased direct from Luther Burbank. El Dorado Cactus Nursery, Cupertino, Cal.

For Largest and Quickest Profit plant now. Luther Burbank and Mediterranean Spineless Cactus Plantations. ROBINSON CITRUS NURSERIES, R. F. D. 35-A, San Dimas, Cal.

Burbank Spineless Cactus—Hardiest varieties, "Melrose" and "Special." Strong, matured slabs. $8.50 per 100; $50 per 1,000. Labranza Ranch, Athlone, Merced Co., Cal.

$udan Gras$ and $pineless Cactu$—Plenty of time to plant these wonderful forages. Special prices. Also Giant Winter Rhubarb. Write now. Black Bros. Nursery, 455 Lucas, Los Angeles.

For Sale—Ten bushels (dry) sour orange seed prepaid by express for ten dollars per bushel. Address J. M. Chaffer, Enterprise, Fla.

Berry Plants, Rhubarb, Cacti—It will be worth your while to send me a postal right now if you are interested. Louis F. Scribner, R. 2, Pasadena, Cal.

For Sale—Genuine Luther Burbank Spineless cactus at reduced prices. Orders received now. Oscar Mauer, Del Mar, San Diego County, Cal.

For Sale—Yellow sweet potato plants, $1.50 per thousand F. O. B. Santa Ana, Cal. S. D. Teel, R. D. No. 3, Box No. 8, Santa Ana, Cal.

Attention Dairymen—Plant Sorghum for green feed or ensilage. Seed for sale in lots to suit. A. L. Sayre, Madera, Cal.

FARM LANDS FOR SALE

Money Making Ranch—86 acres near Watsonville, all rich sandy loam, 20 acres 11-year apples, 20 acres 10-year apricots, 10 acres 3-year apricots; 1914 6000 boxes apples, 75 tons apricots. Balance land good fruit soil, now in grain, corn, etc. New house of 6 rooms, modern, barn and ideal poultry and fruit farm equipment. Everything in personal property, stock, furniture, etc., included. Get full details and be convinced of this splendid buy. Price, $26,000; terms. E. Steinhauser, Watsonville, Cal.

VICTORIA, AUSTRALIA, WANTS SETTLERS
Special inducements; government land, railways, free schools; cheap irrigation; 31 years to pay for farms adapted to alfalfa, corn, grains, fruit, etc.; climate like California; ample markets; reduced passages; special excursion being arranged. Free particulars from F. T. A. Fricke, Government Representative from Victoria, 687 Market St., San Francisco, Cal., Box X.

OREGON ORCHARDS

Ten acres or 40 acres 5-year-old Oregon apple orchard for sale. A No. 1 condition. Get our free booklet describing these orchards. We may consider some exchanges if you have good property to exchange for Oregon lands.

Dudley Moulton, 1202 First National Bank Bldg., San Francisco, Cal.

For Sale—200 acres of land in Imperial Valley, 80 acres leveled up in crop of corn this year. Buyer gets one-fourth of crop delivered in sack at R. R.; 120 shares of paid up water stock. Good house on place. Price, $80 per acre cash. Might consider a trade to the extent of $3000 or $4000 in desirable property near Los Angeles. The balance in cash. Address George Thresher, Gridley, Route 1.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

For Sale—You can own your own 10-acre ranch and home with water for $750.00, $150.00 cash and $150.00 a year; 7 per cent interest, in Fruitland Colony Lands. F2467. 1005 S. Main St., Los Angeles, Cal.

For Santa Clara Valley properties, improved or unimproved in vicinity of Palo Alto and Stanford University, call on or correspond with BYXBEE & SLOCUM, 101 Lytton Ave., Palo Alto, Cal.

For Sale—96 acres well improved alfalfa ranch. Write for information. Harry Calbick, San Miguel, Calif.

PHEASANTS

Chinese Ringneck Pheasant Eggs $2.50 for 15. Powars Pheasantry, 935 S. 10th St., San Jose, Cal.

Pheasants—Ringneck and Golden. Also eggs. T. D. Morris, Agua Caliente, Cal.

HORTICULTURAL PRINTING

Catalogues for the seed and nursery trade. The live stock and poultry industries are a specialty with us. Two thousand illustrations to select from. Write for prices and samples. The Kruckeberg Press, 237 Franklin St., Los Angeles.

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Just Out—The Cultivator Poultry Book, "Poultry for Profit," by Jean A. Koethen. Published by the Cultivator Publishing Co. Highly endorsed by experts. Over 200 pages, 50 illustrations. Contains simple methods of avoiding and overcoming difficulties. A guide to poultry success under Western conditions—it tells what to do, why to do it, and how to do it. Nicely bound in cloth. Price $1.00 postpaid, or with Cultivator one year, $1.75. Send orders to Cultivator Publishing Co., 115-117 North Broadway, Los Angeles, Cal.

Baby Chicks—Rhode Island Reds and White Leghorns. My guarantee safe arrival, full count, strong, vigorous; fine bred chicks, Leghorns, $9.00 per 100. Will lay in five months. Reds, $11.00 per 100. Will lay in six months. J. W. Lyon, Gardena, Cal.

Barred Plymouth Rocks—Winners at New York and California's leading shows. Laying strain unequalled. Eggs for hatching from seventeen Champion matings. Eighteen years breeding Barred Rocks exclusively. Write for catalogue. C. H. Vodden, Los Gatos, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately . National Poultry Co., 607 E. Third St., Los Angeles, Cal.

S. C. White Leghorn Baby Chicks and Hatching Eggs that are Top Notch. Write for particulars. Prices reasonable. Ten years in business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

Petaluma Hatchery—The one that's different. We challenge the hen, or anybody else. Don't compare prices, compare quality. Circular free. L. W. Clark, Petaluma, Cal.

Sicilian Buttercups—Beautiful fowls, wonderful layers. Eggs, $3.50 per 15 for balance of season. Limited amount of stock for sale. Dr. A. B. Woodhull, 101 S. Fifth St., Alhambra, Cal.

Chicks—Day old chicks from my healthy, vigorous, heavy-laying, free range stock of S. C. White Leghorns. Price $6.50 per hundred. H. P. Hansen, R. 4, Box 177, Petaluma, Cal.

Revenue Strain—White Wyandotte eggs, $3.00 for 15, from prize winning stock; 221 pen average, chicks 25c. Mrs. W. L. Duvall, Franklin Ave., Pomona, Cal.

At Your Service 365 Days in the Year—First-class chix; eggs for hatching, eight breeds. Hawkeye Hatchery, Turlock, Cal.

Fine Strong Ducks of all ages. Selected hatching eggs from hoganized ducks, hens and turkeys. Write now. Black Bros., 455 Lucas, Los Angeles.

For Sale—Thoroughbred White Leghorn baby chicks, $8.00 per hundred. Lankershim Hatchery, Lankershim, Cal.

For Sale—Ground Chile Pepper, the finest grade, $5.00 per hundred. Any quantity. J. E. Hathaway, Norwalk, Cal.

For Sale—Barred Rock Cockerels, also Barred Rock, R. I. Red, Anconas, Buff and White Orpington chix. Enoch Crews, Santa Cruz, Cal.

White Wyandottes—Eggs, $2—15, $7—100. Cockerels $3.00. Ramona Farm, Box 1361, R. D. 2, Sacramento.

MACHINERY

USED RANCH MACHINERY, PUMPS, WINDMILLS, TANKS, ENGINES, HAY MACHINERY, PUMPING PLANTS, SPECIAL SNAP, PRACTICALLY NEW
38 H.P. White Middleton engine complete with $65 friction clutch, $75 belt, 5 two-step B. J. centrifugal pump with frame, shafting, pipe, fittings, pulleys, gates, 50,000 gal. redwood tank, 30-ft. stand. Take entire plant for $1200, engine alone cost $1500, or will separate.

1½ H.P. new engine	$25
3 H.P. Olds, fine shape	65
4 H.P. Peerless	65
5 H.P. Stover	85
20 H. P. St. Mary's	195
25 H.P. Lambert	295
60 H.P. Columbus, new	900

WHY BUY NEW? SAVE HALF
MATERIAL GUARANTEED
PUMPS—PIPES—CYLINDERS
Double-acting LUITWEILER pump, complete with cylinder, pipe and rods, $325; pump alone cost $680. Bulldozer jack, $32; many other pumps, all kinds and sizes.

WINDMILLS, TANKS
8-ft. mills, $19.50; 10-ft., $27.50; 12-ft., $45. NEW 1000-gal. tanks, $19.50; 2000, $29.50; 3000 used redwood and stand, $30; 30,000 redwood like new, $125; many others 50 gallon up. FINE wagon and tank, $75; H. P. BALER, $90; SOUTHWICK power baler, $350, cost over $700; WHITMAN power baler, $200. Steam tractor with complete baling outfit, $600.
Mowers, Rakes, Sprayer, harrows, potato, beet machinery, Fan Mill, Corn Sheller, Ensilage Chopper; small ranch tools.

ENGINES, PUMPS, BOILERS
Eighty H. Boiler, Smith Valle Steam engine 14x18 and Compressor 12x18, $1000, cost $6000. Absolutely cheapest serviceable material can be produced for. Pioneers in our line. DEMMITT CO., UPSTAIRS, 120 N. Main, Los Angeles. Yard, 816 Yale. Buy Tools of All Kinds.

For Sale—Used and new Gas Engines, 2 H. P. up, rebuilt and fitted with modern equipment. 22 years' experience enables us to repair and rebuild Gas Engines correctly. Get prices. Lloyd, 806-808 N. Main St., Los Angeles. F7020—Broadway 4103.

For Sale—40-Horse Power Distillate Engine, nearly new. Near Pasadena. Address Box 144, Altadena, Cal.

SCHOOLS AND COLLEGES

Telegraphy — Stenography, bookkeeping, English branches. Positions guaranteed. Mackay Business College, Los Angeles.

LIVE STOCK

Billiken Herd—Pure bred, registered. O. I. C. Swine. The Big White kind. Sows now farrowing. Three herd boars used; new blood lines. Weaned pigs will be ready soon for shipment. Cholera immune; first class in every way. Make your reservations now for singles, pairs and trios. Write for my new circular. C. B. Cunningham, Mills, Sacramento County, Cal.

Hogs—Forty head of BIG TYPE POLAND CHINA boars of any age. Sired by IOWA WONDER, who is a son of A WONDER, the greatest hog living or dead. No females to sell at present. On account of large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

For Sale—Registered Tamworth swine—boars, sows and gilts of this famous bacon hog. This breed commands a premium on the market. Our original sows from the University Farm at Davis. Sweetwater Fruit Company, Bonita, San Diego County, Cal.

Grape Wild Farm Thoroughbreds—Guernsey Bulls of A. R. Breeding. BERKSHIRE HOGS. Finest herd in the state. All ages for sale. A. B. Humphrey, proprietor. Mayhews, Sacramento Co., California.

Wanted—12 to 60 Holstein cows, registered or well bred grades, in exchange for high class, clear residences. Los Angeles and vicinity, at from $1800 to $9000, desirable for private homes or income. R. H. Whitten, R. D. 5, Box 646, Los Angeles.

For Sale—Registered. Berkshires:. 25 choice pigs of best breeding from the best strains in America. For prices and description address H. L. Murphy, Perkins, Sacramento Co., Cal.

Registered O. I. C. Swine—Litter of swine, the finest I ever bred. Farrowed Feb. 23, 1915. Bred right, fed right. Won't last long on market. Price, Twenty Dollars each. G. H. DuBois, San Martin, Cal.

Blatchford's Pig Meal weans pigs easily and safely; no trouble; no milk. Write for free folder. "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

For Sale—At all times, Jacks and Stallions, driving and saddle horses. Price and stock guaranteed. Phillips and Kingsbury, 2318 G Street, Sacramento.

Cholera Immune—Registered Berkshires of all ages, both sexes, from large-boned pigs. Riccomi Bros., Mountain View, Cal.

Berkshires—Pedigreed Boars ready for service. Bred sows, weanling pigs, both grade and thoroughbred, finest stock. C. H. Thompson, Novato, Cal.

Berkshires Registered—Young stock from Masterpiece Strain at $10 each. Weaning age. G. A. Casey, Box 7, King Rd., San Jose.

Registered Toggenburg Buck Kids. An exceptional chance to secure the best stock. H. W. Shepard, National City, Cal.

Poland Chinas—Young stock; either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

Glenview Poland China—Stock for sale. Chas R. Hanna, R. F. D. No. 3, Riverside, Cal.

Pedigreed Duroc Jersey Boars or sow pigs —Extra fine. John Kincaid, Box 151, East Bakersfield, Cal.

For Sale—Thoroughbred Duroc Jersey Boars and Gilts, strong and vigorous stock. Fred Hart, Exeter, Cal.

N. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale.

MISCELLANEOUS

Free for Six Months—My special offer to introduce my magazine "INVESTING FOR PROFIT." It is worth $10 a copy to anyone who has been getting poorer while the rich, richer. It demonstrates the REAL earning power of money, and shows how anyone, no matter how poor, CAN acquire riches. INVESTING FOR PROFIT is the only progressive financial journal published. It shows how $100 grows to $2200. Write NOW and I'll send it six months free. H. L. Barber, 430, 28 W. Jackson Blvd., Chicago.

For Sale—Milk Route, about 300 customers, $600 per mo., lease on 3 acres and all equipment in South Pasadena. $1500 takes all. Herbert F. Clark, 31 N. Granada, Alhambra, Cal.

"Smith's Pay the Freight"—To reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St., San Francisco.

For Sale or Trade — $500.00 equity in $950.00 lot just out of Los Angeles. Will consider Ford or what have you? B. C. Dodson, Glendora, Cal.

Wire Fence and Netting—American and Square Deal, at CUT PRICES. FREE Catalogue. Old Hickory Sup. Co., Dept. 4, Los Angeles, Sacramento, San Francisco.

AVOCADO BUDDING
T. U. BARBER, 2099 LA BREA AVE.
HOLLYWOOD, CAL.

WANTED

Farms Wanted—We have direct buyers. Don't pay commissions. Write describing property, naming lowest price. We help buyers locate desirable property free. American Investment Association, 12 Palace building, Minneapolis, Minn.

Wanted—To hear from owner of good farm or unimproved land for sale. H. L. Downing, 105 Palace Bldg., Minneapolis, Minn.

Wanted—To hear from owner of farm or fruit ranch for sale. O. O. Mattson, Minneapolis, Minn.

DUCKS

Mammoth Pekin Indian Runner Duck Eggs, $1.00 per eleven. Black Minorca and Ancona Eggs, $1.50 per fifteen. Mrs. W. L. Duvall, Pomona, Cal.

RABBITS

Leading Rabbitry in America—Flemish Giants a specialty. Prize winning and heavy weight stock. Scored and sold on their merits. Inquiry and inspection solicited. Catalogue on request. Empire Rabbitry, Empire, Cal.

Pure-Bred Heavyweight Flemish Giants—Young stock. May trade for other rabbits and pet stock. Herbert Habecker, Hughson, Cal.

Belgians—Heavyweights. With or without pedigree; express paid. Old Hickory Supply Co., Dept. 4, Capitola.

RABBITS

Flemish Giants, "The real giants."—A fine lot of young bucks and does 4 to 8 mo. old, from $1.50 up. All thoroughbred stock. Several mature Belgian and graded does for sale. All fine producers. Rabbits make fine meat, eat cheap food and are profitable to raise. Get good producers and you make money. J. H. Stubbe, Campbell, Cal.

Bosworth's Imperial Red New Zealand Hares sold at hard times prices. NOTHING BETTER. Geo. M. Bosworth, Geyserville, Cal.

Caldwell's Royal Red New Zealands scored and sold on merit. Catalog free. Caldwell Bros., Box 613R, Los Angeles.

Queries

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Canker

What is the cause of turkeys having sores under their tongues? What is remedy?—Subscriber, Wildomar.

It looks as if these turkeys had been eating moldy food or scratching in moldy straw. Sometimes canker sores in and about the mouth are caused by male birds fighting, but turkeys do not often peck each other in the mouth, as roosters do. Swab the sores with peroxide of hydrogen diluted to half its strength or stronger, or with a strong solution of boric acid. You may need to repeat the treatment twice a day for several days. Meanwhile look to the condition of the food and litter. Mold develops very quickly these damp days.—J. A. K.

Broilers

I have 500 chickens coming on that were hatched in March. I want to sell off the roosters as soon as possible. What is the proper age to market these roosters to realize the most profit, and how should they be fed after separating them from the pullets? Also wish to cull the undesirable pullets and keep only the best. Can you give a guide as to what should be culled and what to keep? My chickens are White Leghorns.—C. A. N., Paso Robles.

Broilers bring the best price at 1½ pounds, live weight. The cockerels should be separated from the pullets at six weeks of age, confined in a rather small pen and fed soft, starchy foods. A good fattening ration consists of 15 pounds bran, 15 pounds shorts, 15 pounds barley meal, 15 pounds corn meal, 6 pounds meatscrap, 2 pounds powdered charcoal. This should be moistened with sour skim milk or buttermilk till it is crumbly, not sloppy, and fed once a day (at night) the first week, morning and night the second week, and three times a day from this time till the birds are ready for market. For the other meals the first and second week feed as you feed the pullets. When very choice milk-fed birds are desired they are placed the last two weeks in crates where they have little room to move. Six or seven birds to a compartment 35 inches long, 24 inches deep and 16 inches high is about right. Purdue experiment station recommends the following ration for crate fattening of broilers: 2 pounds corn meal, 1 pound shorts, 1 pound ground oats, 8 pounds buttermilk. This should be mixed and allowed to stand and sour 24 hours before feeding. Feed in a trough outside the crate what the birds will eat up clean in 30 minutes. This ration is given three times a day from the time the birds are confined, but should not be continued more than two weeks. Sometimes a week is sufficient.

To weed out the undesirable pullets, remove from the flock from the start any that seem to lag behind the others in growth and any that are not perfectly healthy and vigorous. As they near maturity cull out all that are off color or do not conform in type to the rest of the flock. Just how closely you cull here depends on whether you want a standard-bred flock or just an ordinary laying flock. Squirrel-tails, for instance, are not permissible in a standard-bred flock, but the hens that have them are probably just as good layers as those with tails at the proper angle. You would do well to study the Standard of Perfection and decide just how far you want your birds to conform to it. For laying, however, vigor is the first test. The pullet with the alert eye, quick movements and good appetite is the bird that will lay.—J. A. K.

Poison Oak

Is there any spray which may be applied to poison oak which will kill it?—Subscriber, San Jose.

We have never heard of the pest being handled in this way. As a rule the most satisfactory method is to uproot and burn. We will ask those of our subscribers who have experimented along this line to inform us.

Balanced Ration for Man

I am taking three farm journals. I see articles in them relating to a balanced ration for horses, cows, hogs, chickens, etc., but never have seen an article as to a scientifically balanced ration for a healthy, normal man. What should a man who works in the field all day eat for breakfast, dinner and supper, and how much? When a horse works all day he should get so much feed. When he is idle, in rainy weather for instance, cut his feed in half. How about a man? Of course we can follow our appetites, but I believe an animal can more safely follow his appetite than a man. Our aim in scientific feeding of animals is to get the maximum results and keep perfect health. The majority of people don't know what to eat or how much, to gain those ends.

Why not tell the people how to feed themselves as well as their live stock. I would like to see an article printed giving a good scientific balanced ration for a man who uses his muscle as well as his brain out in the open air all day, which by the way, is the only place for a man to be.—A. N., Paso Robles.

The Cultivator has about the most embarrassing job on earth as it is to keep in touch with various lines of agriculture as practiced in California in this 20th century. No section of the world, so far as we know, has such diverse problems. There are magazines which make the problem referred to by our subscriber their entire business. It is a much simpler one than that with which the agriculturist has to deal, yet with our diverse problems we prefer to leave it to others who are making it their specialty. However, as our subscriber says, the question is a most important one and one which, if we all understood it, would enable all of us to accomplish much more than we do now.

Double Narcissus Blighting

Buds on my white double narcissus which has a most delightful odor all blighted this spring, as they did last year. Prior to that the blooms were almost perfect. What is the cause and remedy?—Subscriber, El Monte.

The narcissus described is N. Alba plena odorata, a double white of the poeticus group, having the strongest odor of any variety. It is a splendid sort for Oregon or England but is not successfully grown out of doors even in our eastern states and I am surprised that the inquirer has successfully flowered it at El Monte. This sort blooms freely only in cool moist climates and does not always form flowers elsewhere. Though flowers generally form and grow to full size the spathe will not split open. The cause of the trouble is hot sun at a critical period and there is no help for it. Grown in shade or partial shade and kept moist it should bring some success.—E. B.

FARM BUREAU NOTES

(Continued from Page 583)

tural Extension, of the University of California.

Future Work of the Farm Bureau in Ventura County, by William B. Parker, Farm Adviser.

Following election of officers, music and games will be enjoyed by those attending.

San Diego County

The Julian local is discussing the advisability and necessity of planting good milling wheat in that district and buying cooperatively their seed for next year.

The Dehesa Local has recently taken up the matter of a uniform wage rate for the labor to be hired during the summer. They are attempting to get the other locals in that vicinity to agree to make the same rate as they do.

At the April meeting of the bureau an executive committee was appointed as follows: H. Culbertson, El Cajon; T. H. Slingsby, Mission Valley, and S. A. Frazier of Lemon Grove. H. M. Armitage, county horticultural commissioner, was elected secretary-treasurer.

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Validity of Deed.

A wife deeds her property to her husband; if the deed is not recorded during the lifetime of wife, is it void?—Subscriber, Alhambra.

The question of the validity of a deed is not one of recording, but of delivery; therefore if the deed was delivered during the lifetime of the wife it is valid and may be recorded subsequently.

Stockholders' Liability.

When stockholders in a joint stock concern have held their stock more than three years and therefore are not holding for indebtedness, do they again become liable by paying an assessment?—Subscriber, San Jacinto.

The liability of a stockholder dates from the moment he receives stock in a corporation and is for that proportion of the debts of the company that the stock which he holds bears to the total issued and outstanding stock of the company. This liability runs during all the time he is a stockholder and until by some means he ceases to be a stockholder. He may plead the statutes of limitations against any suit which has been brought against him as a stockholder, just as the corporation may plead such statutes. A payment of an assessment would not render him liable for any debts of the company if he was not before that time; nor does it alter his position with regard to a stockholders liability. If he does not pay the assessment the stock is sold for non-payment and he becomes discharged from any debts incurred subsequent to time of sale.

To Settle Estate.

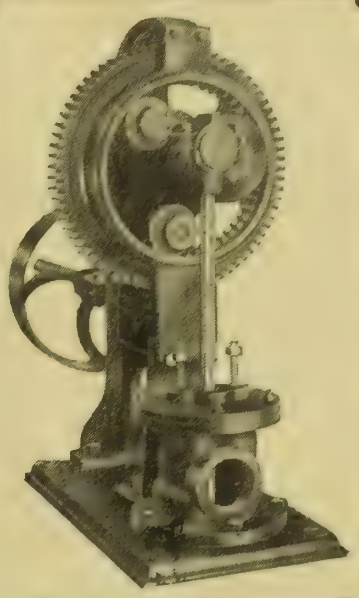
Is a ranch paid for equally by husband and wife and in wife's name, community property? What is the best way to arrange the matter to prevent trouble by children of former marriage in case of husband's death?—Subscriber.

Community property is that property acquired after marriage by either husband or wife in any manner other than by gift, bequest or devise. It would seem from the question that this property belongs to the separate estates of husband and wife in equal proportions. A will is the best manner in which to settle an estate which a deceased may leave.

Inheritance Tax.

If a family formed a corporation four years ago, only wife and children hold-

(Continued on Page 599)



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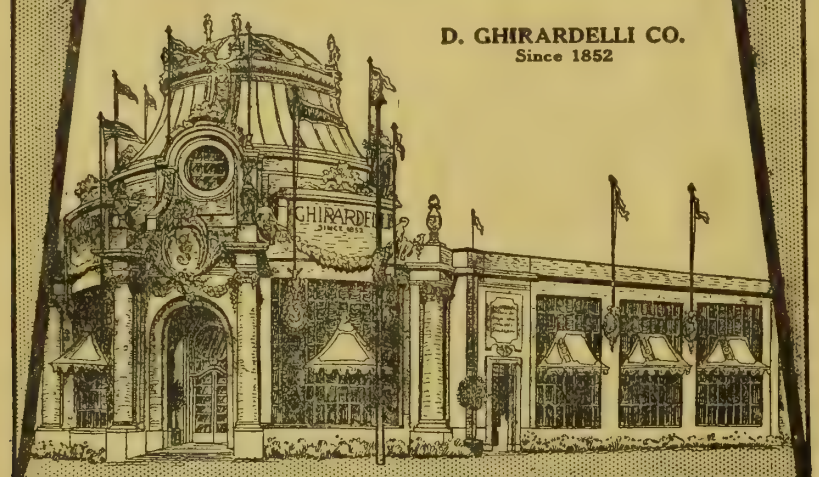

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For deep lifts, as well as shallow lifts, combined with high heads above surface and through long pipe lines. No auxiliary pump needed for forcing water above the surface.

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When writing advertisers, mention The Cultivator.

The Household Department

FAMILIES CAN HAVE BETTER HEALTH IF THEY CAN

THE balanced ration of many Americans today is made up something as follows: Bread, butter, eggs, meat, fish, potatoes, patent medicine laxatives.

Many Americans customarily suffer from indigestion, constipation or rheumatism. A simple change of the daily menu might go a long way to remedy these ailments. A menu more in keeping with nature's plan is something as follows: Bread, butter, meat, fish, eggs, fruit, vegetables, green. If every home kept on hand enough canned products so that there might be a can of fruits, a can of greens and a can of vegetables for every day during the winter, there would be little need for the laxatives now so regularly purchased from the corner drug store. There would also be great economy in the substitution of an inexpensive food for more expensive ones.

More home canning, done at the proper season, would enable the average family always to have the proper quantity of canned products, and would save an astonishing amount of food that goes to waste every year. It is estimated that over 50 per cent of all the vegetables, greens, fruit, and berries that grow in this country go to waste and are actually lost to those who need them.

Several kinds of simple canning outfits, available for every home, are described in the Department of Agriculture's Farmers' Bulletin No. 521. This also contains valuable suggestions on tomato canning, which are applicable to other canned goods, and includes definitions of canning terms which should be valuable to housewives not familiar with some of the more technical terms.

This bulletin may be secured free by requesting it of your representative or either of our senators or by writing Department of Agriculture, Washington, D. C.

Several Cultivator readers have written of their experience in canning vegetables with home-made appliances. These will be found of great interest.

CANNING VEGETABLES

First Prize Article by Mrs. Floy Crosby Smith, Fairoaks

For ten or twelve years I have canned vegetables for family use and have met with good success. When I have a large quantity of peas or string beans to can I prepare them in the afternoon ready for cooking, pack into glass jars, cover with water and let stand till morning. I use a large wash boiler and lay a thin board in the bottom to prevent too rapid heating.

When using the common Mason jars, I put on the rubbers, and screw them so they will not be too tight to allow the steam to escape. After the jars are placed on the board I fill the boiler with cold water almost to the caps, cover and bring to a boil.

If pint jars are used three hours of vigorous boiling will do, but quart jars need an hour longer. Do not let the water stop boiling for a moment, and fill up with hot water as it boils away.

When the vegetables are cooked enough I lift the jars out one by one with a wire potato masher and without opening (unless the rubbers have broken and require changing), screw them tight. If "Economy" jars are used they require no attention except putting on another clamp besides the one already used.

When I have only a few beans, not enough to pay for keeping up a fire for half a day, I put them into a kettle, salt them and cook as for the table until they are almost tender, then pour into jars, put a tablespoon of vinegar on top and seal. When ready to use the water should be poured off and fresh water put on to complete the cooking. I seldom lose a jar prepared in this way and it is a great saving of time and fuel.

I have had no trouble with tomatoes, salted, cooked in a kettle, poured into glass jars and sealed quickly.

When one cuts a good-sized pumpkin or squash for making pies, there is sure to be some left. I avoid wasting it by cooking the whole thing. What is not used is packed firmly into glass jars—pint size, as each one when opened will make two pies—placed in a big granite kettle with a board or thick cloth in the bottom, boiled three hours and sealed.

Although salmon can scarcely be classed as a vegetable, I have treated it very successfully in the same way. Pack the fresh fish into Economy jars, salt, pepper, cover with water and boil three hours. One of my neighbors uses the same method for canning beef and chicken.

Does it pay? I certainly think it does. Every farmer's wife, miles from a grocery store, knows what it means to have company unannounced, or to be herself detained by callers or unexpected work until the men folks come in for dinner and find her cupboard as bare as the traditional Mother Hubbard's. What a relief it is then to be able to rush down cellar and select fruit, meat and vegetables, ready cooked and needing nothing more than heating and seasoning to become a substantial meal. Besides, the home-canned vegetables taste far better than those we can usually buy and as you know exactly what has gone into them you need not question their standing under the "Pure Food Law."

CANNING ASPARAGUS

Second Prize Article by Ruth Hamilton, Hemet

Select the very best "grass" on the market. Scrape away the outer, woody skin, wash free from dust and grit and cut to length of jars, or, if tips are to be canned, cut as far down as tender. Arrange the asparagus stalks or tips evenly and compactly in each can. Fill with cold water, adjust rubbers, which should be new, and screw down the covers lightly. Place the filled cans in a boiler or deep kettle. Protect from breaking by heat or by touching each other, with slats of wood or wisps of straw on bottom of boiler and between the cans. Fill with cold water to within half an inch of covers. Bring slowly to boiling point, then boil without

Cornstarch Pudding

How to Make This Old-Fashioned, but Always Popular Dessert

One of the most favored desserts in this country for generations has been that ever popular dish—Cornstarch pudding. The following simple recipe for its preparation was taken from a cook book compiled by an eminent authority on culinary subjects, who recommends it as the best that ever came to her attention.

Three cups scalded milk, one-fourth teaspoon salt, six level tablespoonfuls Kingford's Cornstarch, one-third cup sugar, two eggs, one teaspoon vanilla. Mix the cornstarch with a little cold milk. Stir the hot milk slowly onto the cornstarch and stir over water till it thickens. Cook eight minutes. Beat the eggs slightly, add the sugar and salt, add the Cornstarch mixture to the eggs and cook (stirring constantly) one minute longer. Remove from fire, add the vanilla. Serve cold with cream and sugar. (Serves six persons.)

You will note that we have specified Kingsford's Cornstarch particularly in this recipe, because the cornstarch is the most important ingredient and the best results cannot possibly be obtained with inferior brands. Kingsford's can be obtained at all modern grocers. Also ask for the Kingford's cook book containing the above and hundreds of other valuable recipes.

ceasing for three hours, renewing the water from time to time as it evaporates. Unscrew the covers and from boiling teakettle fill the cans to overflowing. Seal the cans at once tightly and pour boiling water into the boiler till the cans are immersed. Boil for another hour, remove, tighten the covers, wipe dry with a towel and invert to test for leakage. When cold, place each in a paper bag and store in a cool, dark place. Beans, peas, and corn can be done successfully in the same way. —Ruth Hamilton, Hemet.

VEGETABLE CANNING RECIPES

Beans, Peas and Corn

I have been successful in canning corn, string beans and peas. I use a steam cooker but have successfully canned string beans without one. I have only canned for home use, but they were perfect.

String the beans, break in inch lengths, cook till tender in salt water just as for immediate table use. Skim out and pack tight in glass cans. Put in enough salt water to cover. Put on rubbers and screw on lids, loosely. Set in steam cooker or a kettle of hot water with pan turned in bottom. Cook three hours. Take one can out at a time and finish tightening lid.

Peas may be successfully canned by the same method.

To can corn shave the corn off the cob, pack in sterilized glass cans. I use the handle of a potato masher to press it in the can tight. Fill the can to the neck or half way up in the neck. Put on rubber and screw on lid, but not tight. Set in steam cooker and steam three hours. Take out one can at a time and finish tightening the lid. —Mrs. C. H. Crabtree, Sanger.

Canned Beans

String your beans and break up as for cooking. Put in a good-sized vessel, salt to taste and cook till done. Have ready some stewed tomatoes. Use tin cans. Put two tablespoons of the tomatoes in the bottom of the can then fill up with the cooked beans and lastly add two tablespoons of tomatoes and put on cover and seal. The acid of tomatoes helps to keep the beans. —Mrs. C. W. McEwen, Modesto.

Canned String Beans

String and cut into one and a half-inch sections crisp green beans. Put into a preserving kettle and cover with cold water, allowing a tablespoon of salt and a tablespoon of vinegar to each quart of water used. Bring quickly to boiling point and boil 15 minutes, then can and seal in glass jars. Beans canned this way and kept in a dark cupboard keep well for winter use. I have canned for home use only and have been very successful.—Mrs. F. B. Phillips, Corning.

String Beans

Select young tender beans, string, break and wash. Have ready a kettle of boiling water, salted or not, drop in sufficient beans to fill one can. Let boil from three to five minutes, from the time they begin to bubble, not longer. Fill your jar, add a tablespoon of hot vinegar and seal. If you are careful to select only such pods as have no beans formed you will never have a can spoil.—Mrs. C. S. H., Ontario.

Canning String Beans

I have been very successful in canning string beans. String the beans, wash them, break in small pieces, then put in quart jars and fill with cold water. Screw lid on with the hand so as not to get it too tight. Then put a piece of pasteboard in the bottom of a large kettle or clothes boiler. Large kettle will hold four quarts, boiler eight quarts. Put enough cold water in boiler so it will be about one inch higher than the jars, as the water will boil down. Boil three and a half hours. Then take the jars out and screw tops down tight. When ready to use them pour water off and cook in fresh water and fix the same as fresh beans. They will keep for years.—M. C., Orange.

Canning Corn

Take corn when grains are well filled. Cut from cob, fill into glass jars, tamp or press very tightly with wooden potato masher until all air spaces are filled and milk forms on top. Be sure to have jars full. Put rubbers and lids on, screwing loosely. Put in wash boiler with water two-thirds up sides of jars, pints or quarts. Boil steadily for three hours. Remove from fire, screw tops on very tightly, leave in water until cool. Then remove and tighten lids if possible. I have been very successful with this recipe, not having had a single jar spoil.—Miss Minta Ehner, Lakeside.

Canning Sweet Corn

Select ears that are plump and juicy. Remove the silk. Cut from the cob with a sharp knife. Pack in sterilized jars until nearly full, adding one teaspoon of salt to the quart; fill jars with cold water. Put on the rubbers and covers, but do not seal them tightly. Have ready a wash boiler with a false bottom made of wire screen or netting. Place jars in boiler, adding cold water to the depth of three or four inches. Set the boiler on the stove and when the water comes to the boiling point, boil one hour. Remove cover from boiler, allowing the steam to escape. Seal the covers on the jars tightly. Let them stand until the next day, repeating the boiling as the day before, but loosen covers during the boiling, after which tighten them and let them stand until the third day when the process is repeated, after which seal them up tightly and put away for future use.

I would advise using the jars with glass covers and clamps as being the best. When I opened the jars this winter the corn was perfectly delicious. And from an economic standpoint home-canned vegetables are far superior to the store goods. Other vegetables can be canned the same way.—Mrs. Charlotte Lammers, San Jose.

JUNE PRIZE CONTEST

Mrs. Gertrude H. Brink of Riverside writes:

"May I suggest a line for some future recipes that would be helpful? I would like to get recipes using sour milk and buttermilk, as soda is so very much cheaper than baking powder. I am sure that tried and tested recipes of this kind would help a great many of us."

Here is the subject for our June contest, one that we know will arouse much interest. We hope to receive many communications. The prize offers will be the same as in former contests.

Prizes

For best recipe $2.00 cash; second best, $1.00; for all published, three months' subscription to California Cultivator. If a member of your family is now subscribing send the name that subscription may be extended.

Those who have received one extension of subscription this year are not entitled to another. All may however compete for cash prizes.

Write Early

Write early. All letters should be in this office by the morning of June 16. Recipes will appear in issue of June 23.

(Continued on Page 599)

Griddle Cakes and Waffles

Their Temptingness Often Marred by Use of Inferior Syrup

Nothing starts the day off any better for most people than a breakfast of griddle cakes or waffles—provided they are properly made and served. Perhaps the most important ingredient to be reckoned with in this connection is the syrup—for syrup not only goes into the making of the cakes, but is used as a dressing for them in serving as well. Inferior syrup, therefore, means unsatisfactory results all around.

No less an authority than Marion Harland, whose advice is prized by housekeepers all over the civilized world, most strongly recommends Karo Syrup for this as well as other purposes. She writes: "I do not hesitate to award Karo the preference above any other table syrup used in my household. As an accompaniment to waffles and griddle cakes, it deserves all that can be said in praise of it. * * * I have also used Karo in the preparation of puddings and gingerbread, with satisfactory results. The candies made from it are pure and delicious."

Insure the best results, therefore, by insisting upon Karo in future. It can be obtained at all modern grocers. When ordering it, ask for the little Karo cook book containing valuable recipes for griddle cakes and waffles, as well as many other tempting dishes.

No More Ants

How One House Was Rid Of This Household Pest

Every woman who is troubled with a house overrun with ants will be interested in the experience of a housekeeper in Oakland, California, who suffered terribly from this pest. Not only was the kitchen and pantry alive with ants, but the insects appeared to be increasing in number at an alarming rate.

Learning of a paste prepared by a baker in Los Angeles—who had a similar experience with ants—the Oakland housewife obtained some of the preparation, with the result that in three days she was unable to find an ant in the entire house.

Everyone will be interested to know that this remedy can be obtained at any drug store. It is put up under the name of Kellogg's Ant Paste. This paste appears to have almost supernatural powers as far as ants are concerned.

Get a package today; follow instructions closely, and your ant troubles will be a thing of the past.

Gas Stove Convenience with Kerosene

Kitchen Economy

With wood or coal—waste heat. Too much or too little for best cooking. In hot weather too much heat coming out into the room.

With a good oil-stove—no waste heat or fuel. One burner or four—low flame or high—a slow fire or a hot one. All the convenience of gas for *every* home, all the year round.

New Perfection Oil Cook-Stove

For Best Results Use Pearl Oil

Better cooking,—flame adjustable to just the degree needed for roasts, for bread, for pastry. No odor. Does not taint the food. A cool cook and a clean kitchen. Ask your dealer. See demonstration, Palace of Manufactures, Panama-Pacific Exposition.

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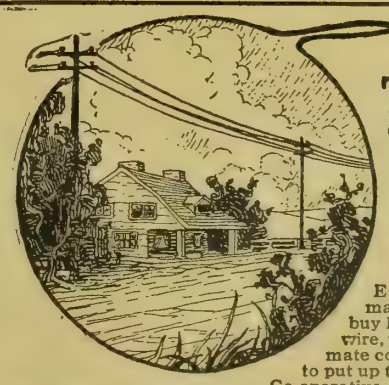
Los Angeles



The Modern Idea

Get in touch with the world. Farm telephones help business, help farm life—save time and money. A few men in your neighborhood can get together and easily build a local telephone farm line.

The line is simple, easy to build
The telephone is easy to install
The cost is not excessive
The upkeep is small

Especially are these things true, when reliable, made-to-last telephones are used. Each man can buy his own telephone, then decide upon the cost of wire, poles and supplies. We will tell you the approximate cost, what material is needed and show you how to put up the line free.

Co-operative farm lines are not a new idea. They are being operated in many parts of the world now. Very many thousands of Kellogg telephones are installed today—many in service for eight or ten years in all parts of the United States.

Kellogg Telephones

Kellogg farm telephones save you money because they are practical and well built; do not get out of order easily, give unexcelled transmission which means that the bells ring properly, that you can hear and be heard clearly and distinctly.

Ask our practical telephone men at San Francisco for our illustrated bulletins that tell in a plain, understandable way how our telephones operate and why they save money.

We will send you these bulletins and help you build your line in any way that we can. Tell us what you want and the conditions under which you will build your line. **Write for bulletin 24.**

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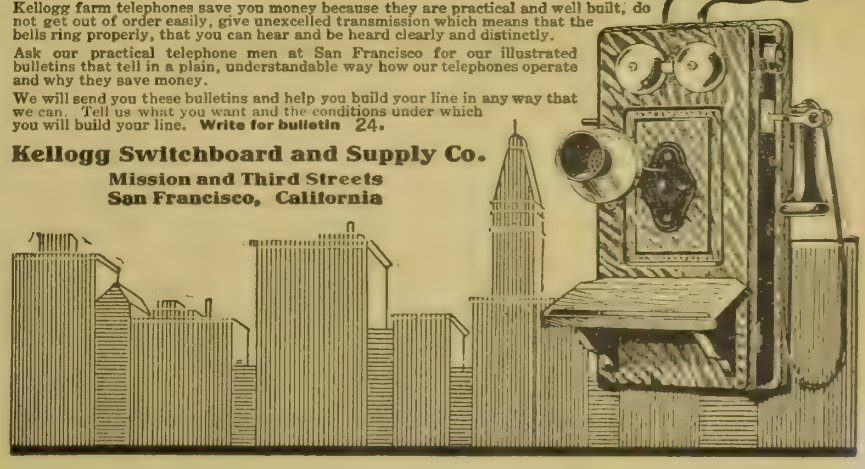

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, May 19, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade 3 to 4 cents above following quotations:

Creamery Extras 23
Firsts 21
Country 20
Ladle 19

CHEESE

Prices to trade, 1 and 2 cents higher:

California Fresh ....13@14
Cheddar ....19@20
Domestic Swiss ....20@21
Eastern Daisy ....18½@19
Oregon Triplets ....16½@17
Longhorn ....19@19½
Imported Swiss ....30@32

EGGS AND POULTRY

Prices to trade, 3 cents higher than following quotations:

Fresh Ranch, case counts..........22
Candled ....24@26
Petaluma—Santa Rosa 24½
Northern Case Counts..........23½
Other Outside Stock..........20

Prices to producers:

Hens, lb. ....15@18
Roosters, old ....6@8
Broilers, lb. ....20@23
Fryers ....24@25
Roasters, lb. ....20@24
Turkeys ....16@20
Ducks ....15@18
Geese 16
Squabs, doz. 2.00

LIVE STOCK

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs., per cwt..........8.50
Prime Steers ....7¼@7½
Heifers ....6¼@6½
Calves, lb. ....8½@9
Sheep—
Ewes, head 4.50
Wethers 5.00
Lambs, head ....4.50@4.75

POTATOES

Wholesale selling prices:

Idaho Russet 2.40
Idaho Rurals 185
Sweets, lug ....85@90
New Early Rose, lug..........75@80
Northern Burbanks, cwt..........2.00@2.25
Wisconsin Burbanks 2.00
Lompocs ....2.60@3.00

ONIONS

Wholesale selling price:

Australian Brown, cwt..........1.00
Bermudas—
Imperial Valley, crate..........90
Crystal Wax, crate 1.10
Oregon Globes ....1.35@1.50
Yellow Danvers ....1.15@1.35
Sets—
Yellow 10
White 12
Garlic 20

VEGETABLES

Wholesale selling price:

Asparagus ....8@13
Artichokes, Northern, doz..........25@75
Beets, doz. ....30@35
Beans—
String 6
Green ....4@5
Wax ....3@3½
Kentucky Wonders 10
Cabbage, sack ....90@1.00
Carrots, doz. ....30@35
Cauliflower, doz. ....1.10@1.25
Celery, doz. ....1.35@1.50
Chicory ....35@40
Cucumbers, box ....50@65
Egg Plant, lb..........15@20
Escarole, doz. ....35@40
Horseradish, lb. ....10@12
Leeks, doz. ....35@40
Lettuce, crate ....75@85
Mint, doz. ....35@40
Onions, Green, bunch..........15@20
Oyster Plant, doz. ....35@40
Parsnips, doz. ....35@40
Parsley, doz. 15
Peas—
Small ....3@4
Telephone ....4@5
Peppers 30
Pumpkins, lb. ....1¼@1½
Radishes, doz. 15
Rhubarb—
Crimson Winter, box ....65@75
Strawberry ....1.10@1.25
Spinach, doz. ....15@18
Squash—
Cream, lug 60
Summer, crate ....75@85
Tomatoes, Mex., crate..........2.50@2.75
Turnips ....30@35

FRESH FRUIT

Wholesale selling price:

Apples—
Pippins ....1.25@2.75
Rome Beauties 2.75
Pearmains 2.25
Apricots, crate ....1.25@1.35
Avocados, doz. ....8.00@12.00
Bananas ....4@4½
Berries—
Strawberries, basket ....4@9
Blackberries, basket ....8@9
Raspberries ....6@9
Loganberries, basket ....8@10
Gooseberries, lb. ....8@9
Cherries—
Black ....7@8
White ....6@9
Cherimoyas, lb. ....20@25
Loquats, lb. ....9@10
Pears, Winter Nelis, lug..........1.50
Pineapples, lb. ....8@9

CITRUS FRUIT

Wholesale selling price:

Lemons ....1.25@2.30
Grapefruit, Seedless ....1.50@2.75
Navels ....1.75@2.50
Tangerines, lug 90
Limes, basket 1.00

DRIED FRUITS

Wholesale prices to retailers are:

Evaporated Apples, Fancy, lb.
Boxes ....7¾@11½
Apricots ....8½@10
Nectarines 12½
Peaches ....5¾@6¾
Pears ....10@11
Prunes ....6½@12½
Plums 10

HONEY

Wholesale selling price:

Comb, Fancy, Water White..........14
White 12
Light Amber 12½
Extr. Water White 7
White 6½
Light Amber 5½
Beeswax 32

NUTS

Prices named by California Walnut Growers' Association are:

No. 1 ....16½
Budded Walnuts 20
Jumbos 19
No. 2 12
Culls 9

Prices fixed by California Almond Growers' Exchange, f. o. b. California.

Almonds—
Nonpareil ....21@22
I X L ....19@19½
N P U..........17½@18½
Drake's Thinshell ....18@18½
Pecans 17
Peanuts—
California, Raw 6
Japan 7½
Eastern 7½
Rice Corn ....5.00@5.25

RICE

Wholesale selling price:

California ....4.75@5.00
Broken ....3.75@4.00

BEANS

Wholesale selling price:

Producer's price not far from one dollar under these quotations:

Limas ....5.65@5.75
Bayous ....6.00@7.00
Lady Washington 5.75
Pinks 4.75
Black Eyes ....6.75@7.00
Lentils ....13.00@14.00
Small White 5.75
Garbanzos ....8.35@8.50

HAY

Prices to producer f. o. b. Los Angeles:

Barley Hay ....9.00@13.00
Wheat Hay ....8.00@11.00
Tame Oat ....9.00@14.00
Alfalfa ....8.00@11.00
Volunteer ....5.00@7.00
Straw ....5.00@6.00

GRAIN

Wholesale selling prices f. o. b. Los Angeles:

Corn, Yellow 2.20
Corn, White 2.30
Wheat ....2.45@2.50
California Red Oats..........1.85
Oats, White ....2.15@2.20
Oats, Hulled 2.45
Egyptian Corn 2.20
Barley Seed 1.50
Barley, Hulled 1.85
Milo 1.90
Rye 2.30
Sunflower Seed 7.50

FEED STUFF

Wholesale selling prices f. o. b. Los Angeles:

Bran, Heavy 1.85
Alfalfa Meal 1.15
Alfalfa Molasses. per cwt.......... 1.20
Beef Scraps 3.00
Beet Pulp 1.25
Cracked Corn, cwt. 2.25
Cracked Wheat, cwt 2.60
Cotton Seed Meal 1.80
Bone Meal 1.95
Meat Meal 3.00
Bone, Green 1.65
Charcoal 2.00
Oil Cake Meal 2.50
Fish Meal ....3.15@3.25
Rolled Oats 2.20
Middlings 2.15
Rolled Barley 1.45
Feed Meal 2.30
Scratch Feed ....2.20@2.40

San Francisco Market

SAN FRANCISCO, May 18, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

The tide has been turned and now California is shipping butter to Australia. Contracts are also made for liberal shipments in the future.

Prices to trade, 4 cents above following quotations:

Extras 24
Prime Firsts 23
Firsts 22

CHEESE

Wholesaler to retailer.

Oregon Y. Am..........14½
Young America 12½
California Flats ....8@11½
Cheddar 20
Oregon Twins 13½

EGGS AND POULTRY

Prices to trade 3 cents higher than following quotations:

Extras 23
Firsts 22
Select Pullets 20
Seconds 20

Price to producer:

Hens, lb. ....16@18
Fryers ....28@30
Broilers ....25@28
Roosters, Young ....23@25
Old ....10@12
Broilers ....32@36
Squabs ....2.00@2.50
Ducks ....15@17
Geese ....2.50@3.00
Belgian Hares, lb..........7@8
Dressed ....10@12½
Turkeys, live ....16@18

LIVE STOCK

San Francisco prices. gross weight:

Steers ....4@6¾
Cows and Heifers ....3@6
Calves, lb., live weight..........6@9¼
Hogs ....5@8¼
Wethers ....6½@7
Ewes ....6@6½
Milk Lambs, lb..........8@8¼
Shorn stock ¾@1c less

POTATOES

Wholesale selling price:

Idaho ....1.50@1.75
Idaho Russet ....1.50@1.75
Burbanks ....1.65@2.00
Oregons ....2.00@2.25
Shimas ....1.00@1.40
New Potatoes, lb. ....2@3
New Garnets ....3@3½
Sweets, cwt. ....2.00@2.10

ONIONS

Wholesale selling price:

Onions, cwt. ....65@85
Australian Browns ....3.00@3.25
Oregon ....90@1.00
Garlic, new ....7@10

VEGETABLES

Wholesale selling price:

Asparagus, box ....1.75@2.50
Beans—
String ....4@9
Wax ....1@5
Brussels Sprouts, lb. ....3@5
Celery, crate ....50@1.25
Cucumbers, Hothouse, box..........60@1.00
Lettuce—
Southern, crate ....50@80
Local, small crate ....50@1.00
Egg Plant, lb. ....10@15
Okra, lb. ....15@25
Peas, lb. ....3@6
Peppers—
Bell, lb. ....15@25
Chili, Mexican ....20@30

WEATHER CONDITIONS

May 15, 1915

Report from the various California stations of the United States Weather Bureau by George H. Wilson, director, San Francisco.

	Rainfall Data			Temperature Data —Past Week—	
	Past Week	Seasonal to Date	Normal to Date	Maximum	Minimum
Eureka	.62	41.54	43.81	66	46
Red Bluff	1.43	34.32	24.09	76	50
Sacramento	1.83	16.73	19.63	76	48
San Francisco	1.81	26.93	21.78	74	52
San Jose	.55	22.18	16.39	74	44
Fresno	.26	10.47	9.37	80	48
Independence	....	3.47	9.21	82	....
San Luis Obispo	.35	27.81	19.98	84	46
Los Angeles	....	17.01	15.41	82	52
San Diego	.02	14.37	9.81	70	54

Rhubarb—
San Jose ....50@75
Alameda ....40@60
Squash, Summer, crate..........25@55
Tomatoes, Mexican, lug..........2.00@3.50
Imperial Valley, crate..........2.00@3.00

FRESH FRUIT

Wholesale selling price:

Apples—
Newton Pippins ....70@1.50
Other varieties ....40@75
Apricots, box ....1.25@2.25
Berries—
Strawberries—
Southern, crate ....75@1.25
Fresno, crate ....50@60
Watson, chest ....3.00@6.00
Banner, chest ....2.50@4.50
Longworths, chest ....4.00@6.00
Other varieties, crate..........30@40
Blackberries, crate ....1.25@1.50
Raspberries, basket 15
Gooseberries, lb. ....6@10
Oregon Gooseberries ....5@6
Bananas, Hawaiian, bunch..........1.50@1.75
Cherries, box ....80@1.15
Pineapple, doz. ....2.50@3.00

CITRUS FRUIT

Wholesale selling price:

Grapefruit, Seedless, new crop.1.25@3.00
Lemons ....1.50@3.25
Lemonettes ....1.00@1.75
Navels ....1.75@2.75
Limes, case ....4.00@5.00
Tangerines, halves ....75@1.75

DRIED FRUITS

Wholesale prices are:

PRUNES—1914 crop, bulk basis: 30-40s, 5¾c; 40-90s, 5½c. The above are for both Santa Clara prunes and the stock from outside sections.

Other Fruits, 50-lb. boxes—	Standard	Choice	Extra Choice	Fancy
Evap'r'd apples	...	6¾c	7¼c	7¾c
Apricots	7 c	7¾c	8¼c	9¼c
Peaches	3¾c	4 c	4¼c	5 c
Pears	7 c	8 c	9 c	10 c

RAISINS

The following prices are f. o. b. Fresno, as given out by the Associated Raisin Company, for immediate shipment, and are guaranteed against a decline till June 1st:

Fancy seeded, 16-oz., 7½c; 12-oz., 5⅞c; bulk, 6c; choice seeded, 16-oz., 6⅞c; 12-oz., 5⅝c; bulk, 5½c; Thompson seedless, No. 1, 16-oz. pkgs. 7c; 12-oz., 6¼c; 50-lb. cs., 6½c; loose, Muscatels, 1-crown, 5½c; 2-crown, 5½c; 3-crown, 5⅞c; 4-crown, 6c; Sultanas, 50-lb. cs., 5¾c; bulk, layers, 50-lb. bxs., $2.75; in 20-lb. boxes, 6-crown, $2.75; 5-crown, $2.25; 4-crown, $1.60; 3-crown, 5-lb. bxs., $1.50; on all bulk stock, 50c additional. Cartons—Clusters, 20 to cs., No. 1, $1.70; No. 2, $2.10; No. 5, 4 to cs., $2.25. Local representatives of the Associated are asking about ¼c higher, while several of the largest independent packers are quoting ½c under these figures.

NUTS

Local stocks of all nuts practically cleaned up.

ALMONDS—Prices fixed by Almond Growers' Exchange to the trade, f. o. b. California:

Nonpareil ....11@13
I X L..........11@13
Ne Plus Ultra..........11@13
Drakes 10

Wholesale selling price:

Peanuts—
Unpolished ....5@8
Polished ....6@6½
Shelled, Jap ....6¼@6¾
Italian Chestnuts ....6½@7

BEANS

Wholesale selling price:

Limas ....5.00@5.10
Pink ....4.00@4.10
Black Eyes ....6.00@6.25
Cranberry ....5.00@5.25
Small White ....5.10@5.20
Garbanzos ....6.50@6.75
Large White ....4.90@5.00
Bayou ....5.15@5.25
Manchurian Speckled Bayous.3.70@3.80
Manchurian Butters ....4.50@4.75
Red Mexican ....5.30@5.40
Red Kidney ....5.90@6.00
Horse Beans ....3.50@4.00

HONEY

Wholesale selling price:

Comb, Water White..........15
Light Amber ....10@12
Amber ....7@10
Extracted White ....6@7
Light Amber ....3½@4½
Dark Amber 2
Beeswax ....25@28

HOPS

1914

Wholesale selling price:

Sacramento Valley ....8@10
Sonoma-Mendocino ....11@12½
Oregon Clusters ....11@12½

HAY

Under date of May 15, Scott, Magner & Miller say:

Receipts of hay have decreased materially during the current week, only 1800 tons being received during the past six days. For each of the two previous weeks over double this amount came in. We have been able to move some hay for foreign account, thereby getting it off of this market and relieving the situation somewhat.

The continued rains have caused an unsettled condition as far as cutting is concerned. Very little alfalfa hay has come in recently and prices have remained unchanged.

We quote the average wholesale prices in carload lots on today's market as follows:

Fancy Wheat Hay (lt. bales)	11.50@12.50
No. 1 Wheat or Wheat and Oat	9.50@11.00
No. 2 Wheat or Wheat and Oat	7.00@9.00
Choice Tame Oat	11.00@12.00
Other Tame Oat	6.00@9.00
Barley	5.00@8.00
Wild Oat	6.00@8.00
Alfalfa	6,00@9.00
Stock Hay	4.50@5.00
Straw, per bale	.30@45

GRAIN

Alfalfa Seed	16½
Wheat, Cal. Club	2.22½@2.25
Corn, Egyptian White	1.75@1.85
Corn, Eastern Yellow	1.77@1.78½
Barley Feed	1.17½@1.22½
Oats, Red, Feed	1.52½@1.60
Oats, White Feed	1.77½@1.80
Millet	2½@3¼
Flaxseed	5@5½
Rye	2.00@2.25
Sunflower	5@5½

FEED STUFF

Wholesale prices.

Alfalfa Meal, car lots	13.50@14.50
Bran, ton	26.50@29.00
Feed Cornmeal	40.00@41.00
Cracked Corn	40.00@41.00
Rolled Barley, ton	26.00@27.00
Rolled Oats, ton	37.00@37.50
Middlings	33.00@35.00
Shorts	29.00@30.00
Oilcake Meal	38.00@39.50
Cocoanut Oilcake Meal	24.00@25.00

Citrus Fruit Market

LOS ANGELES, May 18, 1915.

The shipments of oranges during the last week have exceeded those of any previous week in the history of the orange industry, excepting the fourth week of May last year. This excessive shipping is probably due to the rains of the early part of the month, which caused a stoppage of nearly all orange packing activities, but it is hoped that these large shipments will not weaken the market, and good cause for the hope is given in the fact that the shipment of cantaloupes has been delayed by comparatively cool weather and that the cherry crop has been seriously reduced by the unfortunate weather conditions. Reports at this writing are that market conditions are fully as strong as last week. Navels will continue shipping for the remainder of this month, nearly all the stock will go forward before the end of this week. Shipments at the present time are about equally divided between navels and Valencias.

With the thermometer registering 40, or even lower in some of our lemon markets, but little fruit is being sold. The lemon market is more largely influenced by weather than is that of any other fruit, and until conditions change over the East there will be no extensive demand.

Shipments

Shipments of oranges from Southern California to date since November 1, 1914, 23,764 cars; lemons 3,418; total, 27,172. To same date last season, oranges 24,847; lemons 1329; total 26,176. From Tulare County, oranges 5,293 cars; lemons 196; total 5,489. To same date last season, oranges 4,910; lemons 30; total 4,940. From northern counties, oranges 628; lemons 2. To same date last season, oranges 402; lemons 5. Total of all citrus fruits shipped from the state this year to date, 33,301, last season 31,584.

NEW YORK, May 17.—Twenty-eight cars navels, one Valencias, three St. Michaels, four budded, fourteen mixed cars, and six cars lemons sold. Market strong on navels; lower on lemons. Raining.

NAVELS—	Avge.
Orchard, imp., National O. Co	$3.30
Standard, imp., National O. Co	3.10
Orchard, National O. Co	2.60
Standard, National O. Co	2.35
VALENCIAS—	
Glendora Heights, A. C. G. Ex	$3.55
Aurora, Amer. Ft. Dis., ventilated	3.15
Sapho, Amer. Ft. Dis., ventilated	2.85
TANGERINES—	
Lotus	$3.00
Monogram	2.95

PHILADELPHIA, May 17.—Six cars sold. Market is strong.

NAVELS—	Avge.
Grade B	$2.05
Foothill Arroyo, S. T. Ex	2.75
Tournament, S. T. Ex	2.35

KANSAS CITY, May 17.—Kansas City Fruit Auction Co. sold the following brands:

NAVELS—	
Plain	$2.04

CLEVELAND, May 17.—Nine cars sold. Market is strong on oranges; unchanged on lemons.

LEMONS—	
Homer, Q. C. Ex	$2.00
Camel	1.65
On Honor, L. G., F. G. A.	2.60
As-you-like-it	2.20

ST. LOUIS, May 17.—Nine cars sold. Market is steady.

NAVELS—	Avge.
Orangedale Red, Orangedale G	$2.40

CINCINNATI, May 17.—Six cars sold. Market is steady.

NAVELS—	Avge.
Hunter, A. C. G. Ex	$2.20

BOSTON, May 17.—Twenty-six cars sold. Market is steady on oranges, easier on lemons.

NAVELS—	Avge.
Gold Medal, G. O. Groves	$3.25

PITTSBURGH, May 17.—Fourteen cars sold. Market is strong on oranges, lower on lemons.

NAVELS—	Avge.
Majesty, O. K. Ex	$2.80
Owl, O. K. Ex	2.15
Flyer, O. K. Ex	2.70

LEGAL QUERIES

(Continued from Page 595)

ing stock, do they have to pay inheritance tax, and if so, what is the rule to go by?—Subscriber, Inglewood.

When a transfer of property is made without valuable consideration in contemplation of death or intended to take effect in possession at such death, it is taxable under the inheritance tax law. Transfer being made four years prior hereto, it would hardly seem that it would fall under this section.

Ditch Right.

If A buys a piece of land with ditch through it, which he agrees to keep open for his neighbor B, and B agrees to keep the ditch clean and fails to do so, then what is A's privilege? Can he refuse to keep the ditch open or will it be lawful for him to close it?—Subscriber.

If there was a mere license to B to have the ditch kept open A may at any time revoke that license, unless it was for a specified time. If however B has acquired a right in the land of A to have the ditch kept open through his land, then the sole remedy of A is to clean the ditch and sue B for the value of the labor performed in cleaning said ditch.

Labor Commission.

I baled hay for a man and the bill amounted to $420. He paid me $200 and refused to pay all of balance because of damaged hay, but hay was damaged after baling. Would this be a case for the labor commissioner?—Subscriber, Wasco.

You do not state the nature of your contract for baling the hay. If you are not an employee the labor commission would have no jurisdiction. If by the contract it is an employment, the work falls under the term, seasonal labor, which is defined,—for a period greater than a month, and where the wage for such work is not to be paid at any fixed intervals but at the termination of the employment, then it falls under the jurisdiction of the labor commission and prosecution may be commenced thereunder.

Eight Hour Law.

What is the law about working women more than eight hours in a citrus packing house and what is the smallest wages that can be paid women? Who should look after these things?—Subscriber. La Habra.

No woman can be employed in any manufacturing, mechanical, or mercantile establishment, laundry, hotel, hospital, place of amusement, restaurant, telephone or telegraph establishment or transportation company, more than eight hours during one day or 48 hours in one week. This act expressly excepts the hours of employment in harvesting, curing, canning or drying any variety of perishable fruit or vegetables, also excepts graduate nurses. There is an act providing for an industrial welfare commission, which commission is given the power, after a hearing, to fix a minimum wage to be paid to women and minors engaged in any occupation, trade or industry, which wage shall not be less than a wage adequate to supply such women and minors with the necessary cost of proper living to maintain their health and welfare. The commission may also fix the maximum hours of work and conditions of labor.

Trees on Highway.

Who is responsible for damage caused by trees along the public highway and located on the public right of way: in the case of county roads; in the case of state highways?—Subscriber, Santa Ana.

The above is an exceedingly complex question, more so as there has been no decision construing the respective liabilities, and the opinion here given is therefore based merely upon a reading of the various acts relative to highways and can be taken for no more than the personal opinion of the writer, as to the probable construction of these different acts.

In the first place, relative to state highways. Highways within a county may be improved by aid from the state upon application made therefore by the board of supervisors of the county. The state highway aid act provides that said highways shall be constructed and kept in good repair under the supervision of the engineer of the county. It may be generally stated that the state, being sovereign, cannot be held liable for any damages nor can it be sued upon any ground unless express permission is given therefor. As no express provision is apparently made whereby the state may be held liable for injuries upon state highways, it is undoubtedly true that the liabilities must rest somewhere else, and as will hereafter be seen, will probably center upon the road commissioner and the adjoining owner can hardly be held liable, as under the forestry act the board of supervisors may appoint a county board of forestry, which is given exclusive right and control of all trees grown upon public roads and highways. This act further provides that it is unlawful for anyone to trim, prune, cut, deface, destroy or remove any shade or ornamental tree or hedge growing upon such road or highway, except fruit or nut trees, which may not be removed without the consent of the forestry board and providing that anyone who shall violate any of these provisions is guilty of misdemeanor. The act provides for the appointment of a head forester who is required to execute a bond for $1,000 for the faithful performance of his duties. This board is expressly made subject to the authority of the board of supervisors and it is provided that it shall not interfere with the jurisdiction of that board over the roads and highways in the improvement or general control thereof, thus apparently making this board a mere agent of the board of supervisors. For gross negligence in the conduct of the duties of this board and also of the forester employed, it would seem that they could be held liable. The body upon which liability has at all times heretofore rested, and upon which it would seem to now rest unless expressly taken away is the road commissioners of each county. The road commissioners are merely another name for the supervisors, as section 2641 of the political code provides that the board of supervisors of each county shall divide it into suitable road districts and each supervisor shall be ex-officio road commissioner in his supervisoral district.

Section 2645 of the same code provided that the road commissioners under the direction and supervision of the board of supervisors must take charge of the highways within their respective districts, keep them clear from obstructions and keep in good repair, and it has been held in a recent case against R. W. Pridham, one of the supervisors and road commissioners of the county of Los Angeles, that these road commissioners are liable, but only to the exercise of a reasonable degree of care, the question of what constitutes a reasonable degree of care being entirely for the jury. In this case it was held that the remainder of the board were not liable, the liability being only upon the road commissioner, who was Mr. Pridham. The decision against Mr. Pridham was, however, reversed upon other grounds.

So it would seem that the liability for damage remains upon the particular road commissioner of the district wherein the damage is occasioned.

THE FARMER'S HOME

(Continued from Page 581)

ment of cash, but which, if living in town must be paid for in cash at town prices and from the farm revenues.

United States department of agriculture Farmers' Bulletin No. 635, "What the Farm Contributes Directly to the Farmer's Living," discusses this matter with reference to the portion of the country east of the Rocky Mountains.

Studies were made in ten states, three cotton growing, two corn belt, two general farming and three typical dairy sections, to determine what proportion of the food, fuel and shelter needs of the family was met by the farmstead without cash outlay, and how much of these had to be bought. It was found that the average annual value of the food, fuel, oil and shelter per family was $595.08, of which $421.17 was furnished by the farm and $173.91 purchased.

The bulletin concludes with the following observations:

"The result of these studies shows that the farmer's cost of living in actual cash expenditures is very materially reduced by what the farm furnishes in food products, fuel and house rent; in fact, the income from this source adds as much to the real wealth of many farmers as does the net income from the sale of farm products.

"If it were not for those products contributed by the farm without any actual cash expenditure, a great many farmers would not have a comfortable living. Extensive investigations relative to the profits in farming indicate that the average labor income of the farm probably differs little from ordinary farm wages, but in addition to this, he has the products contributed by the farm, as discussed in this bulletin."

JUNE PRIZE CONTEST

(Continued from Page 597)

Please write on one side of paper only. Address letters to California Cultivator, Los Angeles.

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A more complete explanation is given in a booklet entitled "The Yuba Ball Tread Tractor."

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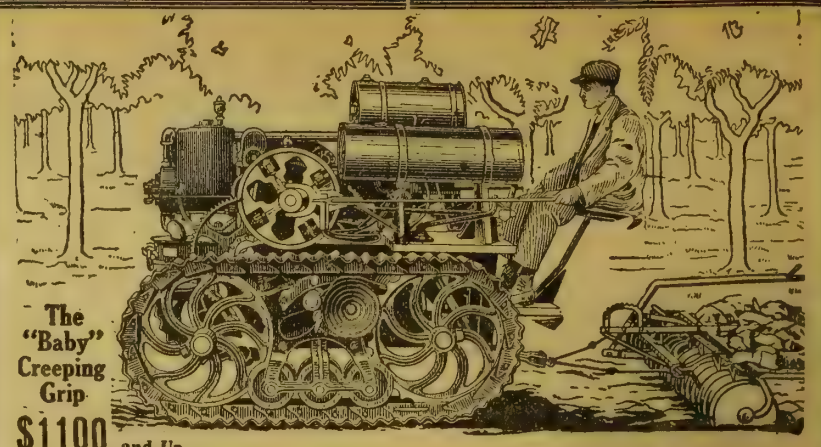

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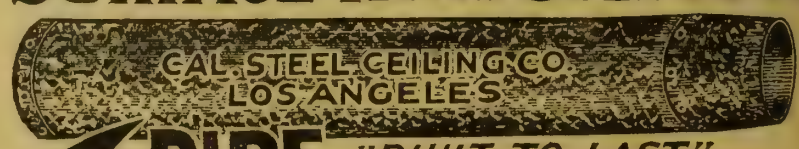

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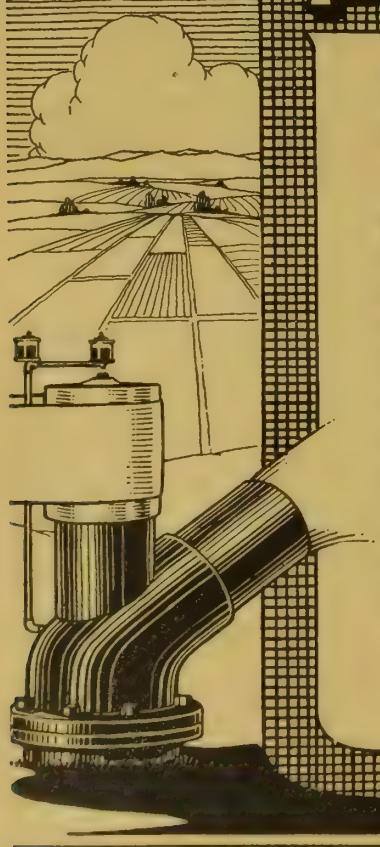

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Guaranteed for Pressure

Pacific Pipe Co.

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An Overproduction of Apples ?

The present demand for apples in the United States, including those used for export, is placed by the Department of Agriculture at 55,000,000 barrels. If that many apples were raised in this country there would be no overproduction. Figures from the Department of Agriculture show there has been an average annual decrease of 25 per cent in the apple production during the last nine years. The serious shortage that exists for apples is attributed largely to the dying out of the old orchards and the insufficient plantings of new ones.

The Yucaipa Valley, eight miles from Redlands, altitude 2400 to 3000 feet, is the place to plant an apple orchard, and this is the time of year to visit Yucaipa and see what you would have if you had planted four years ago. It is not too late to make a start.

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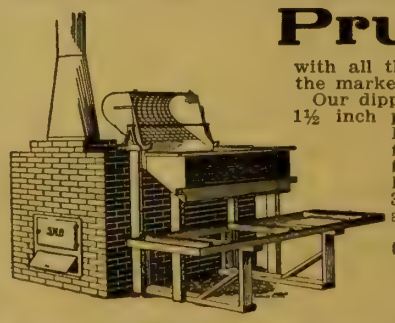

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See Announcement at Head of Editorial Page

California Cultivator

Rural Californian combined with California Cultivator

Vol. XLIV No. 21 LOS ANGELES: THURSDAY, MAY 27, 1915 One Dollar Yearly

Melons---Cultural Methods

California Ships Thousands of Carloads of Casabas, Watermelons and Muskmelons. General Planting and Cultural Directions are Given Cultivator Readers

By S. S. Rogers

CALIFORNIA has long been regarded as the home of the melon, due largely to the hot summers and the favorable soil and moisture conditions. In 1909 California lead all the states in the production of muskmelons, there being grown that season about 5,784 acres. The yearly production of watermelons in California would probably amount to several thousand acres and in fact the industry is so large that it is considered a leading one of the state. The leading melon sections of California are found throughout the

Armenian Tpye of Casaba
A New Seedling of Great Promise

San Joaquin Valley, between the towns of Modesto and Fresno, especially in the vicinity of Turlock. In the Sacramento Valley, Lodi, Stockton and Sacramento are large producing sections and a large percentage of the melons used in the northern and central portion of California are grown in these districts. In the southern part of the state the chief melon center is the Imperial Valley and certain sections of Los Angeles and Orange Counties. In many other parts of the state a considerable amount is produced, but the acreage devoted to these crops is very small compared to the other sections.

Yields, Cost of Production and Prices.

The yields vary considerably from one season to another and from one locality to another. The average for watermelons is from 1,000 to 1,200 averaged sized melons per acre. The average cost of growing melons under California conditions is estimated to be from $25 to $40 per acre and the average gross returns vary from $75 to $200 per acre, depending largely upon the season.

Cultural Requirements.

The cultural requirements for melons are not as exacting as for some other vegetables, although they will not do well unless they are grown under the right climatic, soil and cultural conditions. The soil best adapted is one of a sandy loam nature which holds the moisture well. If too heavy, the growth is apt to go to vine at the expense of the crop, whereas if it is of too open a character, such as coarse sand or gravel, it will be difficult to retain a sufficient amount of moisture for the proper growth of the crop. Soils which are too rich in nitrogen should be avoided for the vine growth will be luxuriant but the yield will be small. While the melons do not require as much soil or atmospheric moisture as some of the other vegetables, there should be a sufficient amount in the soil to produce a good vine growth. If the amount of soil moisture is abundant, this crop does better where the atmosphere is hot and dry. It is very important that the proper climatic conditions be found when growing this crop, for it does best in a hot dry climate where there is an abundance of sunshine. This is one of the most susceptible crops to low temperature and should not be grown until the weather has become warm. The preparation of the soil should be such that at the time of seeding it is free from weed growth and has a fine mulch on the surface. Soil which is to be used for growing melons, especially where irrigation is not used, should be deeply plowed in the fall and well worked in the spring just previous to planting. The proper distance apart for the hills depends largely upon the character of the soil and the water supply.

The average distance between the hills for watermelons varies from eight to twelve feet; the most common distance is 10 by 12, but if cantaloupes or muskmelons are to be grown, these distainces can be reduced to 6 by 8 or 8 by 8. The planting should not be done until the soil has warmed up considerably in the spring and until the danger of frosts is past; and it is sometimes best to make two plantings about two weeks apart. The bulk of the melons are planted between April and June, inclusive; under ordinary conditions April and May are the most favorable months.

It has been shown by experience that there is very little to be gained by planting too early in the season for if the vines become stunted from a sudden cold spell the development of the crop will be much retarded. It is important that enough seeds should be sown to allow for rotting, poor germination, etc. Many growers sow as many as 12 to 15 seeds in a hill and later thin to three or four vines. The seed should be covered with about one to one and one-half inches of soil, care being taken not to plant them too deep.

Irrigation.

Many melons are grown in California without irrigation but where it is essential the water should be applied before the vines have attained their full growth for at this time it will be impossible to put the water on in a satisfactory manner. This crop is seldom irrigated more than two or three times during the season. After the melons are maturing they should not be irrigated under any circumstances for by applying the water at this time the quality of the crop is much impaired and it is liable to rot the melons. The common method for applying water is in furrows along the rows of plants, furrows being made by the plow or several of the cultivator attachments.

Cultivation.

The cultivation should be given in such a manner that as much of the moisture as possible is retained in the soil, and the weed growth should at all times be kept in check by thoroughly cultivating when the vines are young. This can be stopped when the vines have begun to cover the ground, for these should not be disturbed. If the weeds are bad, after the vines have grown so as to make cultivation impossible, they can be hand pulled.

Harvesting.

As a rule the melons should not be harvested until they are nearly ripe for if they are pulled from the vines too soon their keeping qualities and flavor will be greatly injured. There are several methods of telling when a melon is in the proper condition to pick. The one in most common use is by thumping; the experienced grower can tell the condition of the melons by the sound which they make. Melons which are to be shipped a considerable distance should not be as nearly matured as those which are to be used in the local markets. The muskmelons and cantaloupes are generally sold in crates while the watermelons are sold loose.

Varieties.

Of the many varieties of watermelons found in the United States comparatively few are grown in California. In the southern part of the state the Chilian and Angeleno are the most popular varieties. In the central and northern portions the Kleckley Sweet, Florida Rattlesnake Chilian and Tom Watson are most commonly grown.

Columbus Casaba

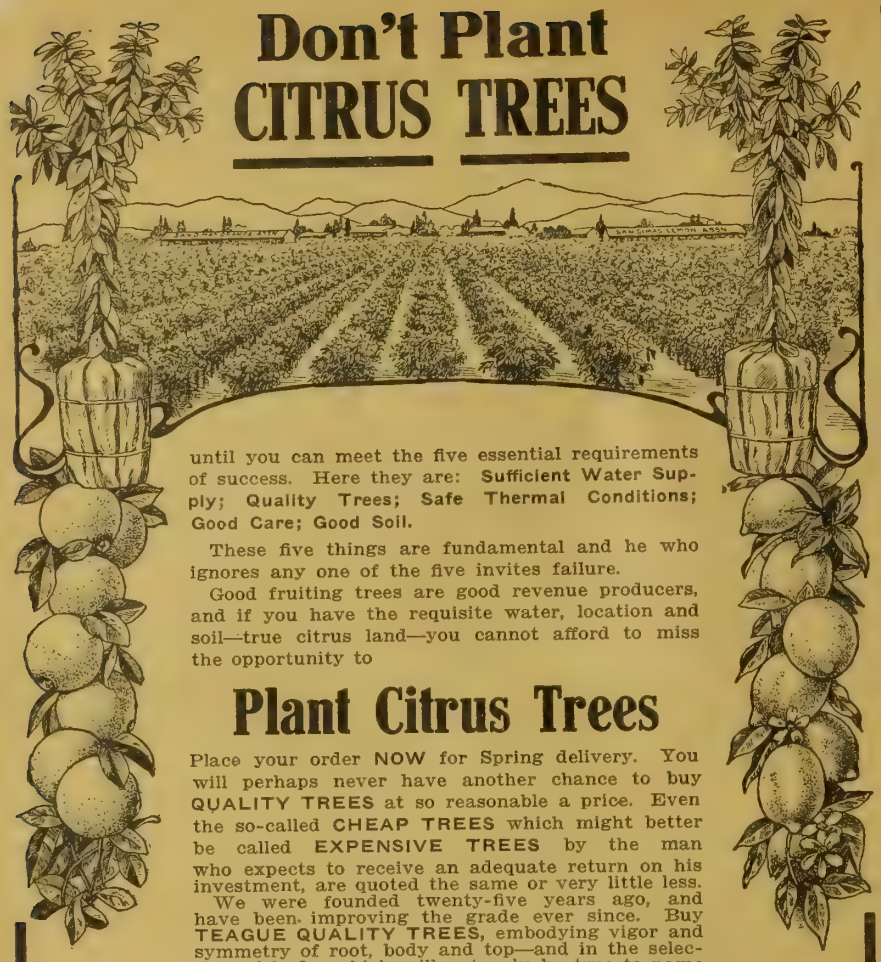
The above is one of the newer seedlings, somewhat resembling the ordinary cantaloupe. Has yellow flesh, exceptionally fine quality. The casaba is comparatively new and for a time was thought to be only for late fall and winter trade and to be adapted only to the near coast portion of the Southwest. Hybridization has developed new sorts until it is giving us some of our early summer fruits and the territory has been extended till it now grows all over California and in parts of the East. Plant according to locality. In some favorable sections they are planted from the middle of February to July 15. For the winter shippers the late planting is best. The best way to keep the casabas late into the fall is to gather them together on the hill and cover them completely with the vines, but do not pick them off the vine.

Diseases.

The most serious disease with which the watermelon growers have to contend is the wilt. This is characterized by the dying of the vines soon after they begin to grow their runners, up to and including the time at which the melons are ripening.

This comes on very generally after the crop has been grown for several consecutive years on the same land, and in many places has prevented the growing of this crop. It is caused by certain organisms which live in the soil and is controllable only by crop rotation. This disease is not found on the cantaloupes or muskmelons. The latter are not affected by any serious disease but are often troubled by the melon aphis which during certain seasons is very common through the Imperial Valley. Several methods of control have been advocated but as a rule they are very hard to get rid of.

Don't Plant CITRUS TREES



until you can meet the five essential requirements of success. Here they are: **Sufficient Water Supply; Quality Trees; Safe Thermal Conditions; Good Care; Good Soil.**

These five things are fundamental and he who ignores any one of the five invites failure.

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Citrus and Tropical Fruits

OLIVES IN ARIZONA

WE recently wrote Prof. Forbes, director of the agricultural experiment station of Arizona, requesting that he give information regarding the olive, its oil, and the industry in general to an eastern experiment station which was urging the use of cottonseed oil as the equal of imported olive oil. Mr. Forbes complied with our request by sending bulletins and circulars issued by the Arizona station, which has done much valuable work with olives, and in addition wrote a personal letter touching upon the importance of the industry to Arizona. From this we quote:

"For some time it has been evident that we have conditions in the arid Southwest favorable to the growth of the olive tree and to the production of remunerative crops of fruit. This fruit may be used for two purposes—for oil-making and for pickles.

"With reference to oil production, this varies greatly of course, according to the varieties of olives used and to the skill and cleanliness with which the oil is manufactured. There is no doubt, however, of the fact that in time to come we will have an oil industry of considerable magnitude in the Southwest, affording a supply which at the present time is almost entirely imported from the Old World. We are therefore interested in the encouragement and development of a home industry in olive oil.

"There are perhaps even greater possibilities along the line of pickle manufacture in this region. There are two general classes of olive pickles: first, the green pickles, the taste for which has come to us through the English, who are, of course, great eaters of relishes, pickles, etc., of all kinds. Second, ripe pickles which are a rich and nutritious food and also much more palatable to properly developed taste than the green pickles. We have learned to eat the ripe olive pickles largely through the Spanish and Italian residents in this country who have brought their taste for this food to this country with them. Italian and Spanish workmen, in fact, make their midday meal oftentimes of a handful of ripe olive pickles and bread. The ripe olives therefore have possibilities as a staple article of food, and a large trade in this community will therefore probably be developed as rapidly as the raw material for its manufacture is available.

"Very satisfactory yields of excellent fruit have been obtained in southern Arizona, which is perhaps even better adapted to the culture of the olive than those portions of California which are within influence of the sea.

"At the station farm, Phoenix, Arizona, a yield at the rate of 9315 pounds per acre from ten-year-old Columella olive trees, planted 40x40 feet apart, was figured, which at $35 a ton would give a gross income of $162.81 per acre. Deducting necessary expenses for irrigation, cultivation, pruning, etc., amounting to a total of about $20 per acre a year, more or less, under pumping, and then discounting the estimate, there would still be left a good profit to the grower. Of course, pickling olives are worth more than olives for oil, from $60 to $75 a ton being paid for pickle olives in Salt River Valley, while olives for oil are worth $20 to $35 on the trees.

"In southern Arizona there are considerable areas of comparatively cheap lands, with ground waters at pumping distance from the surface, which are worthy of consideration for olive planting, the merits of the tree being that it endures our climatic conditions, grows with comparatively small water supply and affords a crop which can be converted either into oil or into a suitable food. The by-products also have various uses. Second-quality oil can be used for making castile soap, and the extracted residues can be used to feed poultry or as a fertilizer.

"While therefore the olive is a slow growing tree and requires a period of from five to eight years to come into bearing, it will yet undoubtedly be planted in the Southwest as a standard orchard tree."

DOUBLE FUMIGATION

There have been 60 acres in the immediate Covina Valley that have been fumigated twice this season. While this has been done before in other seasons by a few ranchers, the prevailing opinion has been against it in former years, the belief being that one fumigation well done would clean the orchards, but ranchers are now seeing the advisability of catching the black scale when it is hatched out, regardless of whether the orchard has been previously fumigated that season.

Contrary to what would be supposed to be true, the movement for a double fumigation has come from the rancher and not from the concerns engaged in fumigating. Some of the acreage fumigated by the Covina Citrus Association has been done twice, the work being ordered by the ranchers because the black scale no longer seems to hatch at a particular season, but is liable to infest orchards at various times in the year.

During the last year many ranchers have been convinced of the bad policy of allowing the groves to get dirty, as in many cases nearly the whole of the crop was sacrificed because the rancher did not fumigate. All Covina ranchers are stronger in the defense of fumigation than ever before in the history of the industry, and they are going a step farther and making a second fumigation, being convinced that this is money well spent.

It is thought that if the groves are fumigated twice and are once well cleaned up, the necessity for double fumigation may disappear after a few years, as the scale will then get evened up in the hatching. What is known as a certainty, however, is the fact that it pays to keep the orchard clean. Some ranchers lost crops worth $3000 because they did not spend $250 or $300 in fumigation this year. The fumigation bill may be higher with some ranchers for one or two years, but they believe that it will be money in the pocket for them to get the groves thoroughly cleaned.—Covina Argus.

ROOT HAIRS

The root system of a plant is divided and subdivided into many fine rootlets. There arise from the surfaces of all growing rootlets, very small simple structures, the root hairs. Practically all the water and mineral nutrients are taken in from the soil through these root hairs. The absorbing surface of a root with hairs is from five to ten times that of a hairless root of equal size. The importance of root hairs may be judged from the above statements.

Root hairs are being formed anew constantly. The life of any individual hair is very short as a rule. They are extremely sensitive to air and soil conditions. They collapse immediately on exposure to air. Cold soil and very wet soil retard their development.

Usually, when a seedling is transplanted, the root hairs die immediately. Wilting of the plant results, and it does not revive until new root hairs are formed. In order to compensate for the destruction of root hairs in seedling transplanting, it is customary to cut back the water-losing organs, the leaves. In transplanting seedlings, pains should be taken to preserve the finer, young, growing, and root hair producing rootlets.—W. W. Robbins, Colorado Agricultural College.

Petitions are being circulated in Fresno County asking the board of supervisors to call a bond election for a $3,000,000 good roads system in that county.

STATE FRUIT GROWERS' CONVENTION.

By Dr. A. J. Cook, State Commissioner of Horticulture.

No fruit grower should forget the Forty-sixth California State Fruit Growers' Convention which is to convene at Stanford University the last week of July; indeed, all should plan now to be present at this convention which meets the week before the meeting in San Francisco of the American Association for the Advancement of Science, so we shall have with us some of the greatest scientists of the country. Soils and their treatment will be discussed by some of the highest authorities on the subject; two sessions or more will be devoted to the potato industry; the causes that hinder success in potato production will be discussed by those who know; pear blight which is laying so heavy a hand on our fruit growers will be ably considered by scientific authorities and by orchardists who have successfully controlled this most obdurate of bacterial diseases, and there will be a symposium on the outlook of the various fruits grown in the state by men who have made a success of their culture. Miss Lillian D. Clark of Berkeley will have charge of the women's session and this is enough to insure their success. We hope and believe that these sessions will fall no whit below the interesting meetings held by the ladies at the Los Angeles convention. Monday and Tuesday, July 26 and 27, will be given to matters of special interest to the county horticultural commissioners, their deputies and inspectors; Thursday, the 29th, will be devoted in part at least to an automobile trip through the famous Santa Clara Valley, and on Saturday the convention will adjourn in a body to meet at the exposition in San Francisco. Here special pains will be taken to explain the great plant exhibits, and in the evening an address will be given by Dr. John Coulter of the Chicago University. Saturday will be "Horticultural Day" at the exposition.

BOOKKEEPING FOR COOPERATIVE ORGANIZATIONS

Double entry bookkeeping is urged upon all farmers' cooperative societies in a recent publication of the United States department of agriculture, Bulletin No. 178, "Cooperative Organization Business Methods." The very life of a cooperative organization, says the bulletin, depends upon the confidence its members possess in it, and such confidence is impossible unless the records are unmistakably accurate. The double entry system is the only one which affords a complete check and should therefore be adopted in all cases.

Since the cooperative organization acts as the agent of the grower in marketing his product, the books of the organization must not only contain the usual records of any business enterprise but must also show a clear record of each grower's shipments. The system must be sufficiently elastic to take care of the maximum volume of business at the busy seasons and at the same time be economical.

The six essential requirements for such a system are stated in the bulletin as follows:

A complete set of financial records showing the business transactions and the results thereof.

A record of each member's transactions with the organization.

Capability of taking care of a maximum amount of business during the shipping season.

Capability of returning to the members the proceeds from their products within a reasonable time.

Clear pooling records when kept, so that any discrimination can be shown quickly.

Auxiliary records which will give statistics and valuable information for the conduct of the business. These records must be accurate.

The necessity for providing a regular system for safeguarding the cash is also emphasized in this bulletin, and nine precautions are given which it is said should be adhered to strictly.

All entries of cash should be explicit, and items supporting such entries should be filed so that they are accessible for reference and verification.

No entries should be recorded in the cashbook which do not relate to cash.

The full receipts of each day should be deposited in the bank.

All canceled checks should be filed in numerical order.

Duplicate checks should always be covered by indemnity bonds.

Reconciliation should be made each month between cash or check reister and bank pass-book balances.

Permanent record of these reconciliations should be made.

Checks, sales slips, receipts, etc., should be numbered with a numbering machine. Any which are spoiled should be marked void and left in the book.

A regular system should be used for the acknowledgement of all cash sales, or miscellaneous cash items received.

The auditing of accounts also should receive more attention than is frequently the case. At least once a year an expert accountant should go over the books of the organization. To minimize the cost of this, small associations or circles can be formed by the organizations within a certain radius and a competent auditor can be engaged to do the auditing for all.

The strange part of farm organizations is that the members have never shown the sympathy toward each other that professional men show. Doctors treat the families of physicians free of cost; lawyers exchange courtesies and professional services; judges exchange benches when for any reason they are disqualified; merchant's associations have uniform systems of extending credits; bankers have special privileges in the financial world. But where is the farmer who shows special favors to or stands with his fellow farmer in business transactions? As a rule when favor is wanted the merchant, the banker or the professional friend is sought instead of a fellow farmer who is able to help.

Many a farmer is only 50 per cent efficient because he hasn't equipment enough. He thinks he is being economical by not buying necessary machinery when in fact he is only limiting his possibilities—and profits. A farmer ought to have all the equipment that he has the brain power to manage.

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Now is the time to plant. Circular free.

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we will accept from any rancher in the State of California, an order for one 5 acre can of WRP Legume Bacteria, and will agree to refund the purchase price to the purchaser, if, in his judgment, and providing directions for use are followed, appreciable results are not obtained therefrom. Order must be placed during June, but shipment of the Bacteria can be postponed until later, if you prefer.

The price of a 5 acre can (containing sufficient Bacteria to inoculate seed for 5 acres) is $8.00, plus parcel postage. Within 150 miles the postage is 9 cents, and elsewhere in the State 14 cents. Therefore if you are within 150 miles of San Francisco send $8.09; beyond, send $8.14.

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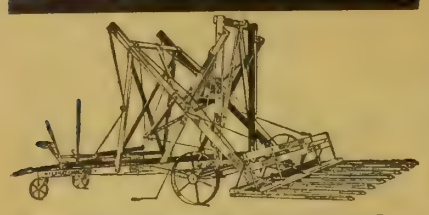

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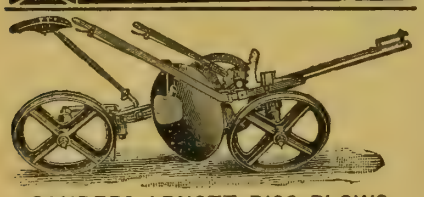

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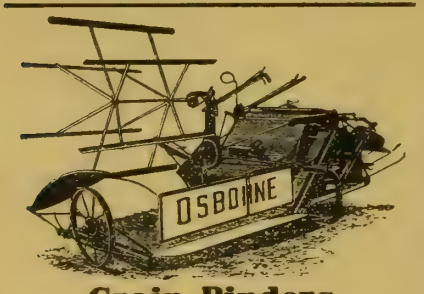

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Deciduous Fruits

RINGING AN UNSAFE STIMULUS TO FRUIT-BEARING

By F. H. Hall

FRUIT growers are often advised to drive rusty nails or mutilate trees in order to induce heavier bearing. We have always believed this could not lead to permanent increase of productiveness and must cause injury to fruit trees. We are glad to give of observations made at the New York state experiment station.

A Dangerous Remedy

Sluggish fruit trees sometimes so tax the patience of their owners that any measure would be adopted, however drastic, if it promised to spur the laggards into fruitfulness. For this reason the practice of ringing trees and plants has occasionally for a hundred years or more been recommended by plant physiologists and used by growers to induce or to increase fruit-bearing. The method has a theoretical chance for success; since the removal of a ring of bark from tree trunk or plant stem may be made with comparative safety at a certain time in the season and does not seriously interfere with the upward circulation through the active, growing, new wood, but does prevent the downward flow of the sap with the plant food formed in the leaves. Thus the food for the whole plant, including the lower stem and roots, is concentrated in the parts above the ring, and should and does serve as a stimulus to the formation and development of fruit buds. But is this stoppage of the normal circulation without danger to the plant, or is the good great enough to overbalance any such danger? Only careful experiments, continued for some time, can answer these queries satisfactorily; and such tests made at this station prove that the practice is generally either of too slight advantage to pay for itself or too dangerous to justify its use even when immediate results seem favorable.

Tests reported in Bulletin No. 151 of the station prove that ringing grape vines of certain varieties produces earlier ripening and better clusters, but that the vines suffer severely and do not become normally vigorous again for a long time, if ever. Bulletin No. 288 reports ringing of herbaceous plants, like tomatoes and chrysanthemums, as detrimental to the plants and productive of no compensating results in earlier or better fruits. The present bulletin records tests of ringing on apple, pear, plum and cherry trees, which indicate very limited advantage for the practice under any conditions and decided disadvantages in most cases, particularly with the stone fruits.

Ringing Apple Trees.

In June, 1910 a ring of bark one inch wide was removed from the trunk of each of 122 seedling apple trees then five years from planting. The bark was taken just above the surface of the ground and left in each case a clean surface of succulent, active cambium (new wood) which began immediately to repair the wound, so that by the end of the season all the rings were entirely covered with new, healthy bark. The trees were exceptionally strong and vigorous to start with and probably in better condition to withstand ringing than average orchard trees. None of them showed any set-back from the operation. During this season no effect on the fruit could be expected except some slight increase in size of the apples already set, but notes were taken on the crop as a check upon the effects of the ringing, if any, upon the number of trees fruiting and of fruits setting upon the individual trees in 1911. The results appear to favor ringing, since twice as many trees set fruit in 1911 as in 1910 (107 and 54, respectively), and the bearing trees produced 56 per cent of a full crop in 1911 as compared with 7 per cent in 1910. Of course, some of this increase was due to the advancing maturity of the trees, but it is evident that ringing these young, healthy, vigorous trees stimulated fruit production. The trees, however, never bore so good a crop again, even though subsequently ringed. In 1911, 27 of them were ringed a second time by removing inch strips directly above the former rings, again with quick healing and no apparent ill effects. But these trees ringed a second time averaged considerably less than half as good crops in 1912 as in 1911 and did no better than the trees ringed only in 1910.

In 1912 wider bands were removed from these same trees, the rings ranging from three to 21 inches on groups of four trees each. This severe treatment had no effect in stimulating fruit production, but an exhausting effect upon the trees, which increased with the width of the ring. One tree in both the three-inch-ring group and six-inch-ring group died after ringing, and from one to three trees in each of the other groups were lessened in vigor.

In 1911 Baldwin trees three years from setting were ringed, in groups of five trees each, beginning with two-inch strips and increasing the width of the band by two inches for each succeeding group until 20 inches was reached. At the same time the bark was removed from similar groups of trees in inch rings at varying distances from the ground, up to two feet. These young trees suffered severely from the ringing as new bark was not formed rapidly enough to cover the wound in any tree by the close of the season. The foliage dropped very early on all the trees, several died, all showed lack of vigor, and only 10 per cent of them started into growth the following season. Tests made the next year with trees four years set removing only one-inch rings, resulted about the same, as the ringed trees made less growth than similar trees not ringed, dropped their foliage early and made less growth, particularly of roots.

From these experiments it is clear that the first ringing of seedlings influenced fruitfulness favorably and resulted in a good setting of fruit without noticeable injury to the trees, but that subsequent ringing did not produce similar effects. With the Baldwins the results were all unfavorable to the practice.

Ringing Other Fruits

On young Bartlett pear trees ringed in 1912 by inch bands, the formation of new bark was not satisfactory, and before the end of the next season half of the ringed trees were dead and the others had made such poor growth that they were discarded. Digging showed the root systems to be very poorly developed.

Ringing is very seldom recommended for stone fruits as trees of this kind usually come into bearing earlier than apples and pears, are not as hardy, are less resistant to external injuries and are shorter lived. Nevertheless, some tests of the practice were made on both plums and cherries, with even less satisfactory results than with the pears. Few of the wounds healed perfectly, the foliage lost color and dropped early, growth was stunted, and of all the trees treated only one Montmorency cherry made any material growth the following season. Where any fruit set, as it did on a few of the plum trees, the ringing led to no increase in quantity and to some decline in quality.

Conclusions

The results obtained from these experiments are not favorable to ringing fruit trees as a general practice. Under some conditions, for a limited time, a more favorable outcome might be expected. Hardy, vigorous, young apple trees may readily undergo a single ringinig and be benefited thereby, but subsequent operations are injurious. Trees lacking vigor are often seriously injured by the practice. The deleterious effects of the treatment

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have generally been so marked upon various plant organs as to render the operation exceedingly hazardous. There seems to be no regular or systematic increase in fruit production. The gains do not offset the losses.

PEAR BLIGHT

Next to potato diseases pear blight is the great burning question now confronting the ranchers of California. It would not even be second in importance but that so many more of the people depend upon potatoes to keep the wolf from the door. I dare say that 95 per cent of the people consume potatoes, and many eat them seven days in the week and at each of the three meals. Pears are a luxury, but California pears are so admirable and the fruit has so limited a range that the grower who secures large annual crops of delicious Bartletts can certainly afford a first-class automobile.

There is just one impediment to success in pear culture, the terrible pear blight. This has been referred to so often that we hesitate to say more and would not except that such colossal losses are being sustained by a large number of the fruit growers, that so many are passive in an effort to control the pest and the further fact that the disease can be controlled. Entire pear orchards and orchards of whole communities have been known to be blighted and to die. Other orchardists are seemingly indifferent or are adopting measures entirely inadequate to cope with the disease. I know of men who have been fighting the plague persistently for three years, never flagging in winter or summer for even a day, and who have had bumper crops each season. These men have proved that success is possible, and their immense and phenomenal profits ought to make their example contagious. We now know positively that this disease is caused by a specific germ and that the germ is in the sac at disease locations. We also know that bird, insect, anything that pierces the diseased wood and then passes to healthy wood to penetrate the bark and cambium on the same and other trees will spread the blight.

Bees have been accused as the major agents of blight dispersion. It is probable that other insects, especially aphids (plant lice) are quite as active. It is thought that the exclusion of bees from the orchard will not reduce pear blight appreciably. We know that the disease lurks in blossoms, fruit, twigs, branches and roots. Wherever in any of these locations infested sap is conveyed, there the disease will very likely show.

It has been fully demonstrated that cutting out, absolute extirpation, is the only effective cure, but this disease is so insidious that many people will fail to do the proper cutting. Roots, trunks, branches, twigs, all must be gouged to ascertain if the infection is present, and when discovered every particle of diseased tissue must be cut away. Whole roots may be diseased and must be exorcised. The bark, cambium and outer sapwood may be harboring the fatal germs and they also must be cut away. In some cases the disease seems to penetrate deeper than has hitherto been supposed in the sapwood. To show how exacting this requirement is I have but to say that I know of a case where a very active experienced man worked three days on a single tree cutting away infested portions, yet the owner who has fought pear blight ten years set out a large area to pears the past season.

It is also imperative in fighting pear blight that the cutting instrument shall be disinfected after each cutting. Never cut a second time until the instrument is disinfected. Without doubt corrosive sublimate, bichloride of mercury, is decidedly the best disinfectant. Of course this will appear to be a great task, but pear blight is so common and orchard destruction so general that it is believed it will more than pay to take all possible pains to destroy these fatal germs.—A. J. Cook, State Commissioner of Horticulture.

PEAR BLIGHT

Noting accounts in the Cultivator of late of the trouble with pear trees blighting leads me to give my experience which may be helpful to others. In my orchard I had three Bartlett pear trees which were so badly covered with blight that in cutting off the parts affected scarcely anything was left but the trunks of the trees, and I was about to dig them up and put something else in their place when I read in Green's Fruit Grower an account of a man who cured his trees of blight by driving about a pound of nails into the body of the trees. I adopted this plan and since then my trees have put on a splendid growth, as clean and thrifty as any trees in the orchard, and last year were heavily laden with fine, healthy fruit. Later I planted the Lawrence and the Beurre d'Anjou and they began to blight. I cut pieces of rusty stovepipe with my snips and dug it in around the roots and the blight ceased and the trees are as bright and thrifty as any in the orchard, perfectly free from blight.

Since the above experience I have met several persons who have found the above remedy a perfect success, not only with pear but apple and other fruit trees as well.

Since writing the above my Bartlett and Lawrence pear trees have put on a bloom which makes them look like large, beautiful bouquets and are sending out new, thrifty shoots, showing as healthy a growth as one could desire.—Geo. M. Smith, Phoenix, Ariz.

* * * *

Notwithstanding the apparent success which Mr. Smith reports from the use of his nails and iron at the roots of the trees, we question very much whether this treatment will be effective in some districts where a serious infestation of pear blight prevails. We call attention to an article in another column, giving conclusions formed at the New York state experiment station regarding the effect of girdling or tree mutilation in order to secure increased crops.

RURAL IMPROVEMENT

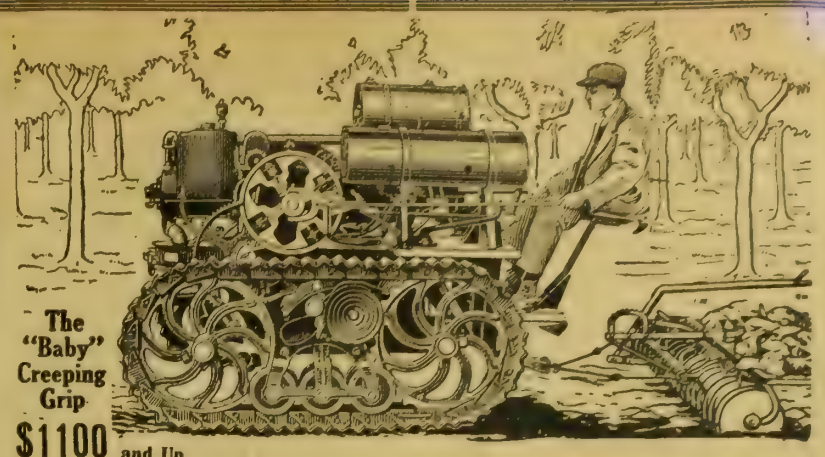
"Rural Improvement, the Principles of Civic Art Applied to Rural Conditions, including Village Improvement and the Betterment of the Open Country," by Frank A. Waugh, Orange Judd Company, New York, price $1.25. The Cultivator will be glad to secure the book for its subscribers at this price, or, including a year's subscription to the Cultivator, at $2.05, postpaid.

This book touches upon the issues which are stirring rural districts. From the preface we quote:

"Big issues are stirring in the rural districts of America. The farming communities and the small towns dependent on them have reached a stage of genuine and confident prosperity. It is no longer a question with them whether they can live through the winter and pay the interest on the mortage. The main problem is not now how to make more money but how to live more comfortably. The way the farmers spend money for automoblies proves this.

"Better homes and better home surroundings are the matters of prime concern. Better schools, better playgrounds, better churches, better libraries, better roads are wanted—better cemeteries, even. In the main these are community problems to be solved by the cooperative action of the whole neighborhood. Cooperation has been talked of as the coming remedy for all the farmer's difficulties, but the word has been given too narrow a meaning and application. The neighborhood can accomplish more by cooperating to own a grange hall, or the boys can do better cooperating to maintain a baseball league than the farmers can cooperating to buy fertilizer 25 cents under market price. And the best place to learn how to cooperate is in the care of public property, such as parks, commons, playgrounds, schools and roads which we own in common."

These above points are covered in the 13 chapters making up this book. These chapters touch, among other things, the principles underlying road improvement, roads and streets, roadside trees, civic centers, home gardens, farm planning, community planning, architecture, problems and programs of interest to rural people. The book is made up of 266 pages. It is well illustrated and has an excellent index.



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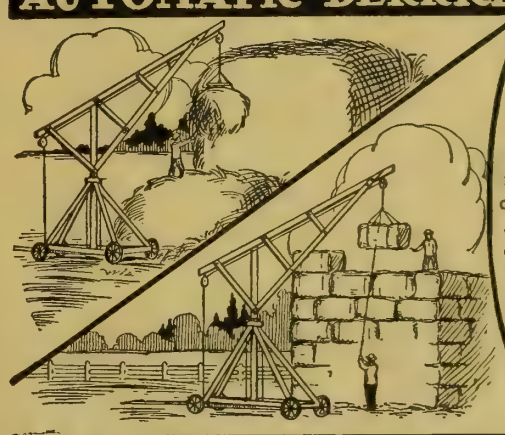

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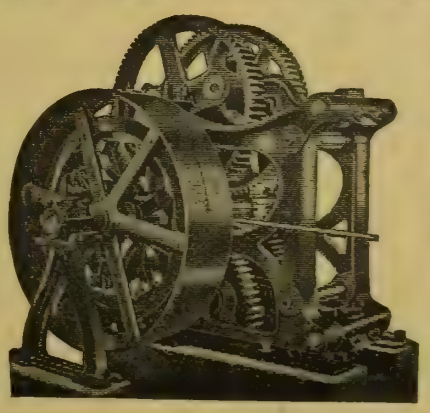

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Small Fruits Vegetables

CELERY CULTURE

Written for California Cultivator
By D. F. Reichard

CALIFORNIA has become famous as a celery growing state. The celery industry has developed because of the fact that our celery matures and is ready for shipping during the winter months, in this way giving the consumer fresh celery instead of the cold storage product of Eastern sources.

The peat lands of Orange County have, up to the last few years, been the main source of supply, but the ravages of disease—notably blight—have reduced the product of this district to about one-fifth of what it was. This shortage has been made up by growing celery on rich river bottom lands in Los Angeles County and on some of the islands in the upper San Joaquin Valley.

In each district the method of growing celery differs somewhat but the following directions will apply in general:

The seed bed should be of soil that is naturally moist or such as can be sub-irrigated. The piece intended for seed-bed should be deeply plowed and thoroughly worked down with a harrow, and just before seeding with a garden rake. On peat lands the seed-beds are made four or five feet wide, while on lighter land the seedlings are started in rows, one on each side of a low ridge. It takes from three to five weeks for celery seed to germinate and three to four months for it to attain the proper size for transplanting to the field.

When the tops have grown to three inches or over they should be clipped back about one half, and when they get three or four inches again clip them back. From this age on they are ready to transplant. Seed are sown, according to the district, from early in February till late in May. One pound of seed is enough for one-quarter acre of seedbed or four acres of set plants. Keep the seed bed free from weeds.

In preparing the field for the plants the land must be plowed to at least 12 inches and thoroughly worked down. On the lighter river bottom lands ten to 20 tons of stable manure to the acre is plowed under; besides this 500 to 1000 pounds of commercial fertilizer per acre is used while the crop is growing. This heavy fertilization is not necessary on the better peat lands.

In the peat lands the plants are set six inches apart in trenches six inches deep about four feet apart. Between the rows thorough cultivation should be kept up but care should be taken not to fill the trenches until the plants have made a growth of six to eight inches, when the trench should be gradually filled. When the plants are a foot high the earth is drawn up to them. This should be done very carefully when the tops are dry. If the dirt is brought up too high it makes the plants weak and spindly.

On the higher soil of the river bottoms celery is planted on both sides of the low ridges about two feet apart. In this way the rows on the ridge are about eight inches apart and there is about 18 inches between the inside rows. By this method the plants are so close that blanching is accomplished without "banking up." In garden culture the blanching is more practically done by tying papers or bags around the stock a couple of weeks before the celery is ready to cut.

In large fields celery is harvested with a "U" shaped cutter attached to a sulky plow frame, drawn under the banked celery, cutting off the roots and loosening the plants. The outer leaves or stalks are trimmed off and the roots squared preparatory to packing into crates ready for shipment. These crates are 22 by 24 inches and hold five to eight dozen heads. Where celery is not banked up harvesting is done with butcher or large pruning knives.

An acre produces about 15,000 heads of celery valued at approximately $300 at a cost close to $100.

The Golden Self-Blanching is the variety used exclusively for shipping while the White Plume is a nicer variety for the home garden.

Celery blight is the prinicpal disease but this can be controlled by spraying the plants with Bordeaux mixture as soon as signs of the disease appear.

POTATOES FOR STOCK FEED

The heavy production and the low price of potatoes have directed attention to their value for stock feed. Hitherto this subject has not received much attention in this country because under ordinary conditions other feeds are undoubtedly much cheaper and better. Some estimate that even at 15 cents a bushel it is more expensive to feed potatoes to stock than it is to feed silage, while on the other hand it is scarcely probable that the farmer can raise potatoes for much less than 30 cents a bushel. Their actual value for feed depends upon many factors, but it is better to make some use of the potatoes on hand rather than let them rot.

In Germany where the potato crop is proportionately far greater than in this country, the question has been more thoroughly studied. The tubers may be used for feeding cows, horses, sheep and pigs, but they are best adapted for pigs. To secure the best results with swine the potatoes should first be cooked and then made into a thick mush mixed with the corn meal or other grain. If skim milk is added the value of the feed is much increased.

In feeding potatoes to dairy cows from one-half peck to one peck should be fed to start with. They should be given raw and should be run through a root cutter to prevent choking the cows. An excessive feed of potatoes to a dairy cow is liable to cause scours, but as much as one-half bushel per cow per day has been fed without bad results. In addition to the nutrients contained potatoes give succulence to a ration, a factor of importance in feeding dairy cows.

CROPS NOT AFFECTED BY MOON

Scientists are now convinced that the moon has no more influence on crops than it has upon the temperature or the amount of rain or the winds, or any other weather element. The growth of plants depends upon the amount of food in the soil and in the air that is available for them and upon temperature, light and moisture. The moon obviously does not affect the character of the soil in any way, neither does it affect the composition of the atmosphere. The only remaining way in which it could influence plant growth, therefore, is by its light. Recent experiments, however, show that full daylight is about 600,000 times brighter than full moonlight, yet when a plant gets 1-100th part of normal daylight it thrives little better than in absolute darkness. If 1-100th part of normal daylight is thus too little to stimulate a plant, it seems quite certain that a 600,000th part cannot have any effect at all. It is therefore a mere waste of time to think about the moon in connection with the planting of crops. The moon, say the scientists, has nothing more to do with this than it has to do with the building of fences, the time for killing hogs, or any other of the innumerable things over which it was once supposed to exert a strong influence.

It requires as much skill to properly market garden stuff as it does to grow it. Always give your produce the stamp of an honest, careful dealer. Offer for sale only the carefully selected best Better throw inferior stuff away or feed it to the chickens and pigs. Pack and display your goods so that they present a pleasing and appetizing appearance. Ship all very perishable products by express and find out exactly when they will be delivered.

Farm Bureaus

ANNOUNCEMENTS of farm bureau meetings for June are given below. Others will appear in next week's issue. We are glad also to give news notes of work accomplished and in contemplation in the various sections.

Ventura County, William B. Parker, Adviser, Ventura

Ventura Avenue, June 4.
Fillmore, June 7.
Oxnard, June 9.
Camarillo, June 11.
Nordhoff, June 14.
Saticoy, June 16.
Moorpark, June 17.
Somis, June 21.
Santa Paula, June 22.
Simi, June 23.
Mound, June 29.

Glenn County, W. H. Heileman, Adviser, Willows

Work in Hamilton district, June 3 and 4.

Monthly directors' meeting, June 5.

Ord center, June 7 and 8. Night meeting, June 8.

Bayliss center, June 10 and 11. Night meeting, June 11.

Codora center, June 14 and 15. Night meeting, June 15.

Larkin center, June 17 and 18. Night meeting, June 18.

Orland center, June 21 and 22. Night meeting, June 22.

Jacinto center, June 24 and 25. Night meeting, June 25.

Newville district, June 28 and 29.

Elk Creek district, July 1 and 2.

Wednesday of each week will be given to boys' agricultural club work and special investigations. Saturday of each week wil be given to office matters and special work.

The Ord and Bayliss centers will hold Fourth of July celebration on the Sacramento River. The Codora and Larkin centers will also join each other in a celebration on the Sacramento River adjacent to these centers. The centers will control concessions and turn proceeds into the county farm bureau.

The county-wide work in the farm bureau during the month of June will center largely on the organization of the dairy and hog raising industries of the county.

Napa County, H. J. Baade, Adviser, Napa

Coombsville, June 1.
Browns Valley, June 2.
Salvador, June 5.
Fly District, June 9.
Calistoga, June 10.
Soscol, June 11.

Soda Canyon, Napa; Directors' Meeting, June 12.

Carneros, June 14.

Rutherford with Professor Herms, June 15.

St. Helena, June 16.
Wooden Valley, June 19.
Rutherford, June 21.
Berryessa, June 23.
Pope Valley, June 25.
Mt. George, June 26.

The subject for discussion this month at the various farm center meetings will be "The House Fly and Its Control."

The Rutherford farm center has just completed the installation of electric lights in the local school house to show their appreciation for the building which is provided for them and also to furnish better light.

We are at present in the midst of an attack of green aphids which are tending to destroy the prune crop in certain localities. This problem we are handling very successfully by means of an emulsion spray.

We are now planning on the establishment of a number of demonstrations to show that the heavy adobe soils of Napa County will work properly if the excess water is removed.

The date for the Napa County farm bureau day has been set, temporarily, for September 13. Arrangements are under way to make this one of the most profitable events of the year to the farmers.

Maricopa County, Adviser, Jas. A. Armstrong, Phoenix, Arizona

Liberty, June 2.

South Side Farm Improvement Association, June 8.

Lehi, June 10.

Gilbert Commercial Club, June 18.

We have succeeded in signing up the initial 600 cows for our cow testing association in this place on the contract below. We expect to start operations just as quickly as we can find a suitable man to fill this position.

The harvester ant extermination campaign is proving very popular with the ranchers. There are approximately 8000 acres of land infested with harvester ants which will be under treatment during the coming season under the special directions of this office. The extermination work will begin about the first week in June and will be conducted throughout the summer. It is our hope that at the end of the season these 8000 acres will be practically free from the ravages of the harvester ant which will mean a very great saving to the ranchers in doing their work. The cost of the extermination of this pest will average less than one year's damage done by the ants on the area treated.

Cow-testing Association Contract—Whereas, the agricultural extension service of the University of Arizona college of agriculture has arranged for the services of an expert cow tester to assist farmers in ascertaining the relative merits of their cows and the economic production of dairy products; and

Whereas, the agricultural extension service agrees, from monthly tests made by the tester of the agricultural extension service, to furnish each farmer with a record of the individual performance of each animal subscribed, and to advise the farmer in regard to economical feeding, care and improvement of his herd; and

Whereas, I ————, am desirous of cooperating with the agricultural extension service for the purpose above stated;

Now, therefore, in consideration of my receiving the services above mentioned, I agree and promise to keep each month a seven-day record of cows on test, and to take a composite sample of the milk, the composite sample to begin two days before the tester arrives at my ranch, and to pay the tester 15 cents per month for each cow tested, payment to be made on completion of test. I furthermore agree to keep as many cows on test during the year as I start with and to pay for at least that number; to pay 15 cents per month for each additional cow; and I agree to furnish board and lodging for the expert employed as tester for at least one day in each month and over Sunday if his regular course brings him to my home on Saturday; and to convey him to the next place of work.

This contract is not binding unless the said agricultural extension service secures a sufficient number of cows to warrant starting operations.

The term of this agreement shall be one year from the time testing begins.—Signed....., Date..... Witnesses, ...For Association

Humboldt County, Adviser, A. H. Christiansen, Eureka

Field day in Eel River Valley, center meeting at Ferndale, June 1.

McKinleyville, meeting and picnic, June 2.

Loleta, all-day meeting, June 3.

Freshwater, field day, center meeting in evening, June 4.

Arcata, all-day meeting, June 5.

Fortuna, field day, June 7.

Carlotta, day meeting; Bayside evening, June 8.

Fortuna, all-day meeting, June 9.

Loleta, field day, June 10.

Arcata and McKinleyville, field day, June 11.

Kneeland, day and evening, June 12.

Kneeland and Iaqua, June 13.

Bridgeville, June 14.

Blocksburg and Alders Point, June 15.

Alders Point and Harris, June 16.

Southern Hill section, field day, June 17.

Garberville, June 18.

Briceland and Ettersburg, June 19.

Ettersburg, field day, June 20.

Upper Mattole and Petrolia, June 21.

(Continued on Page 623)

The Verdict

— convincingly and overwhelmingly for Goodrich

The B. F. Goodrich Company *alone* through the daily press of *January 31st* gave to the consuming public the *most sweeping reduction* ever made in tire prices. This established the *only genuine Fair-List* in existence on non-skid tires today.

Goodrich prices were dated February 1st, in ordinary course. Other tires were reduced in prices *a few days later* and the reduction *dated back* to February 1st.

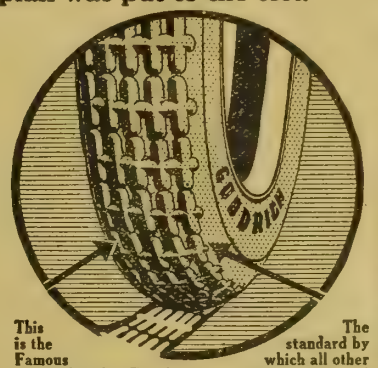
Every *real* price-reduction on tires has followed the lead of Goodrich.

We knew we were right. We knew that the dealers would know it as soon as our plan was put to the test.

Hundreds of dealers who have been dividing their business have notified us that they have decided to sell Goodrich "Fair-Listed" Tires exclusively.

Tire *Standards* have from the first been set by Goodrich Products.

Goodrich Safety Tread Tires are today, as they have always been the *Standard* by which the merits of *all* Non-Skid Tires are measured.



This is the Famous Goodrich Safety Tread — **The standard by which all other non-skids are judged**

Only 5% PLUS for the Best Non-Skid

Goodrich Safety Treads give more mileage than our own (or any other) smooth tread tires, at only the 5% more cost to you. Note comparative table of prices on Non-Skid Tires showing other brands costing from 10% to 30% more than Safety Treads

Size	Goodrich Safety Tread	OTHER MAKES "A"	"B"	"C"	"D"
30x3	$ 9.45	$10.55	$10.95	$16.35	$18.10
30x3½	12.20	13.35	14.20	21.70	23.60
32x3½	14.00	15.40	16.30	22.85	25.30
34x4	20.35	22.30	23.80	31.15	33.55
36x4½	28.70	32.15	33.60	41.85	41.40
37x5	33.90	39.80	41.80	49.85	52.05

Goodrich "Fair-Listed" Prices constitute the *standard* by which the prices of other tires *must* be judged.

Goodrich *Leadership* is more firmly established today than it has ever been in the past.

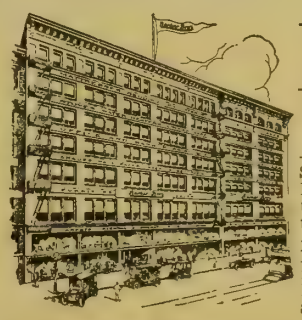
Goodrich Tires are *better* this year than we have ever been able to make them before.

You *know* the superiority of Goodrich Tires. You also know about Goodrich "Fair-Listed" Prices — the prices that have knocked out the padding for the *Benefit of Tire Buyers.*

You know, too, that the verdict is overwhelmingly in faver of Goodrich Safety Tread Tires.

THE B. F. GOODRICH COMPANY, Akron, Ohio

Makers of Everything that's Best in Rubber



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—where you are afforded NEWEST AND LARGEST STOCKS in ALL Home-furnishing lines—most DEPENDABLE QUALITIES in every grade—LOWEST PRICES—and HELPFUL home-outfitting advice.

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—it's just as satisfactory as visiting our store in person. Write us for information and prices on any goods you may need. Take advantage of the many special offerings we are continually featuring in all lines.

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Send five cents for postage on free books, and state what crops you are growing.

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W. S. SPARR, Agent — 321 Stimson Bldg., Los Angeles, Cal.

INSURE YOUR SEED

Get a "catch", a good stand, and a big yield of **ALFALFA, BEANS,** Peas, Vetch, and ***all other Legumes*** — inoculate with

Gold Medal St. Louis 1904

The Improved German Soil Inoculator, Nobbe-Hiltner Process

NITRAGIN

TRADE MARK REG'D DEC. 6, 1898 NO. 32212

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THE SIMPLEST SAFEST AND SUREST SYSTEM OF SOIL INOCULATION FOR ALL LEGUMES

In half-acre, 1-acre and 5-acre cans

Inoculated ALFALFA Not Inoculated

"NITRAGIN" is the ***original*** Pure Culture—***a granular*** medium (***not*** a jelly)—nothing to break or spill—packed in a ventilated can, containing millions of surfaces, supporting billions of nitrogen-gathering germs, their health, strength and virility

Guaranteed for Six Months by the Armour Fertilizer Works.

Absolutely harmless. Easy to use. An investment—not an expense. Remember—legumes not inoculated take ***no*** nitrogen from the air. Inoculated legumes mean bigger yields, richer feeding value, better soil. Pure Culture inoculation is endorsed by the U. S. Dept. of Agriculture and other authorities. Thousands of satisfied California ranchers testify to the wonderful results obtained with "NITRAGIN" — the ***Original*** Pure Culture.

Avoid Imitations. LOOK FOR THE ARMOUR OVAL LABEL.

Make your crop sure. Inoculate with "NITRAGIN". It can be obtained for ***any*** legume.

See your seed dealer or write for FREE BOOKLET.

ARMOUR FERTILIZER WORKS, Dept. 136, 803 Central Bldg., Los Angeles 1019 Front Street, Sacramento

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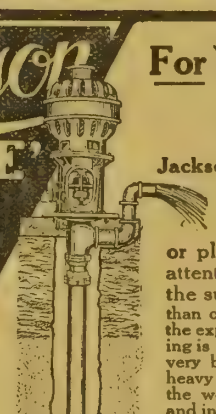
Write for Catalog No. 48 F



A Better Make Not Made

For Water Deep Under The Ground

Jackson Deep Well Turbine Pumps give continuous and efficient service. They do not get out of order as they have no valves or plunger rods. Very little care or attention needed as they are oiled from the surface. Are much lower in cost than other types of deep well pumps when the expense of dug pits, cribbing and timbering is reckoned. They raise water from the very bottom of the well, thus eliminating heavy vacuums and delivering all the water the well yields. They develop slow wells and increase their flow.

Like all Jackson Made Pumps These Deep Well Turbine Pumps Are the Very Best Pumps Made for the Purpose—They are Dividend Earners, Not Expense Makers

Whatever your water problems may be our Expert Pumping Engineers will help you out free of charge—write

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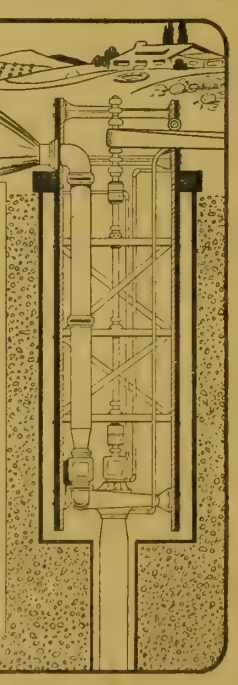

Insure Your Crops!

With a Krogh Pump you know that your crops will be properly watered. Krogh Pumps have proven best by most rigid tests! All water for the big San Francisco Fair will be supplied by Krogh Pumps. Write for information.

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HAMMOND'S SLUG-SHOT 1880 1915 AN INSECTICIDE FOR GARDEN USE

SLUG-SHOT

USED FROM OCEAN TO OCEAN FOR 35 YEARS.

Sold by Seed Dealers of America.

Saves **Currants, Potatoes, Cabbage, Melons, Flowers, Trees and Shrubs** from Insects. Put up in popular packages at popular prices. Write for free pamphlet on Bugs and Blights, etc., to

Hammond's Paint and Slug Shot Works. Beacon. New York

General Agriculture

OVERCOMING WHITE ALKALI

REPLYING to the question of a farmer near Yuma concerning the best method of getting rid of white alkali, Professor Stanley F. Morse, superintendent of agricultural extension service of the University of Arizona agricultural experiment station, writes:

"In order to overcome white alkali, I would suggest to you the following procedure: Throw up rather high borders about two rods apart and flood with a large quantity of water; if the fall in the land is too great, plow up cross borders in order to hold the water on the land. If the soil is of a tight, heavy nature, it would be well to use a subsoil plow previous to leveling the land and throwing up borders. It would be desirable to use a second heavy irrigation if time and water are plentiful. As soon as the soil is dry enough so that a team can get on it without injuring its texture, plow the land and harrow it thoroughly, making a fine seedbed and a good surface mulch. Then immediately plant one of the grain sorghums in rows 36 to 42 inches apart. Keep the soil loose by cultivation, not only after every irrigation and every shower, but also whenever it may become at all compacted by the baking of the sun. Feterita would probably be an excellent crop for this purpose, and if you had a number of hogs it would be a good idea to turn them into this feterita and let them pasture it down or else harvest only the heads and leave considerable residue on the land which could be incorporated with the soil. Kaffir corn or milo maize could also be used. After the grain sorghum was harvested you could sow wheat or barley at the rate of a bushel and a half per acre together with about 30 pounds of sour clover. It would be a good plan to pasture this crop also more or less throughout the winter; in the spring allow it to make as large a growth as possible to be turned under. Another grain sorghum crop might well follow the next summer. In conjunction with this treatment I think it would be desirable, if you had any manure or straw, to haul this material out on to the land and spread it thickly on the worst spots. About the third year, if you so desired, cotton could probably be planted on this land. In every instance, before planting the crop, a very heavy flooding with water should be given. I feel sure that a persistent following of this procedure would eventually eradicate the alkali and make this land extremely productive. The foregoing recommendations are based upon my own observations of successful farm practice in subduing alkali in Arizona.

SQUIRREL ORDINANCE

Ventura County is to the fore with a thorough-going ordinance which aims to abate the squirrel nuisance. It provides that it shall be the duty of every person owning or occupying land situated in that county to keep such land clean of squirrels, and any failure so to do shall be deemed sufficient cause for the public, through its proper agent, to enter upon the land and abate such nuisance by destroying the squirrels; that all costs and expenses so incurred be declared a lien upon the land, said lien to remain in effect until payment or sale has been made to satisfy costs and expenses.

A squirrel inspector is appointed at a salary of five dollars per day, who shall work under the orders of the county supervisors and in conjunction with the directors of farm bureau centers of the various districts.

Any occupant of land who shall fail to clean such land of the squirrel pest shall be served with a notice and if the nuisance is not abated the inspector has the power to rid the place of squirrels and the cost thereof becomes a lien upon the property.

THE CALIFORNIA FARMER AND THE AUTOMOBILE

"Largely through the influence of Director Page hostile sentiment toward the automobile in the rural sections is gradually giving place to a more friendly attitude," says a conservative weekly newspaper published in the East. Just who is "Director Page," this man of influence, does not concern us now. What we of California are interested in is the "hostile sentiment toward the automobile in the rural sections."

We have noticed that in California. The California farmer is the most hostile thing toward automobiles that we have ever heard of. He won't have a poor car around the place. The language that he will use when a neighbor buys an old boat that won't make two knots an hour along the state highway is quite painful to hear. Nor is there any one more hostile to the lavender and old lace of a stylish limousine—that is, for ordinary farm purposes. Of course, if mother and the girls want a car that has an interior finish like a French salon, that is all right; but the rural dweller in California puts his foot down like a ton of brick when it is suggested that he buy a hifalutin' machine to take the butter fat to the creamery.

Not for Joe. No, siree. If you want to see a hostile that will make Sitting Bull look like a blanket weaver in the sun, just hint that there is a better car than the farmer himself is driving.

Of course, there are automobiles toward which rural California is not hostile. Those are the cars owned by the rural Californian, and they include all known makes. The California farmer is the greatest automobile buyer in the world. He has money to invest and he invests rationally—but, my, isn't he hostile against the car he doesn't like. —San Francisco Call.

DIGGING DITCHES WITH DYNAMITE

The following is quoted from Farm Engineering and will probably be of interest to many.

Dynamiting a Side Hill Ditch

The writer once had charge of the work of making a ditch along a steep hillside, and as there were boulders, stumps and trees in the line of the ditch, besides stretches of solid sandstone and other places where there were rocks imbedded in the hard, dry earth, we had a chance to try out ditching with dynamite pretty thoroughly.

We could not load the holes heavy enough to clean the ditch as most of the material was needed to strengthen the lower side. Holes were spaced three feet apart and drilled or burleyed down to grade and loaded with from one to two sticks of 20 per cent dynamite excepting in the hardest sandstone where 40 per cent was used.

We used a battery to fire with and shot from 70 to 90 feet at a time, after which the dirt which was not thrown out was placed on the lower side of the ditch.

Had this been on comparatively level ground a double row of holes and heavier loading would have cleaned the ditch. I also saw a pond made three, and in places, four feet deeper, by exploding electrically about 30 pounds of dynamite in one pound shots, spaced about four feet each way and three feet deep.

Practically all the earth above the bottom of the holes was lifted high in the air, but unfortunately the high wind, which we expected would help to carry the dirt to one side, lulled about the time we were ready to shoot and some of it fell back in the hole, but the loosened earth was easily removed.

Three ways of increasing profit are open to every farmer: increasing production; cutting the cost of production, and better marketing.

Irrigation Forestry

THE GREAT SACRAMENTO VALLEY

NO PHASE in the history of California is more striking and interesting than the economic and social changes which are now affecting the Sacramento Valley. These changes cover the whole field of human activity, and yet in a peculiar sense the control and use of water are vital factors which have a greater effect on the development of the valley than any of the great industries which have shown wonderful expansion throughout the whole country since the civil war. Each step in the mastery of water adds impetus to the industry of agriculture, which after all is the foundation of prosperity.

The control of rivers for navigation and flood protection, the drainage of swamp lands, the harnessing of mountain streams for the production of electric power, and the use of both surface and underground water for irrigation and domestic purposes present problems that involve all the phases of hydraulic engineering. The solution of these problems is being accomplished with amazing rapidity, largely by private interests working under wise laws and under effective supervision and control by state and federal bodies.

The large irrigable area in the Sacramento Valley and the extensive use of ground water for domestic purposes, public supplies and irrigation led the United States geological survey, in cooperation with the California state department of engineering, to undertake an investigation. A preliminary report by Kirk Bryan has just been issued by the federal survey as Water-Supply Paper 375-A. The Sacramento Valley contains 15 per cent of the agricultural land of the state. Only 3.5 per cent of the area was irrigated in 1912, when the investigation was begun, but it is estimated that at least 75 per cent, or 21 times that area, will ultimately be brought under water. These large possibilities have led to a rapid increase in the number of irrigation projects and an influx of men and capital from other parts of California to derive profit from the development of the land, their expectation being that the permanent future population will come from the eastern states or from Europe.

Because of a mild climate, a concentrated winter rainfall and a shallow water table, many field crops and deep-rooted plants thrive in this valley without irrigation. Water is not a necessity for crop growing, but it makes possible much larger yields, the cultivation of crops with a higher return to the acre, and the cultivation of certain lands otherwise chiefly valuable for grazing. Such advantages have appealed but lightly to owners of large holdings, who bought their land at a low price, perhaps $1.25 an acre, but the crowding in of homeseekers from the East, the diminishing profits of grain farming and the great increase in land values have combined to bring about the subdivision and sale of many large parcels of land. To the purchasers of such tracts the advantages of irrigation appeal more strongly.

The report describes the water-bearing formations in the Sacramento Valley, the origin and movements of ground water, ground-water development, well and pumping problems and methods of irrigation with well water. A copy may be obtained free on application to the Director of the Geological Survey, Washington, D. C.

The geological survey has also been engaged for a number of years in topographically mapping the Sacramento Valley in cooperation with the state, the work now being nearly completed and the maps published. An index of these maps, showing the areas covered, prices, etc., will be furnished free of cost by the Director of the Survey.

When a stream is discharging one cubic foot of water every second of time there is a second foot flow.

HOW MUCH WATER SHALL WE USE THIS YEAR?

Exhaustive experiments have been made in the United States to determine how much water should be used to produce the different agricultural crops. This is of course a big question, and the answer depends upon the kind of crop, soil, climate, irrigator, etc.

Ask an old timer how much water to put on a field and he will usually answer, "As much as you can get." We must also admit that within ordinary limits the more water an irrigator applies the greater will be the yield, but this does not mean a larger net return will come to the farmer.

In many cases the farmer's water supply is regulated by the number of shares of ditch stock owned, and if he is shrewd he can figure about how much water will come to him during the irrigating season.

Suppose he figured that he will have available 25 acre feet of water for sugar beets, that the contract price for these beets is $5.00 per ton, and that it costs him $60 an acre to produce these beets, including interest on investment, delivery, etc.

The question for him to settle is this: How many acres shall I plant?

Suppose now he plants 10 acres. The water available is 2½ acre feet per acre. With a good season, good ground and good care, experiments show a yield of 21 tons per acre, or a total of 210 tons at $5.00 equals $1050, less $600 (cost of producing), leaves a net profit of $450.

Again, suppose he plants 20 acres, uses the 25 acre feet of water on that land. Experiments show that with above conditions a yield of 19.5 tons per acre, or 390 tons total yeld, at $5.00 gives $1950, less $1200 (for producing), leaves a profit of $750.

Again let him plant 30 acres and use the 25 acre feet of water thereon. Experiments show a yield of 18.6 tons per acre or 558 tons at $5.00 gives $2790, less $1800 (for producing), gives $990 profit.

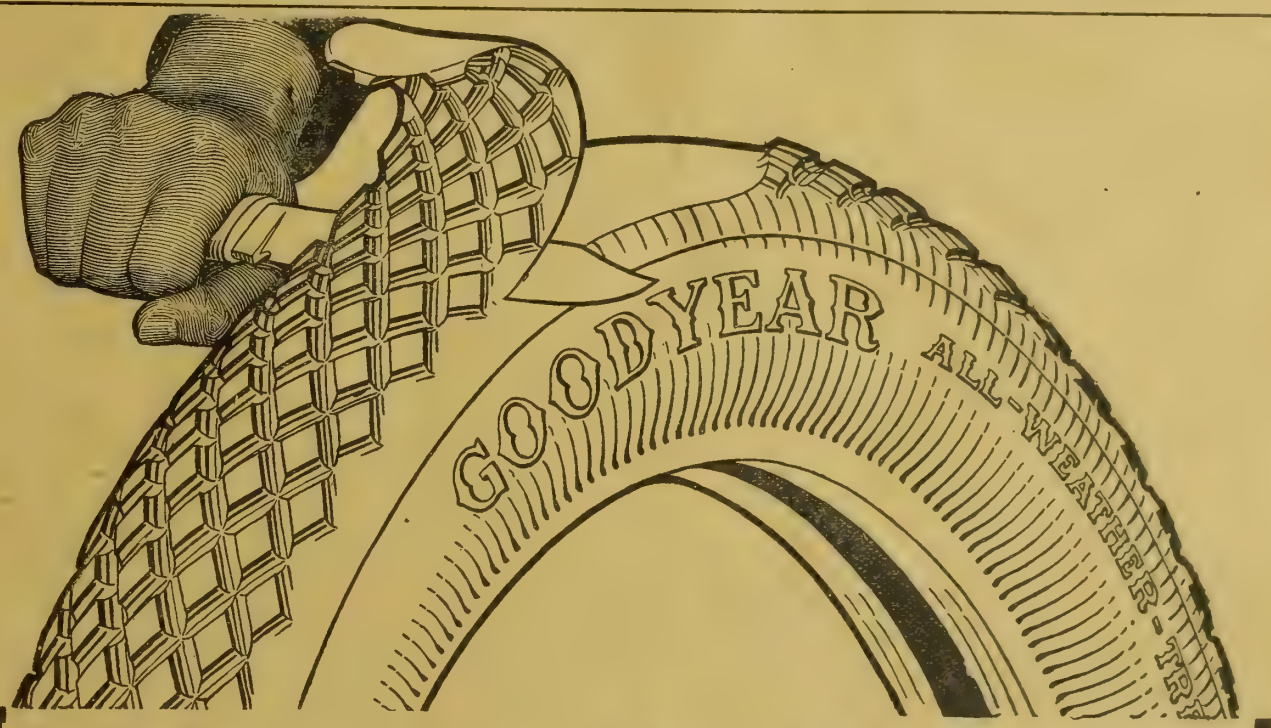
Again let him plant 40 acres under the above conditions. Experiments show a yeld of 16.3 tons per acre, or 652 tons total at $5.00 equals $3260, less $2400 (for producing), gives $860 profit.

He will find the 30 acre field then most profitable for the water available.—E. B. House, Colorado Agricultural College.

EMPLOY FARM EXPERT

B. Terry White, secretary of the Dinuba chamber of commerce, writes that the chamber has secured a series of lectures from professors in the agricultural college which are to be delivered monthly. In addition, it is being urged that the Alta Irrigation District, which serves Reedley, Sultana, Orosi and Traver, employ a farm adviser for that district, the expense to be met as other district expenses are. This idea is meeting with enthusiastic support on the part of many served by the district.

One acre contains 160 square rods, 4840 square yards, 43,560 square feet. The side of a square must measure as follows to contain: Ten acres, 660 feet; one acre, 208.71; half acre, 147.58; third acre, 120.50; fourth acre, 104.38; eighth acre, 73.79.



Suppose We Pared This Tire

Suppose this All-Weather tread—which is now double-thick—were pared to the thinness of the usual anti-skid. Do you think that the grips would endure and the tread endure as now? Or would it resist puncture like this matchless tread?

Suppose we used—as some do—one less ply of fabric. Suppose the whole tire were made lighter. Could the tire stand use or misuse as Goodyear tires do now?

Suppose we omitted our other exclusive features:

Our No-Rim-Cut feature—

Our "On-Air" cure to save blowouts—

Our rubber rivets to combat loose treads—

Our 126-piano-wire base for security.

All others do omit them. All of them are costly. One of them—our "On-Air" cure—costs us $450,000 yearly.

But could Goodyear Fortified Tires retain top place if we did not give those extras?

We're Adding Betterments

Instead of that, we are all the time adding betterments. We spend on one department $100,000 yearly to seek out new improvements.

Our All-Weather tread—always double-thick—has been made still thicker on some sizes.

We have added an average of 14 per cent to the thickness of our Inner Tubes.

And we are making our own fabric to secure an extra strength.

Price Reductions

Yet we have made big price reductions three times in two years. Our last—on February 1st—brought the total to 45 per cent. That is largely due to multiplied output.

Today you are getting in Goodyear Fortified Tires the best value ever known in tire making.

It is due to yourself that you get these tires. They are saving millions of dollars and millions of troubles to motor car owners each year. And men know this. Last year they bought about one Goodyear tire for every car in use.

Join these contented tire users. Any dealer will supply you.

GOODYEAR
AKRON, OHIO

Fortified Tires

Fortified Against
- Rim-Cuts—by our No-Rim-Cut feature.
- Blowouts—by our "On-Air" cure.
- Loose Treads—by many rubber rivets.
- Insecurity—by 126 braided piano wires.
- Punctures and Skidding—by our double-thick All-Weather tread.

THE GOODYEAR TIRE & RUBBER COMPANY, AKRON, OHIO

Makers of Goodyear "Tire Saver" Accessories; also Goodyear "Wing" Carriage Tires and other Types

(2408)

Established 1888. Twenty-seventh Year.

The California Cultivator

Rural California Combined with the California Cultivator

A Journal of Horticulture and Agriculture

By
THE CULTIVATOR PUBLISHING CO., Inc.
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C. B. Messenger, Editor.

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Entered at the Post Office at Los Angeles, California, as Second-Class Matter.

Thursday, May 27, 1915

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

INSECTS OF CALIFORNIA

Another week we will give review of "Injurious and Beneficial Insects of California," written by E. O. Essig and printed by the state horticultural commission, but we must give the information to our subscribers that it is a most valuable book and may be had by making request to State Horticultural Commissioner Cook at Sacramento. It is a book of nearly 550 pages, giving a list of all the known insects of California. There are hundreds of illustrations, and the book is put up in a way to make it invaluable to both the specialist and the practical farmer.

LIBERTY BELL COMING

California in general, and San Francisco and San Diego in particular, have been working to secure the Liberty Bell in order to give the youth of California an opportunity of seeing the bell which announced the Declaration of Independence. They have finally succeeded, and the mayor and city council of Philadelphia have promised that the bell will leave Philadelphia, escorted by many officials of that state, on July 5. It will be exhibited first at San Francisco, and on its way to the San Diego exposition will be exhibited at Los Angeles. Organizations of thousands of school children will be formed which will act as an honorary guard and sing the national songs. California certainly will give a royal welcome to the old bell.

FLAG DAY

June 14 is Flag Day. We doubt not it will be observed this year as never before. We do not think there ever was a time when there was a more patriotic feeling over this country than at the present. This is perhaps because nearly all the rest of the world is at war, and in their war operations have more or less transgressed the rights of this country. Fortunately, our patriotism is manifested quietly and jingoism is not in the foreground. As one has stated it, the sinking of the Lusitania has taken the hyphen out of Americanism. The German-American, the British-American, the Belgian-American, who were so prominent early in the war, have largely merged into patriotic Americans. The American flag should float over every home on June 14, 1915. This is the 138th anniversary of the adoption of the flag of the United States of America.

MILLIONS IN MISTAKES

The management of the extension service of the University of Arizona estimates that mistakes in that state cost the farmers in excess of $1,500,000 annually. "It is our observation that many of these farmers, especially the new settlers, are making every year little mistakes in planting the wrong kinds of crops at the wrong time of year in the wrong way and using incorrect methods of irrigation and cultivation. These mistakes frequently result in considerable losses of time and money and yet are very easily preventable."

We doubt not the figures given are conservative; we are sure the mistakes made in California cause losses vastly greater. It is human to err, and we suppose this failing of humanity will obtain to the end of time. Meanwhile, it is well for our farmers to reduce those mistakes to the minimum. Our universities, farm advisers, horticultural commissions and farm papers are all working to the end of reducing these mistakes to the minimum. The farmer who is succeeding is using every one of these means to reduce the mistakes.

PAN-AMERICAN

This is the week of the Pan-American congress which is being held in Washington, D. C. This conference should be of great importance to the Americas, both north and south, and should be particularly important to the Pacific Coast. European attention is now largely self-centered, and if America takes advantage of this opportunity to plan its own affairs and make shipping arrangements whereby Americans may deal with each other without the invariable middleman, we believe it will be for the benefit of all.

Speaking of prosperity, by the way, when the conflict started in August this country owed to Europe in excess of $200,000,000. Orders for war supplies and breadstuffs have changed this indebtedness of $200,000,000 to a credit of over $600,000,000 now owed by other countries to America. It is estimated that by June 30 this surplus credited to this country will be in excess of $1,000,000,000. The government crop reports all show that our crop and nearly all other crops will be exceedingly large. Last year's crop of wheat was immense; this year's will be even greater and will reach a total in excess of 700,000,000 bushels.

Another saving which will keep much gold in this country, and which it is stated will aggregate at least $1,000,000 daily, is the inability of the American tourist to travel in Europe.

Incidentally, California is having expositions, all kinds of national conventions and the best climate on earth.

THE WEATHER

California's climate is perfect. Of course, there are widely separated occasions when we get a streak different from anything we have had before. Fortunately, we are now being given our regular variety—fortunately, because the chief of the weather prevailing over the United States is making a visit to California expositions and California climate. Dr. Charles F. Marvin, who has been with the weather bureau for nearly a third of a century, is making his initial visit to the coast and getting in touch with the needs of California. In Southern California he was shown a little strip of the citrus belt, where the information furnished by the weather bureau has probably saved more property than in any similar agricultural area in the world. His visit was all too short to present to him all the details of California agriculture and all the information as to the advantage which his bureau can be to California agriculture, but Dr. Marvin has wonderful powers of observation, and we doubt not our service will be greatly benefited by his visit. Another week the Cultivator will give some of the details of the weather bureau's work in this state.

COOPERATION OVERWORKED

"Recently I heard a good fruit man say, 'The word cooperation has been overworked.' I do not think so. It has won popular confidence to such extent that even the competitors of the Florida Citrus Exchange are using it to prevent cooperation among us.

"I have recently visited New York, Philadelphia and Washington, and looked into the citrus fruit condition there. In each of these cities practically every car of California fruit is handled by one man and in one place. That is cooperation.

"In each of these cities Florida fruit is handled by many men through many channels, and so not only is in competition with California fruit but is in competition with itself."

The above is from an address to fruit growers of Florida by President Ross of the Florida Citrus Fruit Exchange. Florida growers have not been organized as long as have those of California, and it is not to be wondered at that in the present time of poor marketing conditions there should be great unrest within the ranks of the exchange. The cooperators of California are watching with great interest conditions in Florida, for the exchange there received most of its inspiration from the success of the California growers. Besides we believe that fruit marketing conditions will be better by the Florida growers remaining within cooperating ranks. As President Ross says, those who are not cooperating are putting their fruit in competition with their neighbors'. It is unthinkable that California citrus growers should ever dispense with their organization, but if there are those within its ranks who are not fully satisfied with present conditions, they may well look at Florida's experience for an indication of what will occur should the greatest cooperative organization of this state be seriously weakened.

Agricultural Notes

The United States is the best customer for Greek olives.

Texas onion shipments will probably total 3500 carloads. More attention than ever before is being paid to packing and grading.

The demand for American agricultural machinery in Canada has fallen off seriously this year, presumably because of war conditions.

Eggs arriving in San Francisco from China during 1914 numbered 1,640,385 dozen, worth $193,147; also $63,622 worth of preserved eggs.

The importance of the cattle and sheep business of Australia can be seen at a glance. The country feeds approximately 11,500,000 head of cattle and 83,250,000 of sheep under normal conditions.

It is interesting to note to what extent so far the war has prejudicially affected the oversea trade of Australia. We learn that imports have shrunk by some $55,000,000 in value, whereas exports have declined by some $120,000,000 since July last, or a falling off of $175,000,000 in aggregate trade.

The shipment of wheat, flour and a large number of other agricultural products and commodities from Canada to the United States has been prohibited, it was officially announced recently except where such shipments are intended solely for domestic consumption in the United States and not for reshipment abroad.

The longest flagstaff produced in British Columbia will be forwarded to Great Britain as a present from the provincial government and will be place in the Kew Botanical Gardens, a few miles out from London. The tree from which it was made was a perfect specimen of fir pine, and the staff, which is 216 feet long, is without flaw or defect.

The Rogers Pass five-mile tunnel under the Selkirk Range, now under construction on the Canadian Pacific route, will be the longest railway tunnel on the American continent, the longest at present being the four and three-fourths-mile Hoosac tunnel on the New York Central. The $10,000,000 Rogers Pass tunnel will shorten the route four miles and materially reduce the grade.

Eighty-three head of Corriedale sheep representing the first importation made by the bureau of animal industry of the United States department of agriculture from New Zealand, left Woodland, California, recently for Wyoming where the government will use them in experimental work. They have been held on a Woodland ranch for several months to become acclimated.

American canners are taking an interest in the rapidly growing imports of tomato paste, or sauce, from Italy, and it is not unlikely that efforts will soon be made to keep at least a part of this business at home. The total imports of the paste in 1913 were valued at $2,801,974 and weighed approximately 13,000 tons. The tomato product imported into this country from Italy is made by crushing the tomatoes, straining out the skins and seeds and reducing the pulp to about one fourth its original volume by evaporation in vacuum boilers, although for special purposes it is reduced to as little as one-twelfth. It is used in Italy in a great many dishes, perhaps the most familiar of which to Americans is spaghetti.

Agricultural News Notes of the Pacific Coast

Northern California

Plans are on foot to install a cannery at Orland.

The California Viticultural Association met in San Francisco Friday, May 21.

Articles of incorporation have been filed for the California Hop Growers' Association.

The National Lumbermens' Association held a convention at San Francisco May 13.

Farm Adviser Searls of Yolo County reports shot hole fungus prevalent in the orchards of that county.

President Robinson of Alameda County's farm bureau is urging farmers to enter exhibits at the Panama Pacific.

Horticultural Commissioner Stabler of Sutter County reports mildew very prevalent in the vineyards owing to the damp weather.

Two hundred and fifty thousand pounds of butter were shipped on one boat which left San Francisco last week for Australia.

Heavy spring rains have caused the Sacramento River to rise to the 24-foot, three inch mark, which is the highest since May, 1892.

Modoc County reports 60 per cent larger acreage planted to wheat this year than last. The greatest increase is in Goose Lake Valley.

All measures passed by the recent session of the legislature will go into effect on Saturday, August 7, which is 90 days after date of adjournment.

One shipment of over 33,000 olive trees was received in Marysville, Yuba County, last week. They will be set out in the Mission District near Honcut.

The Ashley-Chandler bill intended to force fruit standardization and an honest pack has been passed and it is claimed will be signed by the governor.

A farm bureau unit has been organized at Madison, Yolo County. Regular meetings will be held on the second Tuesday of each month. Byron Archer Madison, has been elected director.

Fruitmen of Placerville, Eldorado County, estimate that 400 carloads of pears, peaches and other deciduous fruits will be shipped from the Placerville section this year. This is 100 carloads over last season's shipments.

Oroville celebrates today the turning of the waters of the Feather River into the Western canal. This canal will bring irrigating water to 20,000 acres of land. All the nearby towns are asked to join in the celebration.

Farm Adviser Baade of Napa County has mixed a quantity of poisoned grain according to government formula and this will be supplied by the farm bureau to members at cost price to use in the fight against the squirrel pest.

The board of supervisors of Sutter County has passed an order requiring extermination of squirrels on all property in the county. Horticultural Commissioner Stabler has been appointed inspector, with authority to prosecute the work.

Central California

Tulare peach growers report an unusually heavy crop setting.

Automobile registrations for the state during the month of April numbered 7,813.

The engineer's report on the Lindsay-Strathmore irrigation project has been given out.

Monthly cream checks paid to Kings County dairymen the middle of the month aggregated $140,000.

The citrus growers of Tulare County are still much interested in the fight against the gray scale.

The Denair branch of the Stanislaus County farm bureau has announced a picnic for July 4 at Denair.

The Stanislaus County farm bureau anticipates the appointment of a farm adviser for that county on July 1.

Several experimental plantings of tepary beans have been made in the Oakdale section of Stanislaus County.

Word is being sent out to all parts of the state that there is no more need for men in the orange groves and packing houses.

In the southeastern section of the Oakdale irrigation district of Stanislaus County over 1,000 acres of beans are being planted.

A large amount of newly processed fruit has just been shipped by the Tulare County board of trade to the San Diego exposition.

A special stock train of 23 cars was required to handle the spring shipment of steers from the Gill Brothers' Ranch near Exeter.

At a mass meeting of orange growers, held at Lindsay, Saturday, May 15, the Citrus Protective League of Tulare County was organized.

The government is advertising for bids to furnish 200 pure bred Shorthorn heifers and ten pure bred bulls for the Tule River Indian reservation.

Bakersfield has adopted the city manager plan. The position will be filled by Wallace M. Morgan, for many years editor of the Bakersfield Morning Echo.

The late rains have done much damage to the watermelon and cantaloupe crops in the Dinuba section of Tulare County. Some replanting is being done by growers.

A new freight schedule on dried and canned fruits has been requested of the interstate commerce commission by the Southern Pacific. The new schedule will lower prices.

At the May meeting of the Santa Clara County Pomona Grange reports from various fruit districts indicated that the coming crop of deciduous fruits will be as follows: Prunes, 60 per cent of normal crop; apricots, 63 per cent; apples, 70 per cent; cherries, 40 per cent; pears, 57 per cent; peaches, good.

The San Joaquin County Almond Growers' Association held its annual meeting at Lodi Friday, May 14. All the old officers were re-elected. They are: F. M. Cramlett, president; A. S. Lasell, vice president; T. A. Botts, secretary and treasurer. A. S. Lasell was elected to represent the local association in the California Almond Growers' Exchange.

Southern California

The sugar factory at Anaheim has contracted for about 14,000 acres.

One cotton gin at Calexico ended the season with a record of 5,700 bales.

A large acreage is being planted to beans in the Talbert section of Orange County.

Brawley, Imperial County, is now making shipments of apricots and cantaloupes.

Boys of the Fillmore high school agricultural club are talking of holding a capon feeding contest.

The Covina Farmers' Club held a picnic at Sawpit Canyon, north of Monrovia, Saturday, May 15.

Some carload shipments have been made from the newly constructed Fontana orange packing house.

Orange County reports a very large walnut crop in prospect. Considerable blight is showing in the orchards.

Manager Brock of the Heber Date Gardens expects a date crop at least three times as large as last year's.

Three carloads of cotton were shipped from Calipatria, Imperial County, to New Orleans last week.

The San Diego Floral Association held its annual spring rose show at the exposition grounds last Saturday.

The Inland Waterways Association of California will hold its semiannual congress in Los Angeles in September.

Cantaloupe growers of the Brawley district have not yet determined on a marketing plan for their this season's crop.

Dairymen of San Luis Obispo County expect that the rainy season will give them green feed for at least six weeks longer than usual.

The Protesilaus, a British steamer, sailed from Los Angeles harbor last week with 1,000 bales of Imperial Valley cotton, bound for Liverpool.

Heavy plantings of beans are being made on the big San Joaquin Ranch in Orange County. Several growers are planting between rows of young trees.

The Ventura County farm bureau will hold its annual meeting at Foster Park Saturday. There will be a basket picnic and a program in the afternoon.

The Santa Barbara and Carpinteria walnut associations have been sold out for several weeks. The growers of that section fear that nuts are setting too thickly for quality.

The Beaumont Fruit Growers' Association at its recent annual meeting elected the following directors: N. C. Beebe, R. N. McCahn, Frank Doughty, R. D. Rosenberger, L. B. Storer, K. R. Smoot and W. J. Dwyer.

The sixth meeting of the chamber of commerce of Northern San Diego County was held at Fallbrook, Wednesday, May 12. There was an attendance of 400. The next meeting will be held at Escondido June 9.

Peach growers are somewhat worried over the fact that buyers have not yet appeared for the canneries. High price of sugar and big carry-over from the 1914 pack are reasons assigned for backwardness of the canners.

The Coast

Portland, Oregon, will hold its ninth annual rose festival June 9-11.

One hundred thousand sheep are being sheared at Brogan, Oregon.

Prescott, Arizona, will have a Frontier Days celebration July 5-7.

It is reported that the prune crop of Lane County, Oregon, will be short.

Several large clips of wool have been sold at Arlington, Washington, at 25 and 26 cents.

Aberdeen, Washington, reports a forest fire near Montesano which destroyed some timber.

The Inland Empire Jersey Breeders' Association held its first annual sale at Spokane, May 10.

Many sugar beet and potato clubs have been organized among pupils of Boxelder County schools in Utah.

San Simon, Arizona, has formed a local branch of the Arizona Farm Improvement Association with Guy Sisson as president.

Wheeler County, Oregon, has a newly appointed county agriculturist in the person of Orren Beaty. Mr. Beaty's headquarters will be at Fossil.

The Inland Empire of Washington had a severe rain and snowstorm the first of the month. Walla Walla reports two feet of snow on the higher elevations.

The Oregon mohair season was brought to a close by the sale of the Lebanon pool of 20,000, which went at 33 3-8 cents. This was the highest price paid this season.

Phoenix, Arizona, has been suffering from a plague of grasshoppers. Residents requested the city council that street lighting be descontinued during the prevalence of the plague.

The North Pacific Fruit Distributors has issued a bulletin to all locals calling attention to the fact that berry crates must be stamped with weight of contents to comply with federal law.

The Cashmere (Oregon) Fruit Growers' Union averaged for its members this year 69 cents per box for apples; the Medford Association, 61 cents, or an average for a five-year period of $1.04.

The Northwest Shippers' League and the Northwest Growers' League recently assembled at Spokane and adopted rules for packing and grading apples. The grading of other fruits was also discussed.

Announcement has been made by the Southern Pacific Railroad that there will be no advance in minimum weight of carloads of canned goods to Eastern markets. The minimum will remain at 40,000 pounds.

The Washington Farmers' Union will hold its annual state convention in Spokane, May 25-27. Officials expect an attendance of 2000. The president of the National Farmers' Union will be among the speakers.

The governor of Arizona has raised the quarantine on live stock from Colorado, New Mexico and Texas, also on grain from those states. It will not even be necessary to have certificate of state veterinarian on cattle shipments.

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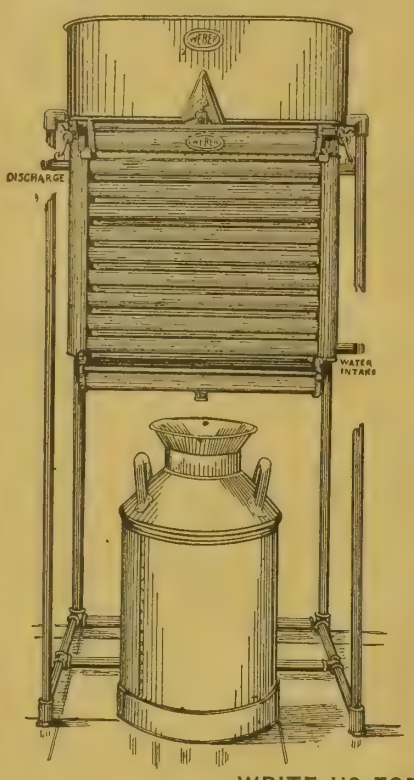

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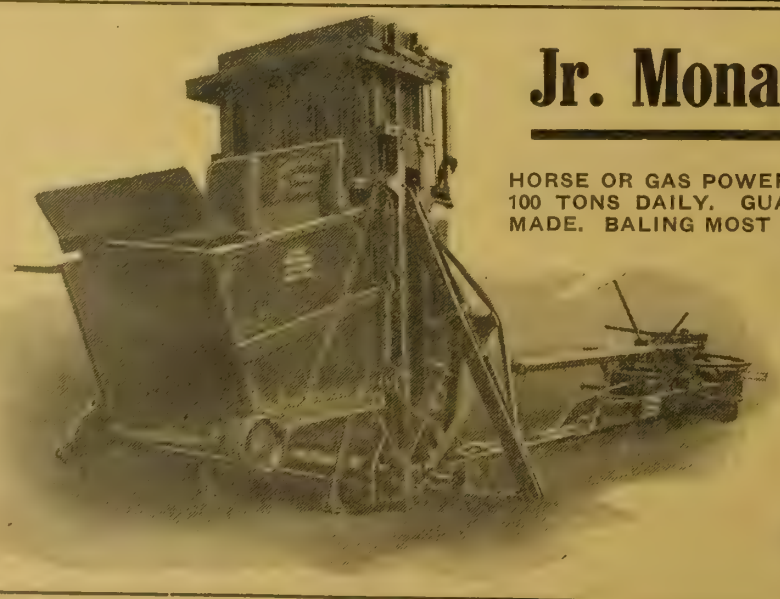

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Live Stock and Dairy

A COSTLY CONTEMPT.

THE old Bible speaks of certain men "who know more than seven men who can render reason." All the time is the truth of this saying being demonstrated in regard to tuberculosis in cattle. Herd after herd is killed that might nearly all have been saved had the owners been willing to do those things that experience has demonstrated must be done to keep a herd free from this disease. The trouble comes in most instances from a sort of self-willed contempt on the part of the farmer for the conclusions of science. Often expressions like the following will be heard when farmers converse with one another: "I don't take any stock in the tuberculin test." "The test isn't reliable." "We didn't use to have any trouble of this sort till the veterinarians got to stirring up this mess."

And so it goes that the farmer braces himself against a wise judgment and greatly to his cost in the end. He learns when it is too late that even if the tuberculin test is not absolutely reliable there is no doubt whatever that tuberculosis is a fearful reality. This sort of self-conceit, a disposition to discount in a great measure the real truth as it really exists, has cost hundreds of men their entire herds. And yet the work of destruction, as well as the same dangerous contempt of danger, is constantly going on and we presume will go on till the end of time.

"Safety First" is a motto in regard to other dangers that we read of constantly in the papers. There has been a frightful loss of life in all ways because of the lack of due caution. Before the days of kerosene, gasoline, automobiles, and a hundred other appliances of modern civilization, life was a much more simple, as well as safe, matter. And so it is with these contagious diseases in regard to live stock. As farmers we are liable to forget that just in proportion as we increase the live stock population do we increase the ratio of danger of contagion. When cattle and swine were comparatively few, as they were 40 years ago, we knew but little of tuberculosis, hog cholera, and foot and mouth disease. But we have greatly increased our live stock and so have increased our danger also.

We must incur expense in stable construction, in the use of dsinfectants, etc., that were not needed years ago. We must fill our minds with the right knowledge on these matters and be vigilant in the use of that knowledge or as sure as fate we will suffer in the end. Above all we must not take on a dangerous contempt for what science has to teach us. We must know more, do more, and exercise more caution than we have in this matter, especially of tuberculosis in cattle. And we will find in the end that it pays in a financial way to know and do all these things that make for the health and efficiency of our dairy cattle.—Hoards Dairyman.

PACIFIC INTERNATIONAL EXPOSITION

Among the very many activities of the department of live stock of the Panama-Pacific International Exposition which have for their object the showing of the utility side of the live stock industry, there is none perhaps which will appeal to a wider range of clients than the milk show which will be held by this department in Congress Hall, June 14 to 19, 1915. Classes and prizes are provided as follows:

City Board of Health Class, Milk and Cream—Gold medal for the largest total number of regular exhibits of milk and cream. Gold medal to the board of health and $100 in gold to the chief dairy inspector having the highest average score of ten regular exhibits of milk or cream, regardless of class.

Cream Dealers' Class—For the highest average score for ten or more producers, first prize gold medal; second prize silver medal. A special prize to the dealer having the greatest number of producers exhibiting in the market cream class, a medal of honor.

Milk Dealers' Class—For the highest average score for ten or more producers, first prize gold medal; second prize silver medal. Special prize to the dealer having the greatest number of producers exhibiting in the market milk class, a medal of honor.

College and Experiment Station Milk Class—For the highest scoring milk in this class, first prize gold medal; second prize silver medal; third prize bronze medal. Special prize for the highest scoring milk or cream in the college and experiment station contest, regardless of class, a medal of honor. All exhibits receiving a score of 90 or more will be given a diploma of merit.

College and Experiment Station Cream Class—For the highest scoring cream in this class, first prize gold medal; second prize silver medal; third prize bronze medal. Special prize for the highest scoring milk or cream in the college and experiment station contest, regardless of class, a medal of honor. All exhibits receiving a score of 90 or more will be given a diploma of merit.

Pasteurized Milk Class—For the highest scoring cream in this class, first prize gold medal; second prize silver medal; third prize bronze medal. Special prize for the highest scoring milk or cream in the pasteurized contest, regardless of class, a medal of honor. All exhibits receiving a score of 90 or more will be given a diploma of merit.

Pasteurized Cream Class—For the highest scoring in this class, first prize gold medal; second prize silver medal; third prize bronze medal. Special prize for the highest scoring milk or cream in the pasteurized contest, regardless of class, a medal of honor. All exhibits receiving a score of 90 or more will be given a diploma of merit.

Market Milk Producers' Class—For the highest scoring milk in this class, first prize gold medal; second prize silver medal; third prize bronze medal. Special prize for highest scoring milk or cream in market contest, regardless of class, a medal of honor. All exhibits receiving a score of 90 or more will be given a diploma of merit.

Market Cream Producers' Class—For the highest scoring cream in this class, a first prize gold medal; second prize silver medal; third prize bronze medal. Special prize for the highest scoring milk or cream in market contest, regardless of class, a medal of honor. All exhibits receiving a score of 90 or more will be given a diploma of merit.

Certified Cream Class—For the highest scoring milk in this class, first prize gold medal; second prize silver medal; third prize bronze medal. Special prize for the highest scoring milk or cream in the certified contest, regardless of class, a medal of honor.

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All exhibits receiving a score of 90 or more will be given a diploma of merit.

Certified Cream Class—For the highest scoring cream in this class, first prize gold medal; second prize silver medal; third prize bronze medal. Special prize for the highest scoring milk or cream in the certized contest, regardless of class, a medal of honor. All exhibits receiving a score of 90 or more will be given a diploma of merit.

Medical Milk Commission Class—To the commission having the highest scoring sample of milk or cream in the certified milk or cream classes, a medal.

To the commission having the highest average scoring for three or more regular exhibits of milk or cream in the certified milk and cream classes, a medal.

Entries are required on the official entry blanks which will be furnished on application to the department of live stock. All shipments of milk and cream must be made by prepaid express, addressed to President of the Panama-Pacific International Exposition, in care of the Dairy Delivery Company, 3550 Nineteenth street, San Francisco, Cal.

All specimens entered in the various classes must be produced on Monday, June 7, 1915, and shipped at once, if from the United States or Canada. Exhibitors not residing in the United States or Canada may secure their milk or cream at a date which will enable them to deliver in San Francisco not later than June 12, 1915.

LICE ON HOGS.

No good stockman will maintain hogs or any other kind of animals that are being constantly worried with lice, says Dr. R. H. Williams, animal husbandman of the University of Ariona agricultural experiment station. Hogs in the Southwest are especially troubled with these pests. The lice creep around on the skin causing considerable uneasiness as well as loss of blood. They are reproduced by the adults laying eggs, or "nits," that become attached to the hair where they mature.

Treatment

There are many ways of treating hogs to eradicate lice. The common methods is to corner the pigs with two hurdles and apply crude oil by means of an old broom. Kerosene and lard made up in equal proportions also makes a good preparation to be aplied in this manner. Sometimes an oil can is used to pour kerosene along the backs of the hogs. This is splendid for killing lice, but it is too active as it will remove the hair and blister certain parts of the skin.

Automatic devices which allow pigs to rub against an oiled surface have been placed on the market. The pigs soon learn to rub the portions of the body affected by lice against the oil which will kill the insects. This plan requires no time after installation except to keep the reservoir filled with oil. The medicated hog wallow has been recommended by some stockmen. This consists of pouring crude oil on the surface of the hog wallow.

The best method for destroying lice is to select a standard coal tar disinfectant and make this up according to the directions of the manufacturer. This should be placed in a dipping tank and all hogs treated. It has been found that three per cent creol, five per cent zenoleum or a kerozene emulsion will make especially useful dips. All hogs should be treated at least once a year and special care exercised to make certain that the brood sows are free from lice before farrowing. If this method is followed it will be unnecessary to dip the young pigs. To exterminate lice during cold weather it is best to use crude oil as this will not cause the animals to take cold. Some recommend the use of common sulphur which they spread in the hog's bed. This will be melted by heat of the body coming in contact with it which will cause sulphur fumes to arise, thus killing the lice.

It must be remembered that the various forms of treatment previously recommended will not destroy the eggs. One should treat a second or possibly a third time to make certain that all nits have been killed. The length of time between dippings should vary from four to eight days, the shorter time being allowed in summer when the eggs mature most rapidly.

This is a simple means of improving the quality of the animals and increasing the profits. If farmers would combine to eradicate lice and other parasites, they would obtain much better returns from their feed and animals would develop more satisfactorily. It is possible to exterminate lice by a hearty cooperation among stockmen of any district.

SHADE FOR PIGS

Too much emphasis cannot be placed upon the necessity of having suitable shade for pigs as well as suitable yards, pastures and water, advises G. W. Barnes, Livestock Specialist of the University of Arizona Agricultural Extension Service.

No great amount of expense is necessary for the construction of the shade, but it is well to plan so that the pigs may secure pasture and water and be surrounded by sanitary conditions. The chief requisite in the construction of shade is to have it as cool as possible in the hot summer months. To effect this purpose it would be well to have the shade so constructed that it is open on all sides and so situated that water may be sprinkled under shade in the middle of the day—not enough to make a mud puddle but enough to keep it cool and damp. This shade may be constructed by taking ordinary fence posts; set these two or three feet in the ground and about 8 feet apart. Fasten them together at the top by 2 x 4's; stretch and nail hog wire to and between these 2 x 4's; cover with straw or hay. This makes the best kind of shade. Movable shade may be made upon the same plan, except do not put the posts in the ground but fasten them together at the bottom by 2 x 4's or 2 x 6's, and make these so that a team may be hitched to them, thus enabling the farmer to move the shade from one pasture to another.

HOLSTEIN-FRIESIAN ANNUAL

The thirtieth annual meeting of the Holstein-Friesian Association of America will be held at Syracuse, New York, June 2. Of course there will be reports from various officials, including the superintendent of advanced registry, who is Mr. Malcolm H. Gardner, Delavan, Wisconsin. There will be resolutions touching upon foot and mouth disease, upon state and local Holstein-Friesian clubs and the tariff on milk products. The present officers, most of whom it is presumed will be re-elected, are: Treasurer, Wing R. Smith, Syracuse, New York; secretary and editor, F. L. Houghton, Brattleboro, Vermont; superintendent of advanced registry, Malcolm H. Gardner, Delavan, Wisconsin.

Much has been written on the importance of weighing the milk from each cow so that the poor ones may be discovered and sold. It may seem quite a task to weigh and record each cow's milk at every milking, but it really takes very little time and after one gets in the habit of doing it he will find it more of a pleasure than a task. If one really likes cows and is in dairying for profit—and no man should go into the business expecting any profit unless he does like cows—he will not grudge the little extra labor of weighing and testing each cow's milk.

Since mother is the most important personage in the house because of her influence, vacation, rest and recreation are of paramount importance. The children will love her better and she will have a greater influence for a happy home life if she be given ways and means of seeing more of people and of life in other neighborhoods.

Men seldom do their best until forced by necessity to do great things. This is why in ordinary times there are so few to undertake great things. In times of a crisis in a system of crop growing every one should do his best to meet conditions and bring greater prosperity.

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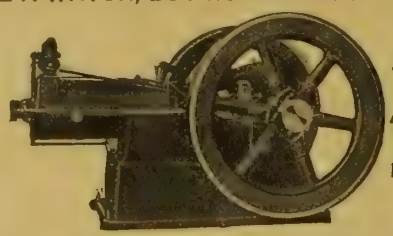

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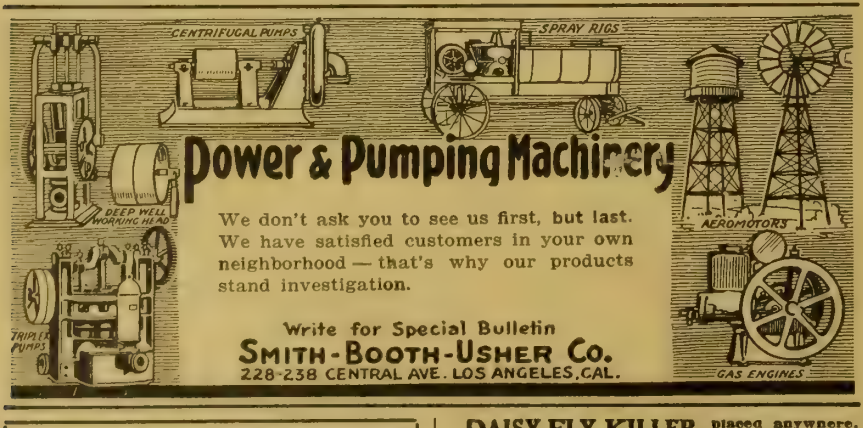

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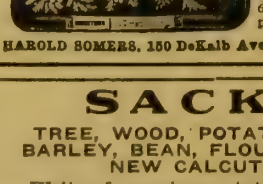

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Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Frost Injured Corn and Potatoes

A subscriber inquired some time ago as to probability of plants growing which had been seriously injured by frost. The matter was referred to an old-time farmer and he says that both corn and potatoes which are not more than three or four inches high will often recover without apparent damage.

Blasting

Have a ten-year-old orchard which I wish to blast. A black abode soil is underlaid at a depth of from three to four feet with hardpan. How far from trunks of trees will be safe to place the blast? Have been told four feet.—Subscriber, Sonoma.

When one contemplates blasting we would recommend obtaining from the company supplying the dynamite or powder complete instructions for its use. In a word, however, we may say that best results are obtained by blasting when ground is dry. Usually in the case of trees it is done at intervals, blasting one side only at a time. Four feet would be rather close unless a small charge was used, say one-half stick or less of 25 per cent dynamite.

Rat Exterminator

Mrs. Laura J. Jones of Gilroy writes in answer to a request for information as to extermination of rats that she has been informed that Azoa, which is a rat virus, is excellent for reducing the pest. This is a proprietary article put up by Parke, Davis & Co., and we doubt not if used according to directions will aid in wiping out the pest. It is supposed to work on rats and mice and is not injurious to human beings, poultry or other animals.

Fertilizing Alfalfa

Please advise best fertilizer to use on alfalfa after it is up. Cannot obtain stable manure. The land has been in grain for years without being fertilized.—Subscriber, Escondido.

The best suggestion we can offer in this case is to use complete commercial fertilizer. However, we doubt not the greatest need of your land is vegetable matter and that could only be secured by applying stable manure or some other coarse material. This is a case where the planter has an opportunity to do some practical experimenting, for the use of a commercial fertilizer in a strip across the field or in the entire field, save for a strip across it, will show the difference between fertilized and unfertilized land.

Little Leaf

Planted peach trees this season which have not leafed out as they should. They were of thrifty stock. Whitewashed them to prevent sunburn. Would this prevent growth?—Subscriber, Hemet.

See article on Little Leaf on page 511 of the Cultivator of April 29.

Black Eye Beans

What is the botanical name of the ordinary Black Eye bean?—Subscriber.

The Black Eye bean is botanically a cow pea, the scientific name of which is Vigna Unguiculata.

Weevil

When is the best season to plant beans to discourage weevil?—Subscriber.

Concerning the control of the bean weevil by varying the season of planting it has been our experience that very little can be done for the control of the insect in this manner. Since the bean weevil breeds during the entire summer in the field, a new brood being produced at intervals of about 60 days, it is found that the insects are present to damage the crop regardless of the season at which they are planted. However, beans which are planted rather early in the season because of the smaller number of insects present at this time of the year are not so apt to be seriously damaged as those planted later in the season. The most effective means of control known for the bean weevil is to use clean seed. If at harvest time any insects are discovered in the beans they should be fumigated with carbon bisulphide. If this is thoroughly done the work of the insect can be largely controlled and clean seed will be insured for the next year's crop. Some growers immerse their seed in a tub of water just before planting and skim off the badly damaged seed which float to the surface. It has also been suggested that the seed be heated to about 131 degrees Fahrenheit, which will destroy any insects which may be present.

Tainted Eggs.

Two of our hens lay brown eggs which have an awful odor when boiled. Eggs are gathered every night. Can you tell me the cause?—Subscriber, Gilroy.

What have your hens been eating? Onions, garlic, fish, and almost any strongly odorous food will taint the eggs if eaten in large quantities. Some times an egg that is perfectly fresh and sweet will absorb such odors from without. Have you used anything about the nests that might taint the eggs or have they been in a close closet with something of this sort? Are these two hens with others that lay normal eggs? Do they have range or are they confined? The pale color of the yolk indicates lack of green feed but gives no clew to the cause of the abnormal odor. I think if you confine these hens for a few days and see that they eat nothing that can possibly taint the eggs and that the eggs are kept where they can absorb no odor, you will find the eggs becoming normal again.—J. A. K.

Black Beetle.

Can you tell me what will destroy a black beetle about one inch long and with four legs, a sharp head and nose? When I was a child we called them stinkbugs. When disturbed they stick their heads down to the ground. They are destructive on crops here, nearly as bad as gophers. Can you tell me how I can get rid of them? This is the first year they have been so destructive.—Subscriber, Carpinteria.

If you will examine more carefully the bugs to which you refer you will find that like all insects they have six legs. The best treatment for these old-time stinkbugs, cabbage bugs and burrower bugs, all of which belong to the pentatomidae family, is hand-picking and destroying. In order to catch them with least labor place large leaves, boards or other covering loosely on clods on the ground and they will gather under this during the heat of the day, when they may be picked up in large numbers. Paris green spray used on the plants will help to a certain extent but this is not so sure as hand picking.

Mash For Laying Hens

Is the following formula a good one for making hens lay when used in connection with either barley or milo night and morning for the grain part or the ration? The mash to be before the hens all the time: 80 pounds bran, 10 pounds feed meal (corn), 6 pounds blood meal, 17 pounds alfalfa meal. When, what month, is the proper time to commence getting the hens ready for the forced moult in order to have them ready to commence laying again in September or October?—Subscriber, Chino.

(Continued on Page 619)

Poultry for Profit

"SAFETY FIRST" FOR BABY TURKEYS.

Written for the California Cultivator
By Jean A. Koethen.

THE great mortality among baby turkeys seems to be due, generally speaking, to two things: a widespread misconception as to their real needs; a certain predisposition of the poult itself to "liver trouble," which is simply another name for blackhead disease. Why this should be so I do not know. Whether it is as some have held because of the very common practice of inbreeding or because of the still more common practice of breeding without regard for vigor or because turkeys have been from the beginning raised with chickens and on the same feed, the fact remains that poults must always be fed with due regard for their livers.

Rules are stupid things, but it is possible perhaps to lay down a few fundamental principles which may be a sort of guide for those who want to save their baby turkeys. If I were formulating such a set of principles I should write:

Keep Turkeys away from Chickens.

The reason for this was given quite fully in a previous article. The parasite which causes blackhead in turkeys often exists in the intestines of chickens without apparently affecting their health. These coccidia are voided in the droppings and become a source of great danger to turkeys of all ages. Turkeys should not only be kept away from chickens but they should be on absolutely clean soil. If chickens have been in the same place the soil should be purified by having a crop grown upon it for at least six months.

Feed Less than Poults Want.

Whether or not the coccidia which induce blackhead are already in the system, the amount fed has a very large influence upon their development. Overfeeding clogs the digestive organs and gives opportunity for the immediate development of these troublesome parasites. Underfeeding, that is, what seems to us underfeeding, and especially the feeding of cottage cheese, onion tops, chopped onions and lettuce, has a tendency to check the development of the parasites, and if the poult is tided safely over the first two or three months it has, so to speak, a chance for its life.

Now it is very easy to say, "Keep them hungry," but nothing is harder. Little poults are so hungry, so confiding, and the little they can digest is so very little that we are all bound to fall into the same ditch unless we keep a very firm hand on the reins.

The Rhode Island station says, "Prepare what you think the poults should have and then feed half of it or less." This is a pretty good rule, but a bit indefinite. Last year I began with a teaspoon of feed for ten turks, increasing the amount as slowly as they would let me. This year I am trying to hold myself down to the teaspoon rule and also to follow another, which is however much I offer, to remove it while the poults are still ravenously hungry. In order to do this it is necessary to feed out of the hand, and this is the method of feeding recommended by the government. It has the advantage of keeping the poults tame and gives the feeder opportunity to watch them and to take his hand away as soon as the edge of their hunger has been dulled, but it is not easy, not a bit easy. When the poults follow me, crying for more as I leave them, I feel pretty sure they have not had too much, but I may be mistaken even then. The fact is the only way to know positively that you have not fed too much is like the test for mushrooms. If the poults die you know they have been overfed; if they live they have not had too much.

Feed Cottage Cheese Every Day.

I feed it these first three weeks three times a day, mixed with chopped onion tops, stale bread and cracked wheat or pinhead oatmeal. Some breeders are successful with hard-boiled egg, chopped, shell and all, with stale bread or rolled oats; others with a ration of small grains, but the majority find cottage cheese necessary, and the Rhode Island station considers it almost essential. The cottage cheese seems to take the place of the bugs and worms the poults would find on good range and at the same time holds the blackhead parasite, if it is in the system, in check.

Feed "Little and Often."

Some breeders feed only three times a day, but there seems to be less danger of clogging the digestive organs if food is given oftener and in smaller amounts. I feed five times a day the first three weeks. Last year I gave the same food at each meal. This year after the first week I began giving chopped lettuce and onion at the mid-forenoon and mid-afternoon meals, and the cottage-cheese-cereal mixture morning, noon and night. I know a woman who keeps bran and charcoal in a pan before her poults from the first and another pan of clabbered milk which they may dip into as they will, and I do not see why such a ration with plenty of green and cracked wheat once a day should not do very well. Poults should be taught to eat grain from the first, but they must have greens and sour milk in some form.

Look Out for Lice.

I have never seen a turkey louse myself because I keep my hens and poults well dusted. When dusting is neglected, as it is apt to be in large flocks, lice will kill poults as quickly as over-feeding. If hens and poults are dusted once a week there should be no trouble.

Keep Them Dry.

Overfeeding, lice and dampness are the evil trinity of baby turks. Keep them in when the grass is wet in the morning. Protect them well when it rains. See that they have a board floor under their feet in the coop.

Grit and Greens at Every Meal

Even more than chicks do baby turks need grit for grinding their food. Even more than chicks do they need green feed to keep the liver working as it should. Chopped onion tops are the traditional green feed for turkeys and they are cheap enough. Lettuce is second in value, if not equally good. Alfalfa range as they grow older is invaluable. The Rhode Island station says green food and sour milk are the only feeds which may be given turkeys ad libitum and that they will do well on these and nothing else. The poult that is on good range with a turkey mother picks its grit and greens at every step, a nibble of grass and a grain of sand, then a nice, jucy bug or grasshopper. If we imitate this way of feeding we shall not go far wrong.

Never Confine Poults.

The second day after mine are hatched they are put with the chicken hen that hatched them in a coop to which is attached a wire run. The first three days the mother is kept in the coop by a two-inch wire but the poults have the privilege of the run. As the poults come to need less hovering the mother is given the freedom of the run but one end is raised so that the poults may come and go as they will. A chicken hen walks too rapidly for young turkeys. When she is confined they always know where to find her and she cannot drag them into the wet grass or tire them with her scratching.

A live stock show will be held at Nez Perce, Idaho, June 23-24.

INFERIOR BIRDS IN BREEDING PENS.

We make a sad mistake by allowing those inferior, weak, small, droopy, slow-maturing females in our breeding pens and expecting to get rapid growing, early maturing broilers and winter laying pulets. This is a practice too often noticed among our poultrymen and is the worst thing we can do because these inferior hens will produce inferior offspring, provided you get the eggs to hatch (and it is lucky for you if you do not). These poor eggs will take up as much room as good eggs will. This accounts partly for the small hatches you so often get, as in eggs from this type of hen the chicks very frequently die in the shell. Those that do get out will not grow fast, and a large per cent will die. If there are any disease germs flying around they will be sure to catch them and give the disease to the strong, healthy chicks. And if you finally succeed in getting them to the point where they might be expected to give some return for the time and energy expended they will not respond.

J. A. Helmreich, who has charge of the poultry plant at the Colorado agricultural college, says: "In my experience pullets hatched from poor hens grow slowly and do not mature until after cold weather sets in. Consequently they do not lay until spring, and then only for a short time, while pullets hatched the same time, fed the same feed and sheltered in the same house, from strong, vigorous hens, hatched six months or so before cold weather, will lay the greater part of the winter, throughout the spring and part of the summer. Then after moulting in the fall they start on another profitable year of egg production."

Mr. Helmreich also suggests that you select your breeding stock in the following way: Mark those hens which are the first off the roost in the morning and the last on in the evening; those good old hens which seem to be busy all the time, rustling for themselves in order to collect enough food to produce the eggs a good hen must produce and at the same time keep up the requirements of her body. Then get the cock bird who is "boss" of the flock and mate him with these hens. By doing this a large per cent of your troubles will be solved.

BLACKHEAD

A number of our neighbors are having poor results with young turkeys, they droop and die after about four weeks of age, do not seem to have much particularly wrong with them, but begin to droop in the morning generally and in three or four hours die. Examination shows diseased liver and intestines blackened and hard. Feed rolled oats, hard boiled eggs, ground up and entire egg fed, shell and all, plenty of green cut alfalfa and onion tops. Also feed each noon, only, cottage cheese blackened with charcoal. We have a bunch of turkeys coming on and wish to avoid the same trouble. Three of our neighbors have lost the larger percentage of their young turkeys in the above manner. One of these neighbors last year marketed about 500 and didn't have this loss with the young birds.

We are told the trouble is blackhead and is inherited from the gobbler.—Subscriber, Escondido.

Poults with "liver trouble," which is generally only another name for blackhead disease, always have some diarrhoea. Probably your neighbors' did, but it was not noticed, and in the end they seemed to die suddenly, though they may have been ailing a little for days. When turkeys die in this way it is safe to assume that they have been overfed, but by no means so easy to say just how much food they should have had. Last year I fed a teaspoon to ten turks five times a day, increasing the amount as they demanded it, but keeping them always ravenously hungry, and raised nine of the ten. This year I am going to reduce the number of meals to three after the first week, and give a little more, if necessary. The poults should be kept so hungry that they will hunt for food for themselves. This gives them exercise and

(Continued on Page 623)

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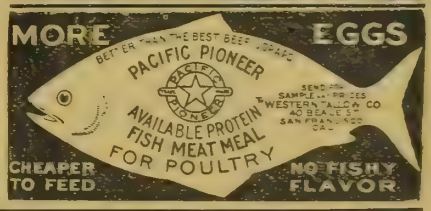

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Wanted—Reliable married man for citrus orchard work. Good man with team and should understand irrigation. References preferred. Twombly Ranch, Fullerton, Cal.

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Blatchford's Pig Meal weans pigs easily and safely; no trouble; no milk. Write for free folder, "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

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Pedigreed Duroc Jersey Boars or sow pigs —Extra fine. John Kincaid, Box 151, East Bakersfield, Cal.

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MISCELLANEOUS

Free for Six Months—My special offer to introduce my magazine "INVESTING FOR PROFIT." It is worth $10 a copy to anyone who has been getting poorer while the rich, richer. It demonstrates the REAL earning power of money, and shows how anyone, no matter how poor, CAN acquire riches. INVESTING FOR PROFIT is the only progressive financial journal published. It shows how $100 grows to $2200. Write NOW and I'll send it six months free. H. L. Barber, 430, 28 W. Jackson Blvd., Chicago.

For Sale—A well furnished creamery, equipped with two 600-gallon Jensen Ripeners; one No. 9 Simplex Churn, all new; other accessories and implements; located in one of the best localities in Imperial Valley. Must be sold for cash. Address C. B. Johnson, Calexico, or H. L. Welch, at El Centro.

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Belgians—Heavyweights. With or without pedigree; express paid. Old Hickory Supply Co., Dept. 4, Capitola.

QUESTIONS AND ANSWERS

(Continued from Page 616)

Bran is too bulky and at present too expensive to be made so large a part of the mash. It would be better to use middlings and ground barley instead of part of the bran, in equal proportions, and beef scrap or fish scrap instead of the more concentrated blood meal, adding extra protein in one of the vegetable meals. Your formula would then read: 20 pounds bran, 20 pounds middlings, 20 pounds ground barley, 10 pounds feed meal, 10 pounds alfalfa meal, 10 pounds beef scrap, 10 pounds fish scrap, or 20 pounds of either beef scrap or fish scrap. A little salt and charcoal. You can use either beef scrap or fish scrap or half of each, as in the above formula, or you might use 15 pounds of beef scrap and five pounds soy bean meal. The mash ration in use at the egg-laying contest at the exposition consists of five pounds bran, five pounds shorts, five pounds ground barley, three pounds meat scraps, two pounds soy bean meal, one-half pound charcoal, one-tenth pound salt, but cracked corn is used in the grain ration. When no corn is fed in the scratch ration it is a good plan with Leghorns to use a little feed meal in the dry mash, except in hot weather. The animal portion of the mash should be from 15 to 20 per cent.

I should not begin to prepare hens for the forced molt before the first of August unless you mean by "prepare" the cutting down of the ration of overfat hens, which may well begin with the beginning of hot weather. People who think it best to force the molt begin to starve the hens early in August when they should all be molting, but the plan is not highly recommended. It is easy to make hens stop laying but by no means so easy to make them begin again, and the safest plan seems to be to let them molt when they please. Feed them well right through the summer. Some will lay till November; others will molt early and get to laying early; others will lay right through the molt. Don't tamper with the laying hen.—J. A. K.

Rabbit Feeding.

My rabbits are very thin and seem to have diarrhea. Feed green alfalfa and keep pens clean.—Subscriber, Corning.

This question was referred to Mrs. J. M. Sevier who answers:

"Where looseness of the bowels occurs it is best to sprinkle a little sulphur with the grain; eliminate green food entirely for awhile and give about a teaspoon of Epsom salts in one-half pint water. Green food in quantity is always dangerous to the health of young stock and very unsatisfactory for fattening rabbits except when used very sparingly as an appetizer; in such cases a little cabbage, carrots, kale or chickory may be used each day—the latter being preferable as the rabbits do not overeat of it and it acts as an astringent rather than a cathartic. This, with plenty of dry alfalfa hay and a handful of rotted barley twice a day to each doe, plenty of clean fresh water and a lump of salt close by should constitute the diet of a perfectly healthy rabbit. There should be no limit to the amount of food given to the fattening stock providing there is of course no waste—"little and often" being a good policy to follow. The object is to fatten and turn your market stock as quickly as possible. Green alfalfa as a substitute for dry alfalfa hay is very unsatisfactory to those raising market rabbits, for it not only gives them bowel trouble but also makes the dressed meat soft and flabby and very unpleasing in appearance."

Curing Egg Eating

A subscriber at Glenn writes of having noticed an inquiry as to curing hens of egg-eating and says "We have never known a case that could not be cured by putting salt into soft food and giving the hens two or three meals of it. Use the salt in the same proportion as you would food for human beings."

Poults Blind

Have our first turkeys and the first hatch has four out of 16 blind. What causes this? What will prevent it? Can anything be done for the blind ones? They were hatched by chicken hens.—Subscriber, Merced.

Blindness in your stock, either chickens or turkeys, is usually due to roupy breeding stock. The only way to prevent it is to see that your eggs are from vigorous stock which has never been sick and that the male bird is not related to the females. A rundown condition in turkeys can always be traced sooner or later to the pernicious habit of inbreeding. If poults are really and entirely blind there is nothing to be done for them. If you have any doubt on this point you might try dropping a little of the ordinary boric acid solution in the eyes twice a day. Half a teaspoon of boric acid to a cup of warm water is the right proportion.—J. A. K.

Kidney Disease of Turkey

Turkey gobbler appeared droopy in morning, head turned black and in one day he died. Found rough, white coating in liver just as if it had been whitewashed.—Subscriber, Delano.

I think your gobler had what is known as visceral gout, a disease of the kidneys which is supposed to be due to a diet too rich in protein and lacking in green stuff. Death comes suddenly and the disease is not noticeable beforehand except by loss of weight. It would be well to give your flock a dose of epsom salts all round (one-half teaspoon per bird for full-grown stock), feed plenty of green food, which means all they will eat, and see that they exercise. Turkeys are quite inclined to stuff themselves with food and then loaf around in the shade.—J. A. K.

Feeding Poults

In feeding my young turkeys I give a mixture five times daily composed approximately of three parts onion tops, three parts rolled oats and wheat, one part hard boiled egg chopped together with sufficient charcoal to make mixture very dark. I keep water and granite grit before them; have no milk or alfalfa. The yard has burr clover. I try to feed enough so the crop will feel about the size of half a marble on a ten-day turk. I keep hen in coop, letting little ones run in the grass pen made of three 12-inch boards. When weather is fair I turn them out to range. They do well for eight or ten days, then get weak, have a thin white discharge, paste up behind and die in two to four days. They continue to eat until nearly dead but when examined there seems to be very little in the crop. The back part of the body seems to turn green and in some cases is swollen.—Subscriber, Merced.

I should not dare to feed as much as you are feeding five times a day. It might be all right to have the crops as full as this at night, but it is certainly too much for every meal. After I feed my ten-day-old poults I can hardly tell by feeling the crop that they have eaten anything. Two teaspoons for ten poults is enough at this age. It is a good plan to put a pinch of grit in the feed each time, then you are sure the poults eat it, which you are not if it merely stands before them. Hard boiled egg is not a very safe feed. Sometimes poults do well on it but it is hard to digest and often fatal. I would rather give dry bread moistened with milk and squeezed dry for the first feed. If I had no milk, sweet or sour, I believe I would rather take my chances with small grains (steel-cut oats and cracked wheat) or rolled oats, mixed with green, than with egg. I find cracked wheat bread when it is stale a very satisfactory food when used with the steel-cut or rolled oats. It is drier than white bread, and when chopped fine with the green stuff makes a wholesome and palatable ration. A mixture of one-third stale bread, one-third lettuce and onion tops and one-third cracked wheat and rolled oats, with a pinch of fine grit added would make a fair ration, but it lacks the animal food which you get in milk and egg and cottage cheese. To supply this lack you might after ten days or two weeks begin feeding a little liver, boiled and chopped fine. Mix it into the rest of the ration just a little at first. I do not see any use in feeding charcoal as many people do. A little is valuable as a corrective, but it has not the effect on the bacteria in the intestines that cottage cheese has nor is it necessary in digestion as grit is. I should not attempt to raise poults if I could not get cottage cheese for them. I have to buy it from the delicatessen stores, but when so little is fed it is not expensive, certainly not as expensive as losing the poults. A mixture of one-third green food, one-third cereal (grains and bread), and one-third cottage cheese, with the pinch of grit always added, makes an ideal ration, and if you do not feed too much you are pretty sure of raising your poults. I prefer lettuce and onion tops to onion tops alone.—J. A. K.

Globe Artichokes

Answering a query for information as to the growing of globe artichokes Mr. D. F. Reichard writes:

"Globe artichokes will grow on most any soil but seem to be more particularly adapted to heavy adobe. I consider planting them six feet apart better than closer. They may be grown from seed or from division of the roots. Seedlings are not always of the best varieties and the plants have to be selected as many of them will have spiny fruit which is not desirable. By using sprouts that come from the roots for resets your young plants will produce the same grade of fruit as the parent. These sprouts are taken generally the latter part of the summer when they have made at least two good sized leaves. By setting them out at this time the plant will be well established by winter and under normal conditions should produce a small crop."

Laying Out and Planning Farm

I have an 80-acre alfalfa ranch which I propose to make my home. At present there are no buildings on it. Before starting operations I wish to make a study of the proyer layout of the buildings, yards, orchard, garden, well, etc. It seems these things should be worked out and yet the office of farm management at Washington, D. C., is unable to aid me. Kindly advise through your paper what you have to offer as a solution of the problem. I expect to devote myself largely to alfalfa and stock raising.—Subscriber, Phoenix.

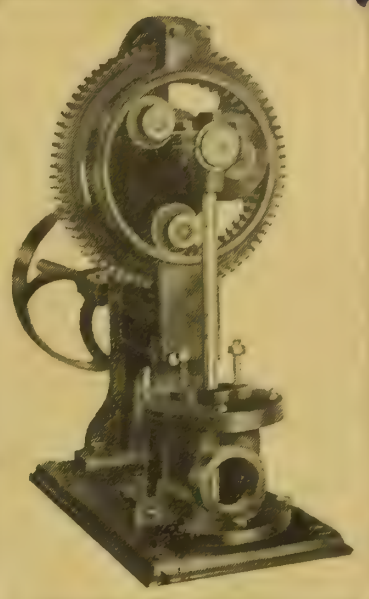
Of course it would be impossible to give any definite aid unless one knew the number and kind of animals, the amount of money to be invested and other essential points, but as a starter we would suggest getting in touch with the farm adviser of your county, who is James A. Armstrong, Phoenix; also with Stanley F. Morse, superintendent of the University of Arizona agricultural experiment station, Tucson. We notice in a recent issue of the Weekly Press letter reference to the work of Professor Morse and this statement:

"Many farmers are failing to 'make good' because they are continually jumping from one kind of crop or livestock to another in the hope of 'getting rich quick.' The surest way to success in farming in Arizona is to determine from the information and data available what type of farming is best adapted to one's local conditions, plan out the farm development for a series of years, and then to stick to the plan. Such a plan should take into consideration the farmer himself, the soil, climate, size of farm, market and transportation facilities and the farmer's pocketbook. It must be evipent to any one that the farmer who works along a certain definite farming plan is going to know more about the business than a farmer who changes his practive every year. The experts of the University of Arizona agricultural extension service and the agricultural experiment station are anxious to help farmers to prepare such working plans for the development of their ranches."

Cherries in Southern California

Will the cherry tree bloom and bear fruit in a climate similar to that of San Diego or Los Angeles Counties? If such a tree bore early, marketable fruit would it be profitable?—Subscriber, National City.

Of course it is impossible to say what cherries wil do under conditions afforded by these sections. We have not heard of cherry trees bearing satisfactorily in Southern California, excepting at a very few mountain localities, and we doubt not it will be many years before a variety will be found which will do well. However, we will be glad to hear from our subscribers.



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(California)
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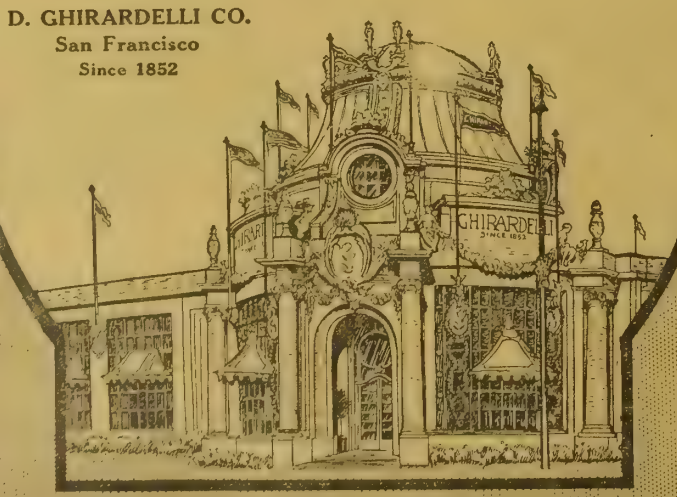
San Francisco
Since 1852



FRUIT GROWERS HEADQUARTERS

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Hill Street Between 4th and 5th.

Advertisements in California Cultivator are Guaranteed
See Announcement at Head of Editorial Page

The Household Department

FOR OUR DEAD—MAY 30.

I.

Flowers for our dead!
The delicate wild roses faintly red,
The valley lily bells as purely white
As shines their honor in the vernal light,
All blooms that be
As fragrant as their fadeless memory,
By tender hands entwined and garlanded,
Flowers for our dead!

II.

Praise for our dead!
For those that followed and for those that led,
Whether they felt death's burning accolade
When brothers drew the fratricidal blade
Or closed undaunted eyes
Beneath the Cuban or Philippine skies,
While waves our brave bright banner overhead
Praise for our dead!

III.

Love for our dead!
O hearts that droop and mourn, be comforted!
The darksome path through the abyss of pain,
The final hour of travail not in vain,
For Freedom's morning smile
Broadens across the seas from isle to isle.
By reverent lips let this fond word be said—
Love for our dead!

—Collier's Weekly.

A SOLDIER'S GRAVE.

During the civil war there was a good deal of irregular fighting—that is, the southern forces were made up of enlisted troops, aided by partisan bands, and citizens would occasionally take up arms for the southern cause. No unenlisted troops came within the province of civilized warfare, and during the struggle between the north and the south the question was constantly coming up as to the treatment of these partisans and citizens—whether they should be treated as prisoners of war or shot as illegitimate combatants.

Usually when a citizen was taken in arms, being brought before the officer in command, after a few words as to the case, he would say: "Take him away. I don't ever wish to see him again." This was understood as an order to take the prisoner away and shoot him. On one occasion when a citizen was captured and thus executed the Confederate commander on the other side of the line, taking the ground that the man who had been shot had recently been enlisted, resolved on retaliation by shooting one of his own prisoners of war.

"Take one of those two men captured this morning," he said, "and shoot him."

"Which one, general?"

"Whichever you please. I have no time to attend to trifles."

This sounds harsh, but in wartime human life is very cheap, and the responsibilities often resting upon the shoulders of a commander are a great strain upon him. The officer, not wishing to decide such a question, approached the two men, undecided as to what to do. He was not preoccupied, as was the general, by other duties. It was too cold blooded for one in his sober senses.

Then he bethought himself that he had only a verbal order for what he was about to do, and, turning, he went to the chief of staff and asked him to write out an order to shoot a prisoner in retaliation. The chief of staff rather than trouble the general with the matter consented, asking what name to insert in the order.

"Leave it blank," said the other. "I was ordered to shoot one of two men, and I shall decide which is to die by lot."

Having received the paper, Captain Claybourne, the officer who bore it, approached the men it concerned. They were sitting on the ground just outside the guard tent whiling away the time playing cards. Soldiers usually carried cards with them during campaigns as a preventive against homesickness or ennui when unoccupied.

"I am sorry to announce to you two men," said the captain, "that one of you is to be shot in retaliation for one of our men, accused of illegitimate warfare and shot by your people on the other side."

The two men looked up, for a moment not realizing what the speaker meant. When they did a slight shudder passed over both. They were Walter Treadway and Sergeant Knowlton. They had lived in the same town before the war and had enlisted in the same company, though Knowlton was ten years Treadway's senior.

"Which?" was the laconic reply of Knowlton, who first found his voice.

"That is to be decided by lot. I will

Try This Popular Recipe for Making Buckwheat Cakes

An Old Fashioned Recipe That Never Grows Old

From a little cook book compiled by one of the leading women writers of this country, on culinary subjects, we have selected the following old-fashioned recipe for making the kind of buckwheat cakes "that mother used to make." Try this recipe once, and we are sure "the folks" will demand its preservation for many future uses.

One quart buckwheat, ½ cup warm water, 1-3 cup Kingsford's cornstarch, 1 tablespoon Karo Syrup, 1 heaping teaspoon salt, 1 quart warm water, 1-3 yeast cake. Sift the dry ingredients together, soften the yeast in the warm water and add it and the Karo Syrup to the rest of the water. Mix with the buckwheat, beat 8 minutes and rise over night. In the morning add warm water to make thin enough to pour onto the griddle. Serve with Karo Syrup.

Karo Syrup is recommended particularly in this recipe, because experience has shown that as good results cannot be obtained with inferior syrups. Good dishes are often ruined by experimenting with ingredients of whose quality you are not sure. Karo can be obtained at all modern grocers. Insist upon it, and ask for the Karo cook book containing the above and hundreds of other valuable recipes.

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put a white and a dark stone in a hat. One of you, blindfolded, may draw. If he draws the dark stone he loses, if the white he wins."

Treadway was unable to speak, though he tried to say something. His companion said

"If you will permit we will play a game of seven up, the loser to die, the winner to live."

"As you please," said Captain Claybourne.

Knowlton took up the cards and dealt them. Treadway took up his hand, trembling as he did so. It required a great effort to control himself sufficiently to sort them. Claybourne stood looking on. As Treadway lost nerve Knowlton seemed to gain it. They were to play five games, the loser of three to be the loser in the game of life. While Knowlton had the self control to play the games fairly well, it was soon evident to the Confederate looking on that he was playing to lose. Once when the sergeant purposely played the wrong card Claybourne essayed to stop him, but a look from Knowlton deterred him. Knowlton won the first game: Treadway won the next three. The winner could not repress a long drawn sigh of relief, but relief accompanied by pain that his companion must die instead of himself.

Clapbourne marched Knowlton between two men to an unoccupied tent, where he suffered him to make preparations to die. The prisoner told the captain that he wished to write a letter to a girl in the north to whom he was engaged. Materials were furnished, and he wrote, stating the manner of his approaching death, making no mention of the fact that he had voluntarily given his chances for living to a companion. Claybourne received the letter, agreeing to take every precaution that it should reach its destination. Then he said to the man who was about to die:

"Were it not that my general is momentarily expecting to be slaughtered by your people I would make an effort with him to save you. When not under the strain of war he is as tender hearted as a girl. But with the welfare of his troops and the cause absorbing his whole nature he seems brutal. To intercede for you now would only accrue to my detriment and be of no service to you."

"I understand you perfectly," replied the other. "Goodby."

Half an hour later a volley was heard in a wood near by, and the body of Sergeant Knowlton was buried where it fell. Yet the volley was followed by a second—not customary in such cases—fired by Captain Claybourne's order over the grave of a soldier who has died without dishonor.

Some months later Treadway was exchanged, and, having, in addition to his shock, been ill in a southern prison, he was so disabled that he was discharged from the military service of the United States. When he reached home he was welcomed with tears by his family, while one of his sisters held him in her arms and looked at him with a strange, faraway look without tears. Presently she kissed him and went away by herself.

It was she to whom the man who had died for him had been engaged. Captain Claybourne in transmitting to her the last farewell of her lover had indorsed on it. "This man purposely became a loser in the game of life between him and his friend."

Not till after the war had ended did Treadway learn from his sister of the sacrifice in his behalf. Then he went south, exhumed the body of the man who had made it—the grave had been carefully marked by Claybourne's orders—and brought it north. After it had been deposited in its permanent resting place brother and sister for years made it an object of pilgrimage on every Memorial day. The brother, whose health had been undermined by his experiences in the south, lived but a few years. The sister, now a very old woman, contines on every Memorial day to place flowers on the grave of her soldier hero.

There could hardly be a braver act, no greater heroism, than for one, uninspired by the drum, the rattle of musketry, the boom of cannon, in cold blood—so to speak—to give his life for another. Yet today the only especial honor accorded on Memorial day to Sergeant Knowlton is the homage of the woman who inspired the act.—Credit Lost.

IDEAS FOR THE COOK.

Written for the California Cultivator By Isabel Cottle.

Breakfast

Raspberries
Calves Liver with Bacon
Baking Powder Biscuits Plum Jelly
Coffee

Lunch or Supper.

Shepherd's Pie
Baked Apples with Cream Rolls
Cream Sponge Cake Tea or Milk

Dinner.

Brown Chicken Potpie with Dumplings
Potato Puff Spinach a la Creme
Watercress and Cucumber Salad
Date Souffle Coffee

Brown Chicken Potpie with Dumplings

Select plump fowl, not too young, dress, cut up, wash and drain thoroughly. Place in kettle with about one quart of boiling water. Watch carefully, adding a small amount of hot water occasionally if needed and cook until almost tender, then remove cover and allow liquid to cook away. When nearly dry turn the pieces of chicken and allow to brown the same as pot roast. When nicely browned pour over sufficient hot water to make the desired quantity of gravy. Salt to taste. Add a generous lump of butter and thicken with flour rubbed smooth with a small amount of milk. Add dumplings, cover and cook for ten to 15 minutes without removing cover.

Dumplings.

Beat two eggs until light and add two cups of milk. Measure one cup of flour and sift with two level teaspoons of baking powder and one-fourth teaspoon salt. Stir into the egg and milk, then add enough more flour to make rather a stiff batter that will stand up on the spoon. Add two tablespoons melted butter and beat thoroughly. Drop in small spoonfuls on top of the chicken.

Spinach a la Creme.

Two pounds spinach, pepper, salt, and nutmeg to taste, two tablespoons butter, one-half cup thick cream or rich milk, and one teaspoon sugar. Wash and pick spinach, throw it into a pan of boiling water containing a little salt and soda; boil until tender, 10 to 15 minutes; pour on to a wire sieve and squeeze out all the water and cut up fine with a sharp knife. Put spinach into a saucepan, with seasoning, butter and cream. Reheat and serve.

Shepherd's Pie.

Chop one pound cooked meat, mix in two tablespoons breadcrumbs, one chopped onion, one tablespoon chopped parsley, one cup gravy, salt and pepper to taste, two tablespoons butter, one-half teaspoon powdered herbs, one tablespoon tomato catsup. Turn into fireproof dish and cover with a thick layer seasoned mashed potatoes. Brush over with beaten egg and dot with pieces of butter. Bake 20 minutes.

Date Souffle.

Stone and chop one-half pound dates and cook them in one-half cup boiling water, mashing until smooth. Add one tablespoon melted butter, stiffly beaten whites of five eggs, one-fourth cup sugar, one tablespoon lemon juice and salt to taste. Pour into buttered souffle mold and bake until brown, about 25 minutes. Serve cold with boiled custard or whipped cream.

Ants Easily Exterminated

By a Method As Simple As It Is Effective.

Even though you have tried without success many remedies for ridding your place of ants, do not despair—for a very simple yet effective method of relief is at your disposal.

Your case can be no worse than that of the Los Angeles baker, whose shop was over-run with ants to such an extent that he either had to get rid of them or go out of business altogether. After long experimenting he devised a paste which not only drove all of the ants out of his place in one day, but kept them out forever.

So great a demand was immediately created for this wonderful remedy that it was put up for general use under the name of Kellogg's Ant Paste. It can be obtained of all good druggists. Ask for a package today, and you will be surprised at the ease with which your ant troubles will be ended.

Facts About Cornstarch

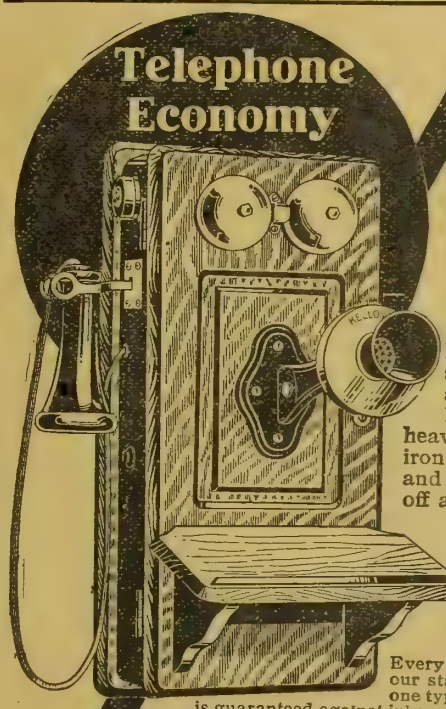
Valuable Information Regarding This Most Important Food Product

In a little cook book compiled by Emma Churchman Hewitt, formerly Associate Editor of the Ladies' Home Journal, and a recognized authority on culinary subjects, there is to be found most interesting information on the subject of cornstarch. It appears that many otherwise experienced cooks have a very limited knowledge of the possibilities contained in this delicious food product—with the result that where many cooks use cornstarch merely in the preparation of a few puddings and desserts, a thorough knowledge of its possibilities would result in their often using it a dozen times a day in all kinds of dishes.

It is important, therefore, that housekeepers should familiarize themselves with this most useful cooking ingredient—with a view to enlarging the scope of their cooking, as well as improving it.

It should be borne in mind, however, that there is a great difference in Cornstarch—and the best results cannot be obtained with inferior brands. Mrs. Hewitt states that her correspondence with housekeepers all over the country showed conclusively that those who had the greatest success with cornstarch recipes always depended upon Kingsford's.

Kingsford's can be obtained at all modern grocers, as can also a copy of the Kingsford's cook book referred to above.



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115 North Broadway, Los Angeles, Cal.

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Signed_____

Address_____

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, May 26, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade 3 to 4 cents above following quotations:

Creamery Extras 23
Firsts 21
Country 20
Ladle 19

CHEESE

Prices to trade, 1 and 2 cents higher:

California Fresh .....13@14
Cheddar .....19@20
Domestic Swiss .....20@21
Eastern Daisy .....18½@19
Oregon Triplets .....15½@16
Longhorn .....19@19½
Imported Swiss .....30@32
Tillamook .....16½@17

EGGS AND POULTRY

Prices to trade, 3 cents higher than following quotations:

Fresh Ranch, case counts 22
Candled .....24@26
Petaluma—Santa Rosa 24
Northern Case Counts 23
Other Outside Stock 20

Prices to producers:

Hens, lb. .....15@18
Roosters, old .....6@8
Broilers, lb. 17
Fryers .....23@25
Roasters, lb. .....20@24
Turkeys .....16@19
Ducks 15
Geese 14
Squabs, doz. 2.00

LIVE STOCK

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs., per cwt. 8.75
Prime Steers .....7¼@7½
Heifers .....6¼@6½
Calves, lb. .....8½@9
Sheep—
Ewes, head 4.50
Wethers 5.00
Lambs, head .....4.50@4.75

POTATOES

Wholesale selling prices:

Idaho Russet 2.40
Idaho Rurals 185
Sweets, lug .....85@90
New Early Rose, lug .....60@65
Northern Burbanks, cwt. .....2.00@2.25
Wisconsin Burbanks 2.00
Lompocs .....2.60@3.00

ONIONS

Wholesale selling price:

Australian Brown, cwt. 1.00
Bermudas—
Imperial Valley, crate 90
Crystal Wax, crate 1.10
Oregon Globes .....1.35@1.50
Yellow Danvers .....1.15@1.85
Sets—
Yellow 10
White 12
Garlic 20

VEGETABLES

Wholesale selling price:

Asparagus, green, lb. .....9@14
Artichokes, Northern, doz. .....25@75
Beets, doz. .....30@35
Beans—
String 6
Green .....4@5
Wax .....4@4½
Kentucky Wonders 10
Cabbage, sack .....90@1.00
Carrots, doz. .....30@35
Cauliflower, doz. .....1.10@1.25
Celery, doz. .....50@55
Golden Heart .....1.35@1.50
Chicory .....35@40
Cucumbers, box .....45@55
Egg Plant, lb. .....15@20
Escarole, doz. .....35@40
Horseradish, lb. .....12@15
Leeks, doz. .....35@40
Lettuce, crate .....75@85
Mint, doz. .....35@40
Onions, Green, bunch .....15@20
Oyster Plant, doz. .....35@40
Parsnips, doz. .....35@40
Parsley, doz. 15
Peas—
Small .....3@4
Telephone .....4@5
Peppers, lb. 30
Pumpkins, lb. .....1¼@1½
Radishes, doz. 15
Rhubarb—
Crimson Winter, box .....65@75
Strawberry 1.00
Spinach, doz. .....15@18
Squash—
Summer, crate .....50@65
Tomatoes, Mex., crate .....75@1.85
Turnips .....30@35

FRESH FRUIT

Wholesale selling price:

Apples—
Pippins .....2.35@2.50
Rome Beauties 3.00
Pearmains 2.50
Apricots, crate .....1.00@1.20
Avocados, doz. .....8.00@12.00
Bananas .....4@4½
Berries—
Strawberries, basket .....3½@8
Blackberries, basket .....5@6
Raspberries .....5@6
Loganberries, basket .....6@7
Gooseberries, lb. .....8@9
Cantaloupes .....2.50@3.00
Cherries—
Red .....6@8
White .....6@8
Cherimoyas, lb. .....20@25
Figs, box .....2.00@2.50
Loquats, lb. .....9@10
Pears, Winter Nelis, lug 1.50
Peaches, crate .....1.75@2.00
Pineapples, lb. .....8@9

CITRUS FRUIT

Wholesale selling price:

Lemons .....1.25@2.30
Grapefruit, Seedless .....1.50@2.75
Navels .....1.75@2.50
Tangerines, lug 90
Limes, basket 1.00

DRIED FRUITS

Wholesale prices to retailers are:

Evaporated Apples, Fancy, lb.
Boxes .....7¾@10
Apricots .....8½@10
Nectarines 12½
Peaches .....5¾@6¾
Pears .....10@11
Prunes .....6½@12½
Plums 10

HONEY

Wholesale selling price:

Comb, Fancy, Water White 14
White 12
Light Amber 12½
Extr. Water White 7
White 6½
Light Amber 5½
Beeswax 32

NUTS

Prices named by California Walnut Growers' Association are:

No. 1 .....16½
Budded Walnuts 20
Jumbos 19
No. 2 12
Culls 9

Prices fixed by California Almond Growers' Exchange, f. o. b. California.

Almonds—
Nonpareil .....21@22
I X L .....19@19½
N P U .....17½@18½
Drake's Thinshell .....18@18½
Pecans 17
Peanuts—
California, Raw 6
Japan 7½
Eastern 7½
Rice Corn .....5.00@5.25

RICE

Wholesale selling price:

California .....4.75@5.00
Broken .....3.75@4.00

BEANS

Wholesale selling price:

Producer's price not far from one dollar under these quotations:

Limas .....5.65@5.75
Bayous .....6.00@7.00
Lady Washington 5.75
Pinks 4.75
Black Eyes .....6.75@7.00
Lentils .....13.00@14.00
Small White 5.75
Garbanzos .....8.35@8.50

HAY

Prices to producer f. o. b. Los Angeles:

Barley Hay .....9.00@13.00
Wheat Hay .....8.00@11.00
Tame Oat .....9.00@14.00
Alfalfa .....8.00@11.00
Volunteer .....5.00@7.00
Straw .....5.00@6.00

GRAIN

Wholesale selling prices f. o. b. Los Angeles:

Corn, Yellow 2.20
Corn, White 2.30
Wheat .....2.45@2.50
California Red Oats 1.85
Oats, White .....2.15@2.20
Oats, Hulled 2.45
Egyptian Corn 2.20
Barley Seed 1.45
Barley, Hulled 1.80
Milo 1.90
Rye 2.30
Sunflower Seed 7.00

FEED STUFF

Wholesale selling prices f. o. b. Los Angeles:

Bran, Heavy 1.90
Alfalfa Meal 1.15
Alfalfa Molasses. per cwt. 1.20
Beef Scraps 3.00
Beet Pulp 1.25
Cracked Corn, cwt. 2.25
Cracked Wheat, cwt 2.60
Cotton Seed Meal 1.80
Bone Meal 1.95
Meat Meal 3.00
Bone, Green 1.65
Charcoal 1.90
Oil Cake Meal 2.50
Fish Meal .....3.15@3.25
Rolled Oats 2.20
Middlings 2.20
Rolled Barley 1.40
Feed Meal 2.30
Scratch Feed .....2.20@2.40
Clam Shell .....60@70
Oyster Shell .....1.15@1.25

San Francisco Market

SAN FRANCISCO, May 25, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

The tide has been turned and now California is shipping butter to Australia. Contracts are also made for liberal shipments in the future.

Prices to trade, 4 cents above following quotations:

Extras 23½
Prime Firsts 23
Firsts 22½

CHEESE

Wholesaler to retailer.

Oregon Y. Am. 14½
Young America 12½
California Flats .....8@10½
Cheddar 20
Oregon Twins 13½

EGGS AND POULTRY

Prices to trade 3 cents higher than following quotations:

Extras 23½
Select Pullets 20½
Firsts 22
Seconds 20

Price to producer:

Hens, lb. .....16@18
Fryers .....26@28
Broilers .....22@25
Roosters, Young .....25@26
Old .....10@11½
Squabs .....2.00@2.50
Ducks .....15@17
Geese .....2.50@3.00
Belgian Hares, lb. .....7@8
Dressed .....10@12½
Turkeys, live .....16@18

LIVE STOCK

San Francisco prices. gross weight:

Steers .....4@6¾
Cows and Heifers .....3@6
Calves, lb., live weight .....6@9¼
Hogs .....5@8¼
Wethers .....6½@7
Ewes .....6@6½
Milk Lambs, lb. .....8@8¼
Shorn stock ¾@1c less

POTATOES

Wholesale selling price:

Idaho .....1.50@1.75
Idaho Russet .....1.50@1.75
Burbanks .....1.65@2.00
Oregons .....2.25@2.40
Shimas .....1.00@1.40
New Potatoes, lb. .....2@3
New Garnets .....3@3½
Sweets, cwt. .....2.00@2.10

ONIONS

Wholesale selling price:

Onions, cwt. .....65@85
Australian Browns .....2.50@3.50
Oregon .....90@1.00
White, crate .....1.10@1.25
Garlic, new .....7@12½

VEGETABLES

Wholesale selling price:

Asparagus, box .....1.75@2.50
Beans—
String .....2½@3
Wax .....1@5
Brussels Sprouts, lb. .....3@5
Celery, crate .....50@1.25
Corn, Imperial Valley, doz. .....10@25
Cucumbers, Hothouse, box .....60@1.00
Lettuce—
Southern, crate .....50@80
Local, small crate .....75@1.00
Large .....25@50
Egg Plant, lb. .....10@15
Okra, crate .....1.00@1.25
Peas, sack .....75@2.25
Peppers—
Bell, lb. .....25@35
Chili, Mexican .....10@20
Rhubarb—
San Jose .....60@85
Alameda .....50@75
Squash, Summer, crate .....50@80
Tomatoes, Mexican, lug .....1.50@3.00
Imperial Valley, crate .....1.50@2.00

FRESH FRUIT

Wholesale selling price:

Apples—
Newton Pippins .....70@1.30
Other varieties .....40@75
Apricots, box .....1.00@1.25
Berries—
Strawberries—
Southern, crate .....75@1.25
Fresno, crate .....50@60
Watson, chest .....3.00@6.00
Banner, chest .....2.50@4.50
Longworths, chest .....4.00@6.00
Other Varieties, chest .....1.00@1.50
Blackberries, crate .....2.50@5.00
Raspberries, crate .....1.00@1.25
Gooseberries, lb. .....4@7
Oregon Gooseberries .....5@6
Loganberries, chest .....5.00@7.00
Loquats, crate .....1.00@1.50
Bananas, Hawaiian, bunch .....1.50@1.75
Cherries, box .....45@75
Cantaloupes—
Ponies 4.55
Specials .....1.25@1.50
Pineapple, doz. .....2.50@3.00
Peaches, crate .....1.75@2.00

CITRUS FRUIT

Wholesale selling price:

Grapefruit, Seedless, new crop .....1.25@3.00
Lemons .....1.50@3.25
Lemonettes .....1.00@1.75
Navels .....1.75@2.75
Limes, case .....4.00@5.00
Tangerines, halves .....75@1.75
Valencias .....2.00@2.75

DRIED FRUITS

Wholesale prices are:

PRUNES—1914 crop, bulk basis: 30-40s, 5¾c; 40-90s, 5½c. The above are for both Santa Clara prunes and the stock from outside sections.

Other Fruits, 50-lb. boxes—	Standard	Choice	Extra Choice	Fancy
Evap'r'd apples ...		6¾c	7¼c	7¾c
Apricots	7 c	7¾c	8¼c	9¼c
Peaches	3¾c	4 c	4¼c	5 c
Pears	7 c	8 c	9 c	10 c

RAISINS

The following prices are f. o. b. Fresno, as given out by the Associated Raisin Company, for immediate shipment, and are guaranteed against a decline till June 1st:

Fancy seeded, 16-oz., 7½c; 12-oz., 5⅞c; bulk, 6c; choice seeded, 16-oz., 6⅞c; 12-oz., 5⅝c; bulk, 5½c; Thompson seedless, No. 1, 16-oz. pkgs. 7c; 12-oz., 6¼c; 50-lb. cs., 6½c; loose, Muscatels, 1-crown, 5½c; 2-crown, 5½c; 3-crown, 5⅞c; 4-crown, 6c; Sultanas, 50-lb. cs., 5¾c; bulk, layers, 50-lb. bxs., $2.75; in 20-lb. boxes, 6-crown, $2.75; 5-crown, $2.25; 4-crown, $1.60; 3-crown, 5-lb. bxs., $1.50; on all bulk stock, 50c additional. Cartons—Clusters, 20 to cs., No. 1, $1.70; No. 2, $2.10; No. 5, 4 to cs., $2.25. Local representatives of the Associated are asking about ¼c higher, while several of the largest independent packers are quoting ½c under these figures.

NUTS

Local stocks of all nuts practically cleaned up.

ALMONDS—Prices fixed by Almond Growers' Exchange to the trade, f. o. b. California:

Nonpareil .....11@13
I X L. .....11@13
Ne Plus Ultra .....11@13
Drakes 10

Wholesale selling price:

Peanuts—
Unpolished .....3½@4½
Polished .....4@5½
Shelled, China .....5½@6
Italian Chestnuts .....6½@7

BEANS

Wholesale selling price:

Limas .....5.00@5.10
Pink .....4.00@4.10
Black Eyes .....6.00@6.25
Cranberry .....5.00@5.10
Small White .....4.80@4.90
Garbanzos .....6.50@6.75
Large White .....4.75@4.90
Bayou .....4.90@4.95
Manchurian Speckled Bayous .....3.60@3.80
Manchurian Butters .....4.50@4.75
Red Mexican .....5.30@5.40
Red Kidney .....5.90@6.00
Horse Beans .....3.50@4.00

HONEY

Wholesale selling price:

Comb, Water White 15
Light Amber .....10@12
Amber .....7@10
Extracted White .....6@7
Light Amber .....3½@4½
Dark Amber 2
Beeswax .....25@28

HOPS

1914

Wholesale selling price:

Sacramento Valley .....8@10
Sonoma-Mendocino .....11@12½
Oregon Clusters .....11@12½

HAY

Under date of May 22, Scott, Magner & Miller say:

Arrivals of hay for the week amounted to 2357 tons. A great deal of the

WEATHER CONDITIONS

May 22, 1915

Report from the various California stations of the United States Weather Bureau by George H. Wilson, director, San Francisco.

	Rainfall Data			Temperature Data —Past Week—	
	Past Week	Seasonal to Date	Normal to Date	Maximum	Minimum
Eureka	.64	42.18	44.28	58	46
Red Bluff	.22	34.54	24.30	72	48
Sacramento	.42	17.15	19.77	70	48
San Francisco	.47	27.40	21.92	64	52
San Jose	.50	22.68	16.53	70	46
Fresno	.42	10.89	9.44	84	48
Independence	.00	3.47	9.31	84	..
San Luis Obispo	.32	28.13	20.11	68	46
Los Angeles	.02	17.03	15.48	78	50
San Diego	.04	14.41	9.89	66	50

accumulated hay has been removed from railroad tracks and it can be said that the market has recovered from the congestion of the last few weeks and the yards of the railroad companies are practically in normal shape again.

Fancy Wheat Hay (lt. bales)	11.50@12.50
No. 1 Wheat or Wheat and Oat	9.50@11.00
No. 2 Wheat or Wheat and Oat	7.00@9.00
Choice Tame Oat	11.00@12.00
Other Tame Oat	6.00@9.00
Barley	5.00@8.00
Wild Oat	6.00@8.00
Alfalfa	6.00@9.00
Stock Hay	4.50@5.00
Straw, per bale	.30@45

GRAIN

Alfalfa Seed	16½
Wheat, Cal. Club	2.22½@2.25
Corn, Egyptian White	1.80@1.85
Corn, Eastern Yellow	1.77@1.78½
Barley Feed	1.15@1.20
Oats, Red, Feed	1.50@1.60
Oats, White Feed	1.77½@1.80
Millet	2½@3¼
Flaxseed	5@5½
Rye	2.00@2.25
Sunflower	5@5½

FEED STUFF

Wholesale prices.

Alfalfa Meal, car lots	13.50@14.50
Bran, ton	25.50@29.00
Feed Cornmeal	40.00@41.00
Cracked Corn	40.00@41.00
Rolled Barley, ton	26.00@27.00
Rolled Oats, ton	37.00@37.50
Middlings	33.00@35.00
Shorts	30.00@31.00
Oilcake Meal	38.00@39.50
Cocoanut Oilcake Meal	24.00@25.00

Citrus Fruit Market

LOS ANGELES, May 26, 1915.

Immense quantities of strawberries and other small fruits are filling the market, and this in addition to the large quantities of oranges which have been going forward has induced a slight sagging in demand. However, fair prices are still obtained. Good stock is receiving much more attention than the lower grades, especially of Seedlings and Sweets. There are very few Navels yet to go and from this time on Valencias will have to be depended upon.

Immense quantities of lemons are coming from Mediterranean ports. It is barely possible they will be used as ballast for large vessels coming to this country for ammunition for Italy which has now entered the war. The first requirement of the lemon market is hot weather and that has not been given for the last few weeks.

Shipments

Shipments of oranges to date from Southern California since November 1, 1914, 25,017, lemons 3,682, total 27,699. To same date last season; oranges 26,458, lemons 1,476, total 27,934. From Tulare County; oranges 5,396, lemons 197, total 5,593. To same date last season; oranges 5,183, lemons 30, total 5,213. From Northern California; oranges 628, lemons 2. To same date last season; oranges 404, lemons 5.

NEW YORK, May 24.—Forty-four cars navels, two Valencias, six St. Michaels, two seedlings, one sweets, one bloods, twenty mixed cars, and six cars lemons sold. Oranges, 10 to 20 cents lower. Lemons, 15 cents lower. Raining.

NAVELS—	Avge.
A One, Amer. Ft. Dis.	$2.40
Jupiter, Amer. Ft. Dis.	2.25
Pinnacle, O.K. Ex.	2.95
Buck, O.K. Ex.	2.35
Indian Hill, S.A. Ex.	2.65
Spanish Bayonet, O.K. Ex.	2.55
Gold Buckle, R.H. Ex.	2.30
Lochinvar, R.H. Ex.	1.80
VALENCIAS—	
Wm. Tell. Or. Co. Ex.	$2.65
Golden Beaver, Or. Co. Ex.	2.50
Glendora Home, A.C.G. Ex.	2.85
Burro, Baldwin Estate	2.50
Silver Harp	2.25
SEEDLINGS—	
Rossmoyne	$2.60
Echo	2.60
Arcadia	2.45
Pachappa	2.30
NAVELENCIAS—	
Gold Buckle	$2.80
Lochinvar	2.55
SWEETS—	
Pinnacle	$2.65
Pinnacle	2.70
Majesty	2.15
Mother Colony	2.75
Carnival	2.40
ST. MICHAELS—	
Cornell	$2.20
Carmencita	2.55
Colombo	2.25
Golden	2.85
JAFFAS	
Echo	$2.50
Arroyo	2.80
Glendora Home	2.75
NAVELS—HALVES—	
Sierra Vista	$1.15
LEMONS—	
Pet	$2.60
Greyhound	2.35
Smile	2.95
Squirrel	2.20
Prairie Chicken	2.05

BOSTON, May 24.—Twenty-six cars sold. Market easier on oranges and lemons.

NAVELS—	9vge.
Orchard, National O. Co.	$2.80
Sweet Marie, Upland Foothill .C.	2.75
Tricolor, Upland Foothill C.	2.50
San Antonio Red, S.A. Orchards	2.35
Blossom, Red. M.O. Co.	2.30
Plain	2.25
Camellia, Red, M.O. Co.	2.10
LEMONS—	
Maduro, Q.C. Ex.	$1.90
Happy, S.T. Ex.	2.55

CINCINNATI, May 24.—Eight cars sold. Market is firm.

NAVELS—	Avge.
Monopole, A.C.G. Ex.	$2.55
Family, Q.C. Ex.	2.40
La Puente, S.T. Ex.	2.70
SWEETS—	
Cleghorn	$2.65
Prospector	2.40
VALENCIAS—	
La Puente	$3.20
SEEDLINGS—	
Don Quixote	$2.45
LEMONS—	
Minnehaha	$1.85
Number 1	1.85
Questa Ex. Ch.	2.35
Growers	1.80

PITTSBURGH, May 24.—Sixteen cars sold. Market is easier and lower on oranges, sizes 96s to 150s; lower on lemons.

Orchard, National O. Co.	$3.05
Bishop, Heath P. Co.	1.95
LEMONS—	
Lotengo	$1.10
Crackshot	.95
Circus	.80
As-you-like-it	2.10
Growers	1.75

KANSAS CITY, May 24.—Following brands sold by Kansas City Fruit Auction Company. Warm and clear.

VALENCIAS—	Avge.
Partridge	$2.40
Fox	1.91

ST. LOUIS, May 24.—Fourteen cars sold. Market is easier account eather and quality of fruit offered.

NAVELS—	Avge.
Mutual, Red M.O. Co.	$2.25
Blossom, Red, M.O. Co.	2.10
Gavilan, Riv. Ex.	2.70
Braeside, Riv. Ex.	2.55
Golden Fleece, A.C.G. Ex.	2.15
VALENCIAS—	
Gabriella	$3.15
Freedom	2.10
Cal. Beauty	2.95
LEMONS—	
Val Vista	$2.65
Morning Star	2.35
Commercial	2.65

PHILADELPHIA, May 24.—Nineteen cars sold. Market is lower on poor stock.

NAVELS—	Avge.
San Antonio Blue, S.A. Orch.	$3.00
San Antonio Red, S.A. Drch.	2.65
Volunteer, S.A. Ex	290
Basketball, S.A. Ex.	2.55
VALENCIAS—	
Golden Bell	$3.00
Silver Bell	2.60

CLEVELAND, May 24.—Thirteen cars sold. Market lower on both oranges and lemons.

FARM BUREAUS

(Continued from Page 609)

Capetown, June 22.

Trinidad, Lagoon and Orick, June 24.

Martins Ferry, June 25.

Wayplaces and Martins Ferry, June 26.

Office, Monday, June 28.

Little Creek, China Flat, June 29.

Office, Wednesday, June 30.

JUST OUT

The Book

Citrus Fruits

By J. Eliot Coit

Professor of Citriculture in the University of California, and Citriculturist to the University of California Agricultural Experiment Station. Formerly Superintendent in charge Citrus Experiment Station, Riverside, California.

An account of the Citrus Fruit Industry with special reference to California requirements and practices, and similar conditions.

520 Pages
25 Chapters
151 Illustrations

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Los Angeles

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Rupture

Mare foaled on May 1st. During the last week of carrying the colt she became ruptured. What caused this? The rupture is not bad, just a swelling about an inch over a space as large as a saucer. How soon can she be worked? Would it be safe to breed her again?—C. A. N., Paso Robles.

A direct injury is usually the cause of a rupture in a grown animal. Feed her very sparingly to relieve the pressure and the rupture may disappear. Do not work her until the swelling has entirely disappeared. It may do no harm to breed her again. Usually ruptured mares carry a foal all right.

Indigestion-Dyspepsia

Colt two months old chews boards. Can you tell me cause and remedy? —Subscriber, Linne.

Feed the colt smaller quantities at a time and feed it oftener. Add half a teaspoon of phosphate of lime to the feed twice a day. Also put some good hay where it can reach it.

Losing Blood

Mare seven years old is losing blood from vagina. She aborted after six months' gestation.—Subscriber, Escondido.

A physical examination by a veterinarian would be necessary to determine the cause. He could probably treat it for you all right.

Garget

What treatment do you recommend for garget?—Subscriber, San Jose.

To relieve the cows of garget; mix six pounds of Epsom salts, three pounds common salt and eight ounces powdered nux vomica. Give each cow a large handful once a day. Also get six ounces tincture of aconite and give each cow a teaspoon once a day in a little water. This will thin the blood and help to relieve the pressure in the udder. Bathe udder with hot water and rub them carefully with the hands morning and evening and milk out all you can get. Reducing the feed and giving plenty of water to drink will also help.

BLACKHEAD

(Continued from Page 617)

the kind of food they need. Grit should be kept always before them. The ration given these poults would have been all right if they had not been fed too much. It is possible too that they had lice or were allowed to run on wet grass or in the rain. Overfeeding, lice and dampness are the three enemies from which poults must be carefully guarded.—J. A. K.

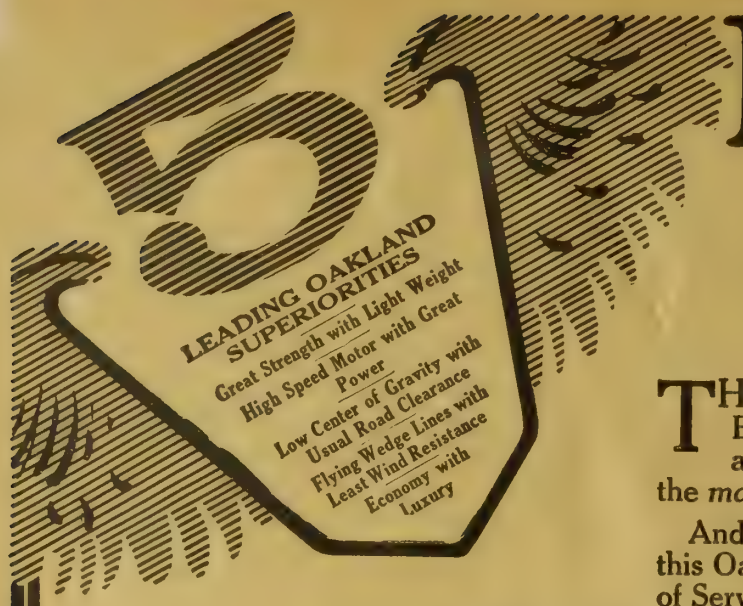
FINE SERVICE

This country was recently visited by a party representing the Chinese government, made up of men of affairs in China. The party investigated as to trade conditions in America and as to possibilities of larger relations between that country and the United States. At Los Angeles the party was taken in charge by the Southern Pacific Railway and the members of the commission were taken directly to New Orleans. On arrival there a telegram was sent by the commission to Passenger Traffic Manager Fee, as follows:

"Arrived on schedule after fastest run ever given train over Sunset Route. Service perfect, and on behalf of our honorable commissioners of China and associated chambers of commerce. I desire to congratulate your company not only on account of splendid hauling but attention shown by every employe in assuring comfort, safety and convenience of entire party."

Secretary John J. Ferguson of the United States Live Stock Sanitary Association, Union Stock Yards, Chicago, is mailing the annual report of the association. Its price is one dollar.

Keep the flower-beds out of the lawn. Grass is at its best when not broken by patches of plants.



Reconstructing Car Values

THE order was: "Build a new Oakland Four. Build it to a new standard of Quality and Service—at a new price. Build a Four which is more than ever the *master* of any hill or road task."

And now after months of planning and building and testing, this Oakland is ready for you—a New Model, a New Standard of Service—every inch a Monarch of Fours!

"Make it extra *powerful*—for power has been a big asset in building up the new Oakland prestige."

"Build it *light*—so it will be easy on tires and fuel."

This new Oakland has surplus power—not an ounce excess weight.

"Make it *durable*—our reputation is based on *sturdiness* with simplicity."

"Build it with low center of gravity, for extra safety and smooth going." The new Oakland hangs to the road true and steady, yet has the usual road clearance.

"Make it *comfortable* for five—no crowding."

So—while this Oakland has the air of having been designed for brilliant dashes of speed—it is made to last and do real *plugging* service—and the "comfort" order was carried out to the letter.

"We are going to sell the new Oakland Four for $1050."

With Oakland standards of uncompromising quality this means only one thing—*volume*.

The essentials which round out this car are—four-cylinder Oakland-Northway high-speed motor, 39 h.p.; Delco electric starting, lighting and ignition system; Oakland Stewart gasoline vacuum feed; comfortable roominess for 5 passengers; also one-man top; crown fenders; extra rim; speedometer. In short, *complete* equipment.

This new 1916 Oakland is now ready for delivery. Other important additions to the 1916 Oakland line will be announced soon.

Oakland Motor Company, Pontiac, Mich.

Model "38" Roadsters, Speedsters, Touring Cars

Oakland

$1050

CALIFORNIA CULTIVATOR

Rural Californian combined with California Cultivator

An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES June 3, 1915 SAN FRANCISCO

Armies Must Have Hay

Many Shiploads Will Go to Europe. Farmers Advised to Plant Heavy Forage Crops. Farmers' Notes Taken in Payment for Seed.

Every sign says to the farmer, "Plant all you can of some good drouth-resisting forage crop."

Our hay this year must feed the livestock of Europe as well as our own. This should mean a huge demand for hay.

Besides, already in large sections of America the weather is too dry. This is bad for hay that is not drouth-resisting. Good drouth-resisting hay should make splendid money for every farmer this year.

Money in Sudan Grass

Sudan Grass is a sure drouth-resister, yielding plentiful choice hay through the driest season. It yields more tons to the acre than any other forage crop—three to ten tons per acre. First cutting, fifty to sixty days after planting. Additional cuttings every thirty to forty days till frost kills dead.

Follow Small Grains With Sudan

After your wheat or oats are off, if it is not later than July 25th, you can plant the stubble to Sudan Grass and get a good hay crop before frost. Take two crops from your land this year.

Pay for Your Seed With Note

If you will plant ten acres to Sudan Grass, I will supply you with a liberal quantity of seed and accept your four months' note for $20.00 in settlement for the seed.

How to Pay for Seed With Hay

If you will plant forty acres or more, I will supply a liberal quantity of seed for planting at the rate of $1.75 an acre, accepting your four months' note in settlement, and will buy sufficient of your baled Sudan hay to pay for the seed, at $15.00 a ton, delivered at your nearest railroad station.

The Agricultural Department has declared that Sudan Grass is the best forage crop known. I am the biggest grower of Sudan Grass in America, and believe it will bring millions of dollars to the farmer. I know it is so good that I am making you this extraordinary offer. I am negotiating for army hay contracts. I recently wrote a book entitled "SUDAN GRASS—ITS HISTORY, USES AND METHODS OF CULTIVATION." It gives just the information you should know. I will send it free if you ask for it.

The seed I will ship is of the very highest class, and a certificate of inspection signed by the State Experiment Association, vouching for its purity and freedom from all other grasses and weeds will accompany the shipment.

If you prefer to pay cash for seed, I will allow you a discount of 5% providing payment is made within five days of receipt of seeds.

Please write me at once, stating whether you will pay cash or give a note. If the latter, then give number of acres you will agree to plant. State whether you own your own farm and give references. Promise to give me your four months' note in settlement, and I will ship seed at once, and send note for your signature. Act quickly. Planting time is on us, and I have only seed enough to plant 20,000 acres.

DAVID B. CLARKSON
P. O. Box 561 Robstown, Tex.

Not Acreage But Production is the True Measure of Profit

Profit is the difference between what your crops cost you and what you get for them. The ratio is the same whatever the acreage of the farm.

The farmer who can cut down cost and increase production is the one who will make the most money on his investment.

G-E ELECTRIC MOTORS FOR RANCH AND FARM

will positively accomplish the following results:—

Save loss from drought and increase crops by supplying steady, dependable power for irrigation.

Save labor by driving farm machinery formerly worked by hand.

Save repair bills—owing to their simple, sturdy construction, G-E motors operate for years without getting out of order.

Save time,—G-E motor-driven machinery does job or "chore" in a fraction of the time taken by slow hand methods.

Ask your local power company to demonstrate what electricity will do for you in the house, dairy, barn and field.

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Los Angeles Office:
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San Francisco Office:
Rialto Building

The General Electric Company will gladly answer all questions relating to the use of electric power for ranch and market garden irrigation.

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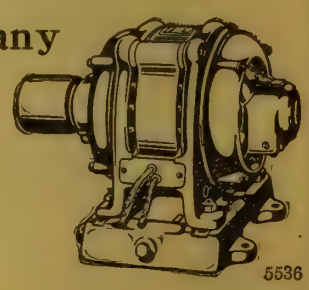


5536

Steady Going

There's satisfaction when your engine hums along without a hitch. And good fuel helps a lot—good old-fashioned gasoline like

Red Crown

the Gasoline of Quality

The kind that's clean, quick-burning, with snap in every drop—every drop the same.

Standard Oil Company
(California)
Los Angeles

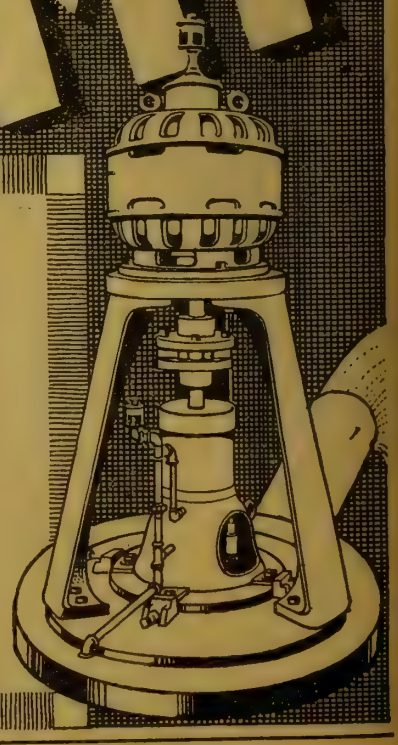
SURFACE IRRIGATION

PIPE *"BUILT TO LAST"*

Body made from single sheet of Galvanized Open Hearth Steel 10 feet long, with extra heavy taper collar on one end and band of heavy steel on the other—making each section 10½ feet. Made with lock seam (four thicknesses of steel), which gives unusual strength and durability, besides—ABSOLUTE PROOF AGAINST LEAKAGE.
Write for illustrated price list. Phones: Home F1088, Sunset Main 3141.
Manufactured by
CALIFORNIA STEEL CEILING COMPANY
Eighth St. and Santa Fe Ave., Los Angeles, Cal.
Also Manufacturers of Galvanized Iron Tanks.

Layne & Bowler PUMP

Belt or direct driven.



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—not mere words,
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The Layne & Bowler has never fallen down even under the most rigid requirements. Its past performance is its best recommendation. Send for copy of our valuable pump booklet No. 30. Exhibit at S. F. Exposition.

Layne and Bowler Corporation

900 Santa Fe Ave. Los Angeles

Advertisements in California Cultivator are Guaranteed
See Announcement at Head of Editorial Page

California Cultivator

Rural Californian combined with California Cultivator

Vol. XLIV No. 22 LOS ANGELES: THURSDAY, JUNE 3, 1915 One Dollar Yearly

Dairying in an Orchard

Dr. Leroy Anderson Writes for Cultivator Readers of a Plan for Securing Greater Profits on High Priced Orchard Lands. It Expenses Can be Made by Producing Milk and Butter There are Abundant Profits in Manure and Wastes

A SERIOUS problem with most orchardists is securing supply of fertilizer and humus needed for profitable fruit production. It is quite generally conceded that the best source of this supply is in the form of stable manure, but how to obtain it is another question. An illustration of producing it on the ranch is found on the Sorosis Fruit Farm in Santa Clara Valley, where a dairy was established in June, 1911, by the manager, Mr. Frank Abernethy. Sorosis Farm comprises 250 acres of which all but ten or twelve acres are in fruit; 185 acres are in bearing prunes and the remainder are peaches and apricots. The story of the dairy, how it is equipped and managed and the results therefrom is of interest to all fruit growers.

Equipment

The chief structures consist of a milking barn 30 feet by 120 feet, two hay sheds with feeding racks each 40 feet by 50 feet, a concrete silo 16 feet by 30 feet, and a concrete reservoir 8 feet by 16 feet by 14 feet to hold liquid manure (capacity 13,000 gallons). These are located in a eucalyptus grove on the bank of El Quito Creek and with surrounding corrals occupy about four acres of land. The well equipped milk room is in the tank house near the manager's residence.

The machinery or power includes a gas engine and No. 3 centrifugal pump for emptying the reservoir and a blower, cutter and engine for filling the silo.

The milking barn has a capacity of 70 cows. The floors are of concrete with gutters draining to the reservoir situated about 20 feet from the barn. Since the barn is on a side hill the reservoir is only about one-half below the surface of the ground and has a wooden cover. The manure spreader is so placed that its top is below the floor level of the barn.

The buildings are of simple but substantial construction. Carpenters were employed only for framing the barns and all the rest of the work, including concrete, was done by the regular men employed on the farm at $1.25 per day and board. The lumber was purchased in San Francisco at $12 per thousand but a good grade of shingles was used for the roof.

Cows

An average of 40 head is kept in milk throughout the year. This means a total of 50, counting dry cows and a few heifers about to calve. The cows are grade, showing Jersey, Holstein and Shorthorn blood. For the first three years a registered Jersey bull was kept, but for the last year a Holstein has been used with the idea of changing to the latter type in order to secure a larger flow of milk. The herd is kept up by rasing a few heifers from the best cows and by buying a good cow now and then. A milk record is taken of each cow twice a month by weighing the yield for two 24-hour periods.

Heifer calves that are raised for the herd are fed whole milk from four to six months, after which their feed is the same as the milch cows except for grain. They run in the corrals and do most of their eating when the aged cows are being milked. Bull calves and heifers not desirable to raise are vealed by feeding on whole milk for four to six weeks. However, if milk is scarce such calves are sold at a very few days old to someone who raises them. Pasture may be hired on ranges surrounding the valley, but the manager considers it cheaper in the long run to keep the heifers with the herd. Then he knows they have good care; knows when they are bred and what to, and he is sure to have them handy at calving time.

The average daily production for the cows in milk is from two and one-half to three gallons. Various tests at the market end have shown the milk to contain five per cent fat.

Feed

Silage is made of pea vines purchased at canneries about the bay. The vines cost $2 per ton, f. o. b. cars at Sorosis, as the farm is located on the electric railway. The vines are then run through the cutter and blown into the silo. They are available about June first, and from that date until usually January, pea vine silage is a main cow diet. It is fed in the milking barn, while the cows always have access to alfalfa hay outside.

Pasture is provided in the orchard usually during January, February and March. Early in the fall barley, Canadian field peas and German vetch are sown and this is ready for feeding in January. In 1915 the cows had this for the major part of the first three montths. German vetch was not used this year because the seed could not be obtained; but it is the variety preferred on account of its larger growth. A single barbed wire is stretched around each orchard and stapled to the trees. This serves to keep the cows in and is easily taken up when plowing season opens. When pasturing, the cows are out three hours daily, one and one-half hours each morning and evening after milking. Sorosis soil is gravelly in its nature and seems not to be injured by the cattle. There are times when even it is too wet and then the cows are kept off. The trees are so large that no damage to them results from the cow contact.

One block of prune trees was sown to alfalfa in the spring of 1914. The rows of trees are twenty-five feet apart, and a strip ten feet wide, midway between rows, was sown to alfalfa. This now (May) is in a beautiful stand and has been cut once. It is used as a soiling crop for the cows. Tree cultivation is done on the seven feet on each side of the row by a single horse. It is plowed twice —first toward the trees and later away from the trees and toward the alfalfa, where a ridge is left to aid in keeping irrigating water on the alfalfa. Water is supplied from a deep well at the upper corner of this block of trees. It is too early to tell the effect of such alfalfa cultiure upon the trees, but at the present writing they are looking splendidly and are carrying a good crop. No trouble was experienced in harvesting the 1914 crop by properly timing the irrigation and cutting of the alfalfa.

Alfalfa is the staple hay fed and is in the sacks daily. It is purchased loose from alfalfa fields near Santa Clara, which necessitates a haul of six miles. One man with four horses and a trailer wagon hauls from five to six tons at a load. Since the major part of the hauling is done in the summer when team work is slack in the orchard, the cost of hauling is counted to be the wages of the man. Hauling and unloading into the sheds costs about 50 cents per ton on this basis. Second and third cuttings of alfalfa are purchased and taken from the cocks in the field.

Grain is fed when the dairy is most in need of increasing the milk supply and in cold, wet winter weather. The chief standbys are cocoanut oil meal, dried beet pulp, and rolled barley when not too high.

Handling Manure

The liquid, with all washings from the stable floor, runs into the concrete reservoir, which is thus filled about three times each month. When full it is pumped out by the No. 3 pump stationed on top and distributed in the orchard through surface irrigation pipe. The reservoir has been in use a year, and previous to its construction the liquid was run into a tank on a truck and thus hauled into the orchard. In the four years of the dairy, some eight to ten acres of orchard have been supplied with liquid manure.

Solid manure from the stables is placed immediately into a spreader, which is emptied onto the orchard at least once a week, and during the summer twice a week.

The corrals are cleaned three or four times a year, when convenient to put all hands at the job. The manure is placed in the orchard where the trees seem to be most in need of assistance. Since there is so little straw in any of the manure no difficulty is encountered at any season, either in working the soil or harvesting the crop.

Pigs

Five brood sows are kept, from which two litters of pigs are raised each year. The pigs consume garbage from the boarding house and skimmed milk from the sale of cream. The young pigs are sold as soon as weaned, the demand from the neighborhood being so brisk that sometimes purchasers will scarcely wait till wean-

(Continued on Page 640)

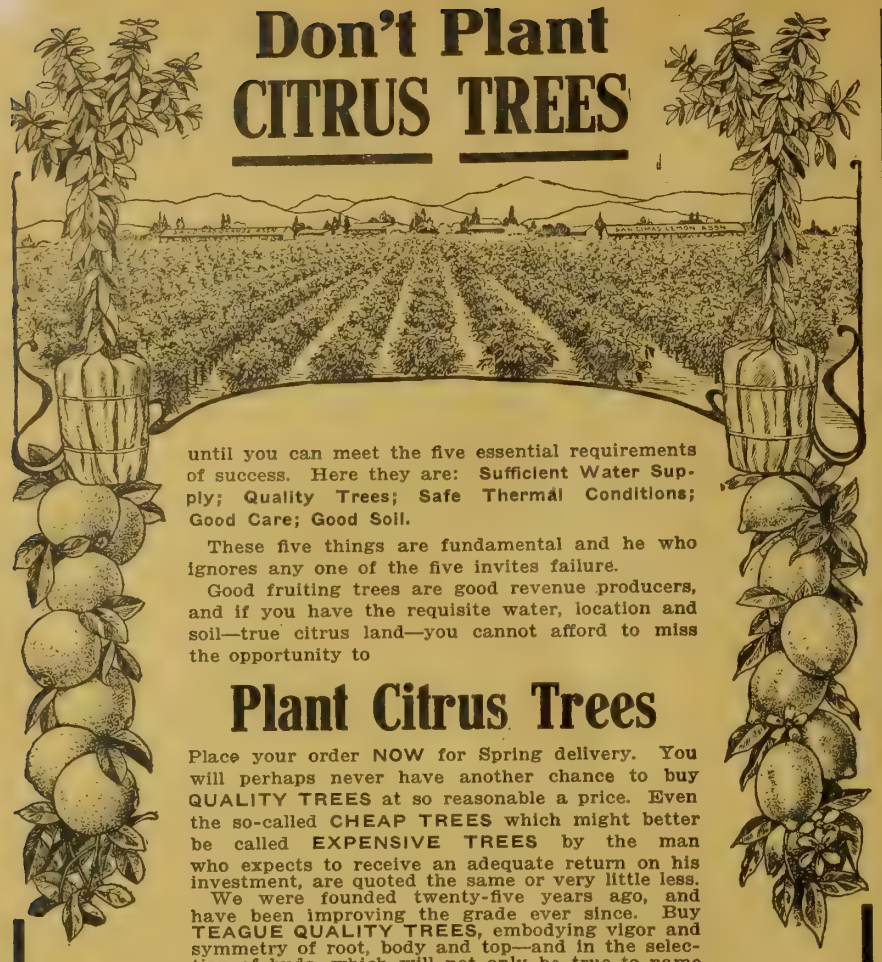
One of the Hay Barns or Sheds. Feeding Racks on either side

Concrete Silo and Milking Barn

Concrete reservoir for liquid manure. Gas engine and No. 3 pump on top, manure spreader at left.

Alfalfa in the Prune Orchard. Trees 25 feet apart. Strip alfalfa 10 feet wide.

Don't Plant CITRUS TREES



until you can meet the five essential requirements of success. Here they are: **Sufficient Water Supply; Quality Trees; Safe Thermal Conditions; Good Care; Good Soil.**

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You will remember that many so-called citrus sections had to quit that year. And that the Whittier-La Habra lemon and orange groves came out, wearing a beautiful bright green, in bold contrast to the general dull, dead brown of less favored sections.

Why take chances with far out, exposed lands, when you can get your choice of the cream of sheltered lemon lands at the opening price of $500 per acre (net acreage) with ample water, delivered to highest point on each tract.

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Citrus and Tropical Fruits

CITRATE OF LIME

By H. P. D. Kingsbury in Redlands Facts

ONE of the most important products of the lemon is citric acid. This is the acid which imparts its acidity to the juice. It is a pure fruit acid, and the lemon is its source. It is largely used, and up to this time is the only product of commercial importance produced from the inside or juice of the lemon. This acid is made in this country in the larger eastern cities from the raw material, which is called citrate of lime or calcium citrate. Little if any of the pure acid is produced in California, the efforts of the lemon products manufacturers being confined to the production of citrate of lime, which is shipped east and there refined into the pure citric acid.

Lemon oil is made from the peels of the same fruit, the juice of which produces the citrate of lime, and the two operations are carried on in the same plant at the same time, thereby using up practically all of the fruit.

Outside of the amount of lemon oil and citrate of lime produced in California, the whole supply is imported from the Mediterranean countries.

Citrate of lime is an intermediate product between the raw lemon juice and the refined citric acid. It is a white powder, with no particular taste, and the standard quality is capable of producing 64 per cent of its weight of citric acid when refined.

The method of manufacture is carried on as follows: To four pints of lemon juice or any multiple of this quantity add four and a half ounces of finely pulverized calcium carbonate, increasing the amount of calcium carbonate in proportion to any increase in the amount of lemon juice. Heat the juice to its boiling point, and add the calcium carbonate slowly. Effervescence will take place, and the calcium carbonate should be added until this effervescence ceases. The effervescence is caused by the chemical change produced, which causes carbonic acid gas to be given off. A whitish precipitate will now be found, which is the citrate of lime or calcium citrate. The liquid is now drawn off and discarded, the precipitate is collected and washed with hot water until the filtered water passes off colorless. The precipitate is then carefully and thoroughly dried, and is packed into suitable containers, casks, for shipment.

Calcium carbonate is merely pure lime-rock. Chalk or bolted whiting may be used. The Crestmore quarries produce a lime-rock which is over 99 per cent pure, and which, when pulverized is exactly suited to this purpose.

The important things to watch in making citrate of lime are, first, to treat the lemon juice promptly after squeezing it from the fruit and before any fermentation sets in, second to see that the citrate of lime precipitate is thoroughly washed, third, and this is the most important, to see that it is thoroughly dried. If made in this way, the standard of 64 per cent citric acid content will be attained by the product.

A by-product of this operation as was noted above, is the effervescing carbonic acid gas, and this may be used, if led off through a pipe, for the purpose of making bicarbonate of soda.

As to the yield and cost of citrate of lime, a ton of cull lemons will produce, with adequate pressing facilities, about 90 gallons of lemon juice, or some 750 pounds. This juice should run about 7 per cent citric acid content, so that there will be some 52½ pounds of citric acid in this amount of juice. As the citrate of lime standard is 64 per cent citric acid, we shall have some 82 pounds of citrate of lime to the ton of fruit. This same fruit, on extracting the essential oil of lemon from the peels will also produce about eight pounds of oil of lemon.

The cost of production of the citrate of lime is as follows, when made in large quantity, handling say 20 tons of fruit in a day: Fuel, $2.00; water, 20c; lime rock, $3.70; packages, $4.15; freight east in car lots, $14.00; labor, $21.00; fruit at ½c per pound, $200.00; power, $1.50; peeling cost, $30.00; a total factory cost without the "overhead" of $275.55. This quantity of fruit will produce some 1640 pounds of citrate of lime, and the cost is therefore 16 8-10 cents a pound delivered east. But we have left on hand the peels of this fruit, which will produce 160 pounds of oil of lemon. The additional cost of making this oil from these peels is as follows: Labor, $7.00; fuel and power, $8.63; supplies, $1.10; packages, bottles, $7.50; freight east in small lots, $7.25; chemicals, if the solvent method of extraction is used, $62.50; making a total cost for the oil, without the "overhead," of $93.98.

The citrate of lime and the lemon oil then have cost $369.53 to produce and pack and deliver east. The average price for the citrate of lime of standard quality—not the war-time price—is 14 cents per pound delivered east, and the present price for lemon oil is $1.50 per pound. Therefore, these products which have cost $369.53 will bring back $469.60, a profit of $100.07, after having paid ½c per pound for the fruit. From this must be taken the overhead expenses of operating, the office expenses, etc., and if the balance is distributed among the growers they ought to get about five-eighths of a cent per pound for their cull lemons, much better than to throw them away.

The lemon oil market fluctuates, but may be considered low at this time, and the citrate market at the present time is abnormally high. The average returns then should be somewhat better than under the above scale of prices. The foreign competition is strong on both of these products, as the Italian government is helping the producers of lemon oil and citrate of lime to control the market. Over five and one-fourth millions of pounds of citrate of lime were imported into the United States in 1911, and nearly half a million pounds of lemon oil. This is about the average amount imported under normal conditions. There is a duty of 10 per cent on lemon oil, and also a small duty on citrate of lime imported into this country.

ADVERTISE FRUIT

The citrus production of Florida is increasing by leaps and bounds. Demand must be made to keep pace with the increasing supply.

There is just one way by which to make markets for the coming citrus crop of Florida—by intelligent advertising to develop wider use of our oranges and grapefruit.

The Florida Citrus Exchange foresaw present conditions some years ago and began to plan for taking care of the future. It has been the only aggressive force in the work of increasing the demand for Florida oranges and grapefruit.

There have been remarkably good results considering the limited amount of money the Exchange has had for this educational work. It has been proven that there may be made ample demand at good prices for all fruit that can be grown in the state. Join the Exchange!—Advertisement of Florida Citrus Exchange, in Florida

GRAPEFRUIT CROP

We have small branch taken from pomelo tree on the ranch of W. L. Whepley, Lemon Cove, Tulare County, which indicates there will be an immense crop of fruit another year. "Clusters" of these fruits aggregate a dozen or more and there are many clusters on the tree.

Mr. Whepley writes that these branches are from grapefruit trees three years old, of which he has five and a half acres. Heretofore most of the fruit has been cut off. This year but a small quantity will be left, giving the trees opportunity to grow more stocky. During the 1913 cold snap the trees escaped comparatively unharmed.

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Will

Can a woman will all the property that stands in her name to her children or does the husband get part? If a woman having property in her own name dies without leaving a will can the children claim it all? If the husband dies before a final settlement of the deceased wife's property can his children by a former wife claim the property that would have come to him from his wife's estate?—Subscriber, Covina.

The wife has the absolute right of disposal by will of all of her separate property which she can dispose of to her children or to anyone else whom she may desire. If the property, although it may stand in her name, is in fact community property, the husband and heirs of the husband are entitled to it and will by the wife is ineffectual.

In the case of a woman dying without a will her separate property must be distributed, in the case of husband and one child living, one-half to the husband and one-half to the child; in the case of husband and more than one child,—one-third to the husband and the remainder in equal shares to the children or issue of any deceased child.

The rights of all heirs of a person are crystalized at the moment of death; therefore, although the husband may die subsequently and prior to the distribution of the estate, his heirs may assert the rights which the husband had at time of the death of the wife. In such case children by a former wife would inherit equally with the children by the second wife of the one-half or the one-third, as the case may be, of the separate property of the estate of the wife.

Moving Fence

A rented farm four years and bought six bales of barbwire to fence some brush and for pasture. Has he the right to take the wire when he leaves the place?—Subscriber, Solvang.

A tenant may remove, from the premises he rents, at any time during the continuance of his term, anything affixed to said premises for the purpose of trade, manufacture, ornament or domestic use, if the removal can be effected without injury to the premises, unless the thing has by the manner in which it is affixed become a part of the premises; therefore, during the period of your lease, it would seem that you would be entitled to remove a barbwire fence.

Tenant Refuses to Pay

What protection have owners of rental property against tenants who won't pay their rent after the first month's possession and won't get out when notified in writing to do so? If I am obliged to wait 30 days without getting rental shall I then send a constable to put them out without further parley?—Subscriber, Los Angeles.

A tenant of real property for less than life is guilty of unlawful detainer when he continues in possession after default in the payment of land pursuant to the agreement under which the property is held, and after three days subsequent to service of notice in writing upon him requiring payment of the rents and stating the amount due or demanding possession of the property, if he does not move at the expiration of the three days, it is necessary to bring a suit, which is entitled to a very early hearing; in such suit the court is entitled to award a judgment in favor of the plaintiff that the sheriff put the tenant out of possession of the premises and that the defendant pay the plaintiff three times the amount of rent found due.

Overcharge

I shipped grapes through cooperative association which also supplied me with shook. The association retained $41 more than should have been collected for the shook delivered. Is it legal for them to do so? How can I collect the $41.00?—Subscriber, Acampo.

Unless there is something in the by-laws or articles of the association to the contrary, it stands in the same position as any individual who retains money that belongs to its principal. The principal has an action against its agent for the recovery of the monies so detained by it.

Road Right-of-Way

Some years ago I bought one-half interest in a ranch and finally purchased other one-half. Now I find I have no way of getting out. This was a piece of a Mexican land grant. It is about one-half mile from county road. I have tried to get a right-of-way across another portion of same grant, but can only secure a right for a year with a continuance not fully granted. It will cost me $800.00 or $1000.00 to build road. Is there no way for me to secure an outlet?

A right-of-way of necessity arises in favor of grantee over the land of the grantor. When grant of the land is made, which is wholly surrounded by other land of the grantor or partly by the land of the grantor and partly by the land of a stranger, this is the general rule of the common law.
It is quite probable that you would have an action against the parties who sold the land to you for the expense to which you might be placed for procuring the right of way.

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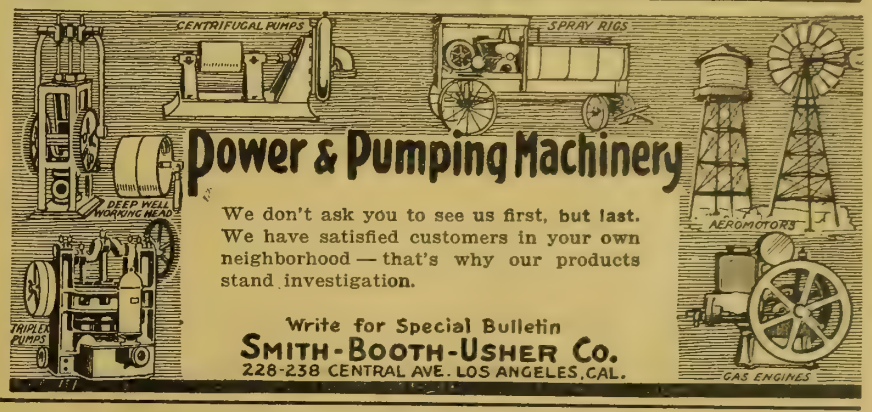

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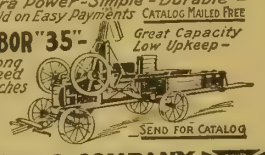
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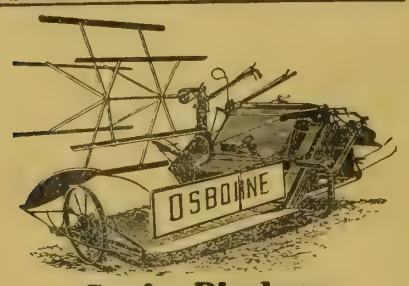

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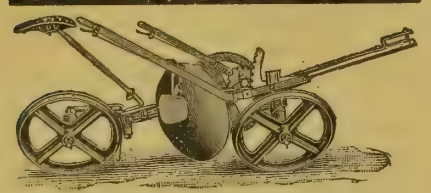
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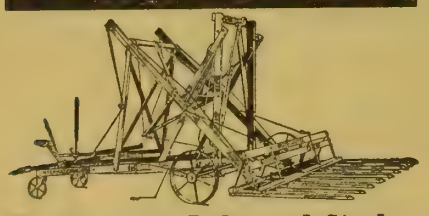
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Deciduous Fruits

SUMMER PRUNING

Written for California Cultivator
By Sacramento Valley Contributor

SUMMER pruning of young trees, particularly those one or two years old, is coming to be a common practice in some sections of the Sacramento Valley.

The theory is simply this. With a rich soil and an abundance of moisture young trees have frequently made as much by the middle of the summer as would ordinarily be made in a whole season. Instead of permitting this growth to continue until the branches are "whips" six, eight or ten feet long, they are pruned in June, cutting back for a strong head just as would be done with an ordinary tree, and the growth for the balance of the season forms the framework of what would otherwise be the growth of one year later. In other words, the framework and branches for two years growth are formed in one season.

The idea is to take advantage of the growth made by the tree in such a way as to eliminate as much as possible the waste of wood in pruning. Some wood must of necessity be taken off, but all that can be put into the permanent branches of the tree, without seriously checking the growth, is a distinct gain.

A horticulturist and fruit grower from an Eastern state recently visited a young Sacramento Valley orchard. On the way to the place it was remarked that what was considered a good job of summer pruning had been done. Without waiting to see the trees the visitor remarked, "I am absolutely opposed to summer pruning. It always stunts our trees and gives them a setback from which they do not recover before another season. They do not make much more vigorous limb growth after the pruning, but frequently send out weak shoots and fruit spurs which we do not want on our young trees."

Nothing more was said on the subject until the prune orchard was visited, and here were seen fine specimens of trees with a double tier of branches. There were some fruit spurs, but they could easily be taken off with the winter's pruning, and all that was necessary to be done with the new limbs that form after June or July—when the summer pruning was done—was to shorten them in, take out interfering branches and thin out the centers a bit.

But when the pears were visited there came the most enthusiastic praise of the practice and the remark that "Under these conditions of soil and moisture summer pruning is certainly the only practice. In fact, this is the best "heading" I have ever seen on a Bartlett pear, continued the visitor.

It is possible by carefully cutting to outside buds to form a beautiful open vase shaped head on the pears, at the same time making the branches short and strong so as to hold up the heavy loads of fruit the trees are expected to bear.

One pear grower who has a young orchard planted on very rich river bottom land summer pruned all of his trees this year but three short rows. In this block all of the trees were planted in March, 1914, and the summer pruning was done in July. The trees were pruned just as they would have been this winter if nothing had been taken off. On the pruned trees there is a fine two-year old head, while the unpruned ones grew such a rank growth of willowy limbs that some of them literally broke down in the wind before the end of the growing season and all of them must be cut back to the same length of limb as were those that were pruned in July. Of course the limbs are larger on the unpruned trees than they were on the others in July, but the total amount of wood left after this winter pruning will be much greater on the July pruned trees.

Two years ago on another orchard summer pruning was done, but the pruner was afraid that too much of a check would be given the tree by taking off the large percentage of the leaves that would be necessary if the limbs were shortened back to twelve to eighteen inches, the length of limb required for the first branches. Consequently the tops were merely shortened back a foot or so, leaving limbs three to four feet long. But this proved to be a mistake. The branches simply came out at the ends of these willowy limbs and the following winter the whole top had to be cut back to three or four limbs twelve to eighteen inches long. Now, this pruner cuts back in June or July to the permanent length of limb.

It has also been found to be a mistake to wait too late in the summer to do the pruning. If the trees get a good start in the spring the work can be done in June and early in the month at that.

In order to see how far summer pruning could be carried one prune tree was pruned every time the limbs reached a length of twenty inches or so. They were then cut back to about fourteen or sixteen inches. Four decks or sets of limbs were grown in one season, but this is rather too much of a good thing. Undoubtedly the tree will come out all right, but now all of the limbs are quite small in circumference. On many strong, growing trees, however, it would seem quite feasible to make two cuts during the summer instead of one, or produce three tiers of limbs instead of two.

For the man who loves trees and studies them and lives with them there is much of pleasure and profit to be gained in the orchard business in the Sacramento and San Joaquin valleys of California.

WHEN TO SPRAY FOR CODLING MOTH

In response to inquiries as to how many sprayings should be given for the codling moth, Dr. A. L. Melander, the entomologist of the Washington experiment station, suggests that sprayings be repeated as long as their cost is exceeded by the increased returns they assure. To expend a dollar in spraying in order to save 50 cents worth of fruit may generally be considered economically a poor policy.

It is undoubtedly true that many orchardists spray more times than is necessary, that they get less than a dollar return from a dollar's spraying. It is equally true that more orchardists do not spray enough, that it would pay them to invest more in their spraying. When the successful man sprays three times and the unsuccessful man four times, it seems paradoxical to state that the former has sprayed too much and the latter too little. An analysis of the reason for the latter's failure will most likely disclose two violated factors, the most important features of codling moth spraying; an incomplete calyx application and incorrect timing of the later sprayings.

Spraying for the codling moth should not be left to any convenient time, as it is definitely determined by certain periods in the life history of this insect. The spray is an arsenical poison that is effective only when eaten by the newly hatched worms. To give a spraying when worms are not hatching means a practical waste of material. Hence the importance of correctly timing the applications. A thorough wetting into every flower at the first spraying persists in its effects throughout the season and reaches the majority of the worms. As no other spraying does this the importance of thoroughness of the first application can scarcely be overstated.

The first spraying for the codling moth is given as soon as the blossom petals have fallen. The second spraying follows a month or six weeks later, at which time the first orchard worms are entering the fruit. These tiny worms are produced by moths which have practically all passed the winter in the ground in the shape of last year's cocooned worms. As the ground temperature is approximately the same year after year, irrespective of the earliness or lateness of the season, the date for the second spraying can almost be stated by calendar. The first of June at North Yakima will time the second spraying as well as is accomplished by the usual breeding cage observations. This date, of course, would change with other locations.

The early worms must feed in the apple, cocoon, emerge as moths and produce eggs before the appearance of the second generation of worms makes a third spraying necessary. This date can readily be determined by trapping the first generation of worms in strips of burlap fastened around the tree trunks. The cocoon, moth and egg stages together require about six weeks, placing the date for the third spraying at North Yakima at about the third week in July. Other localities will vary according to climate. The effect of this external application of spray wears off in a month, at which time a fourth spraying may be given. For late apples a fifth application may be desirable during September.

These five applications do not all have the same value. The first spraying can be given so as to be worth more than all the others combined. If thorough, wetting into every blossom, this spraying has time and again protected the crop. If poorly given, no amount of later spraying can make good the neglect.

To test the effectiveness of the first sprayings some trees should be banded and a close watch be kept for wormy fruit when thinning. Obviously if such tests disclose many worms later sprayings should not be omitted, but it should be equally obvious that if these sprayings have annihilated the first brood of codling moth little danger from a second brood need be feared.

CHERRIES INJURED

The late continued rains did enormous damage in early cherry producing sections of California. The fruit was just in that state of ripeness which caused it to crack and even decay on the tree. The later crop is coming through in fine condition.

In casting your bread upon the waters, don't wait until it gets so stale you have no further use for it.

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Surface Irrigation Pipe
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then why experiment with any other. Lasts a life time.
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it is unbreakable. It runs in a breath of air. The galvanized helmet covers the gears, keeps out rain, keeps out dust, keeps in oil. If you are tired of climbing a windmill tower; if you are tired of buying repairs and having them put on; if you are tired of waiting for a big wind, let us furnish you this self-oiling, ever-going mill to go on any old tower. It costs but little and you will get the difference between no water in a light wind and an abundance of water in almost no wind. Write

Cut out and show your dealer
A pull of 30 lbs. on this wire furls mill.
Aermotor Co., 1146 S. Campbell Ave., Chicago

Farm Bureaus

ADDITIONAL announcements of farm bureau meetings for June are given below. Others were published last week.

Kern County, R. R. Mack, Adviser, Bakersfield

Delano, Director R. H. Hiett, Wednesday, June 2, 8 P. M.

McFarland, Director P. M. Peterson, Friday, June 4, 8 P. M.

Wasco, Director W. T. Fowler, Monday, June 7, 8. P. M.

Rosedale, Director J. Waters, Wednesday, June 9, 8. P. M.

Rio Bravo, Director F. W. Haag, Saturday, June 12, 8 P. M.

Tehachapi, Director L. T. Jenkins, Tuesday, June 15, 8 P. M.

Muroc, Director C. E. Clark, Wednesday, June 16, 8 P. M.

Willow Springs, Director H. W. Mongold, Thursday, June 17, 8 P. M.

Panama, Director A. B. Robinson, Monday, June 21, 8 P. M.

Shafter, Director E. U. Combs, Wednesday, June 23, 8 P. M.

Bakersfield, Director M. J. Adams, Saturday, June 26, 2 P. M.

Arvin, Director R. Haven, Monday, June 28, 8 P. M.

Madera County, T. C. Mayhew, Adviser, Madera

Madera, June 4.
Chowchilla, June 7.
Dixieland, June 9.
Fairmead, June 14.
Eastin, June 17.
Raymond, June 27.
Nipinnawassee, June 23.
Oakhurst, June 25.
Coarse Gold, June 26.
North Fork, June 28.

I have just returned from a visit to the mountain centers. Prof. T. F. Hunt made the trip with me and lectured to the different centers on "Control of Insects and Diseases in the Orchard."

During June Miss Lillian D. Clark will speak at the several mountain centers in the interests of womens' clubs. Two more clubs have been organized as an auxiliary to the farm bureau, one at Coarse Gold and one at Oakhurst.

San Diego County, H. A. Weinland, Adviser, San Diego

Fallbrook, Wednesday, June 2.

Mission Valley, Thursday, June 3, special meeting in the evening with Prof. Bryant of University of California.

Bonsall, Friday, June 4, Regular meeting in the evening, Prof. Bryant attending.

San Diego, Saturday, June 5, 11:00 A. M. Chamber of Commerce. Regular monthly meeting of the directors of the county farm bureau. 2:00 P. M. meeting of ranchers interested in the formation of Winter Vegetable Union.

Encinitas, Monday, June 7, Regular farm bureau meeting held at Olevenheim Colony.

San Pasqual, Tuesday, June 8, Special meeting 2:30 P. M. at the creamery, Prof. True of the dairy husbandry division of the university being present. Discussion of the formation of a cow testing association.

Ramona, Wednesday, June 9, 7:30 P. M. regular farm bureau meeting, Prof. True attending.

Lakeside, Thursday, June 8, 7:30 P. M. special meeting of dairymen interested in the formation of a cow testing association. Prof. True will be present.

Dehesa, Friday, June 11, 7:30 P. M. regular farm bureau meeting. Prof. True may attend.

Alpine and vicinity, Monday and Tuesday, June 14, 15, Meeting Alpine Monday P. M.

Poway and vicinity, Wednesday and Thursday, June 16, 17, Meeting Poway Wednesday P. M.

Spring Valley, Friday, June 18.

Nestor and vicinity, Monday and Tuesday, June 21, 22, Meeting Nestor, Monday P. M.

Otay and vicinity, Wednesday and Thursday, June 23, 24, Meeting Otay, Wednesday P. M.

Jamacha, Friday, June 25.

Potrero, Monday, June 28, Meeting Potrero Monday P. M.

Campo, Tuesday, June 29, Meeting Campo Wednesday, June 30.

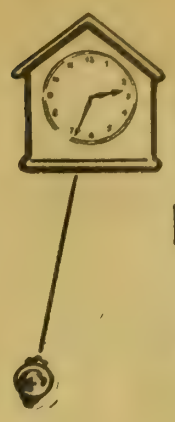
PAINT ADDS BOTH TO APPEARANCE AND SERVICE

All buildings and appliances on a poultry farm will be improved greatly, both in appearance and in serviceability by the addition of paint. One may buy ready-mixed paints or may purchase paste pigments and oil and mix them. All surfaces should be clean and dry before they are painted. Use a priming coat made of equal parts of paint and linseed oil and cover with one or more coats of paint, which should be thoroughly rubbed into the surface.

Whitewash is the cheapest of all paints and may be used either for exterior or interior surfaces. It can be made by slaking about ten pounds of quicklime in a pail with two gallons of water, covering the pail with cloth or burlap and allowing it to slake for one hour. Water is then added to bring the whitewash to such a consistency that it may be applied readily.

A weatherproof whitewash for exterior surfaces may be made as follows: (1) Slake one bushel of quicklime in 12 gallons of hot water; (2) dissolve two pounds of common salt and one pound of sulphate of zinc in two gallons of boiling water; (3) pour (2) into (1), then add two gallons of skim milk and mix thoroughly. Whitewash is spread lightly over the surface with a broad brush.

Mr. Elwood Mead, formerly engaged in irrigation investigations for the United States department of agriculture, and for some years chairman of the water supply commission of Australia, has resigned his position to take up work with the University of California.



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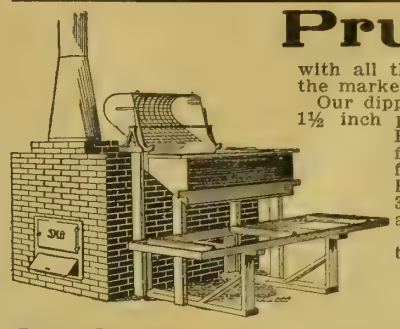

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Large power dipper and grader, capacity 75 tons per day:
24-in. Hand or Power Dry Graders:
3 grade $55.00
4 grade 60.00
5 grade 65.00
Field cars, wood or steel frame 6.00
Transfer cars 8.50
Turn tables 8.50
8-lb. steel rails, 7cts. per foot.

Smith Mfg. Company
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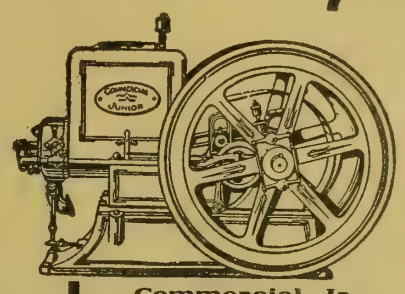

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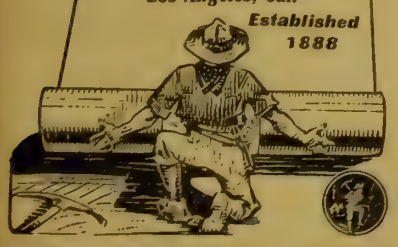

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Get our price on this oil, as well as on our Caterpillar and Stationary gas engine oils, which are also pure Pennsylvania products.

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Now is the time to buy water pipe cheap. We have on hand 100,000 feet of 3 in., 2 in. and 1½ in., dipped and undipped, water pipe with new threads and new couplings and fully guaranteed. We can ship you any amount you want with small lots of fittings free with each order. There never was before a better lot of pipe offered for sale. We are shipping this pipe all over the country for all kinds of purposes where pipe is used. We advise you to take advantage of this offer and send in your order at once.

3 In., new, 15 cents per foot
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Advertisements in California Cultivator are Guaranteed
See Announcement at Head of Editorial Page

Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Reclaiming Alkali Land

Have a field containing 11 acres of level bottom land in the center of which there is an oval shaped tract of three acres of alkali soil which produces a heavy crop of salt grass but cannot grow any crop of value. In plowing the whole piece the salt grass roots are spreading to the good land and it seems a difficult matter to kill them by cultivation. Have been told that the salt grass may be killed by plowing under in July or August and leaving the roots undisturbed. Is this possible? The soil is always damp just beneath the surface. Could asparagus be profitably grown on such land?—Subscriber, Escondido.

The plowing will aid in killing out the salt grass. We think its destruction may be accomplished more quickly, however, if cultivation follows the plowing. Then if underdrainage can be given to dispense with the alkali it is probable that one of the richest spots on the place can be made of this worthless land. If black alkali prevails make a heavy application of gypsum.

Little Leaf or Root Knot

My five-year-old peach trees had a fine crop two years ago. Last year they died down and threw out a number of small limbs around the trunk. This year this growth died and more new growth is coming. What can I do for them or should I dig them up and replace? Also have apricots five years old which fail to bear.—Subscriber, National City.

Possibly these peach trees are affected with little leaf or more probably with root knot. In either case there is little which can be done for them and it is probable after two years' failure to maintain growth it would be best to replace with other trees. If root knot is the cause then care should be taken in excavating so as to remove all diseased or knotty growth. In addition it would be well to plant new trees in the center where there were no trees formerly. Perhaps the apricots had to endure unfavorable conditions at blossoming time so that no fruit could set. Possibly it is a matter of variety not suited to your conditions.

Poultry Manure On Grapes

Is hen manure good for bearing grapes?—Subscriber, National City.

We think poultry manure is good for any crop but we would advise using in very small quantities and working well into the soil.

Pear Blight

What is the trouble with Bartlett pear leaves which I send? The trees were grown in black adobe soil with plenty of irrigation. What does pear blight look like?—Subscriber, Orosi.

The greater part of these leaves were affected with pear blight which should be handled as described in our columns by pruning off all affected parts as soon as they appear. The other leaves sent have been submitted to a university specialtist who will tell us as to whether there is any other trouble with the trees. Pear blight, which is often called fire blight, causes the leaves to look as if they had been burned and they turn dead and brown. At the first attack the leaves are blackened and later turn brown.

Preserving Fruit for Exhibition

We are frequently requested to give formula for preserving fruit in glass jars where it is desired to keep in good condition to show type of fruit or for exhibition purposes. This matter of preserving fruits is a trade in itself and one in which the novice will probably make many failures before he learns the game. Much depends on variety, condition of fruit and other factors, and the solutions are modified in many ways to meet conditions. However, we may give the following general directions and from these may be worked out more specific lines of work:

Select the finest specimens of the fruit both as to form and size. Handle them carefully to avoid all bruising, and place them in bottles, arranging the specimens so as to show them to the best advanatage. Fill each bottle to the neck with fruit, then pour on the fluid recommended, filling the bottles to within half an inch of the stopper so as to entirely cover the fruit. Then place the stopper in the bottle and run a little beeswax or paraffin over the joint to make it air-tight. Tie the stopper down with a piece of strong cotton and attach to each bottle a label containing the following particulars: Name of the variety of fruit, name and address of the grower. Write also in each case in one corner of the label the letter suggested to indicate the fluid which has been used. Wrap the bottles in paper to exclude the light and preserve in a cellar or other cool place until required for shipment. Strawberries and raspberries should be cut from the plants or bushes with a pair of scissors, leaving a short piece of stem attached to each. Fluid—Formalin formaldehyde), one pound (16 ounces); water, 44 pounds; alcohol, five pints. Allow the mixture to stand, and should there be any sediment, pour off the clear liquid and filter the remainder through filter paper. This two per cent solution of formalin has been found very useful for preserving strawberries so as to give them a natural appearance.

Diabrotica

I send bugs which are destroying squash and melon vines. Have used arsenate of lead but it seems to do no good.—Subscriber, Gardena.

These little green bugs with black spots are diabrotica and they are a most perplexing pest. The three pounds of arsenate to 50 gallons of water which you used should have been sufficient. Would advise very thorough application, using care to reach lower sides of leaves. We do not know of any better treatment.

Spraying Lemons

When and how should one spray three-year-old lemon trees for black scale?—Subscriber, Upland.

As there would be danger of injury to young fruit by spraying at this time of year it is best to defer this work until August or September, or even any time before the last of December. Spray with kerosene emulsion, made as follows:

Kerosene, 20 gallons; Whale oil soap, five pounds; Water, ten gallons. Dissolve the soap in hot water. Add the kerosene while the suds are still hot (be careful not to get the kerosene too close to the fire) and stir thoroughly. After thorough emulsification dilute with cold water 1 to 8.

Balanced Ration for Man

I notice in looking over the inquiry column of a recent Cultivator the item from a reader who wants to know the proper rations for a normal man. Why not refer him to page 133, "Field Service Regulations," Service of Supply, United States Army, where they provide six different kinds of rations to meet the different existing conditions, which may be compared very nicely with the ordinary work and conditions met with on a ranch. Here he will find six different kinds of rations provided for all kinds of labor and emergencies as follows: Garrison rations, field ra-

(Continued on Page 643)

Panama-Pacific Exposition Night Illumination. View from Main Entrance. The Jewel City is Wonderfully Beautiful at Night.

MANY CONVENTIONS

THERE are to be 833 conventions and congresses held in connection with the Panama Pacific International Exposition. Of these 34 are agricultural or horticultural. Education seems to call for the greater number, with 129. Business comes next with 75, and religious organizations call for a good one-third, or 71. Conventions of other organizations run down to as low as seven, the latter in the interests of historical and literary societies Music comes in for a great showing, and during the next few weeks there will be wonderfully attractive programs by some of the best musicians in the world.

Today is Alameda County day. Other days to follow within the next two weeks are as follows: June 4, American Sweet Pea Society Day, Berkeley Day, International Conference of Women Workers to Promote Peace Day, Traveling Ticket Agents' Day; June 5, Denmark Day, Oakland Day Childrens' Day; June 5-9, World's Light Harness Race June 6-12, Denmark Week; June 7, Norway Day, Benicia Day; June 8, Special Elks Day; Vallejo Day, American Library Association Day; June 9, San Jose Day; June 10, Reading (Pennsylvania) Day, Santa Clara Day; June 11, W. C. T. U. Day, Kamehameha (Hawaiian) Day, Newark (New Jersey) Day, Santa Cruz Day; June 12, Stockton Day; June 14, Flag Day, Salinas Day, South Carolina Day; June 15, All Oregon Day, Magna Charta; June 16, Portland (Oregon) Rose Day, Fresno Day; June 17, Boston Day, Bunker Hill Day, National Conference on Weights and Measures, Massachusetts Day, Friends of the Pacific Day; June 18, San Luis Obispo Day, United Swedish Singers Pacific Coast, American Medical Association Excursion; June 19, Bakersfield Day.

TO OUR READERS

You who take an interest in the big things of life, the things that are worth while, will attend the great Panama Pacific International Exposition. Many will go several times to view the splendid architectural wonders which have been wrought by the master architects of the world. In no similar space has so much beauty and utility ever been brought together. It is the culminating achievement of many men who have given their lives to the creation of beautiful buildings, life-like statuary and mechanical progress.

PRESIDENT WHEELER ON THE EXPOSITION

Here is what President Benjamin Ide Wheeler of the University of California thinks of the Panama-Pacific International Exposition, as set forth in a signed letter published in the last issue of "Current Opinion."

"An American who does not attend the exposition will have to explain why all the rest of his life.

"The architecture of the buildings and courts, the scheme of colors which draws all into unity, and the general plan constitute each and all of them landmarks in the history of art. The exposition and its features will be quoted for years to come, and the man who has not been here will have to go and sit down in a corner while the other people talk.

"The position of the exposition at the Golden Gate touches the imagination of all who see it and can never be forgotten. The exhibits mark the progress of invention and art up to this precise day of the world, and to see them is an education.

"Most important, however, of all is it for an American citizen that he should see the western coast of his country, and particularly the California that is set here to represent it. We of the West are inclined to think that anyone who has not seen that part of our land which looks out upon the Pacific is not living up to his full occasion for rejoicing and pride that he is an American citizen."

There are now on exhibition Percheron, Shire, Arabian, Thoroughbred and standard bred horses. The standard breds will remain in the barns of this department only until after the June races, which cover the period between June 5 and 15, when they will go to other race meetings and return for the fall races which will be held on the exposition track from October 30 to November 13.

CATERPILLAR
Reg. U.S. Pat. Off.
TRACTOR
Be sure to see our display of Caterpillar Tractors and Combined Harvesters. All moving parts in action. Housings cut to show interior workings. Attractive rest rooms for visitors.
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Palace of AGRICULTURE
—all of sections 7 and 45, facing main entrance from the water side.
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Exhibit and Demonstration of
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Be sure and see the famous Luitwieler non pulsating pumping system at the fairs. Write for free pumping booklets.
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We Will Furnish You FREE ESTIMATES

SEE OUR SILOS AT THE EXPOSITION
Two of our famous
Remco Redwood Silos
are located on the main road leading to the Stock Exhibit, on the east side of the Dairy Building.
Our representative is always on hand and will take pleasure in explaining the many advantages which these silos have, and also profitable silo operation in general.
See our big tank and pipe exhibit in Machinery Hall, where REMCO wood stave pipe and REMCO tanks are operating under actual conditions.
REDWOOD MANUFACTURERS COMPANY, Hobart Bldg., San Francisco

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SEE THEM AT EXHIBIT OF
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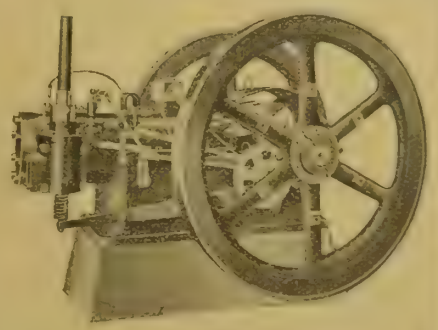

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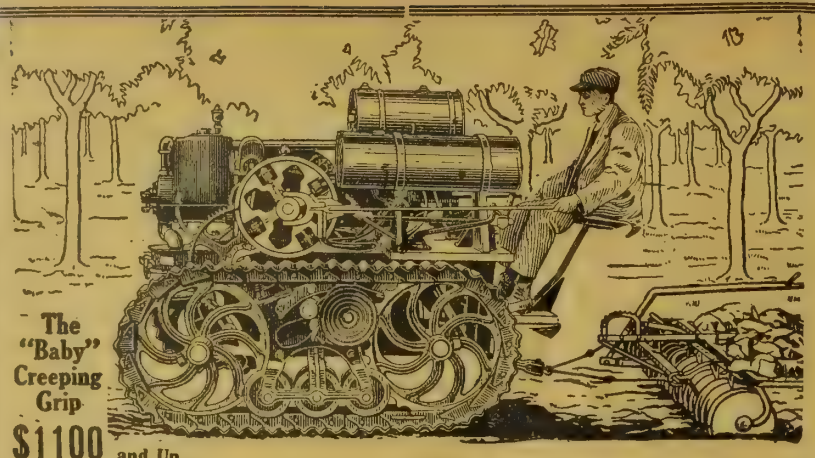

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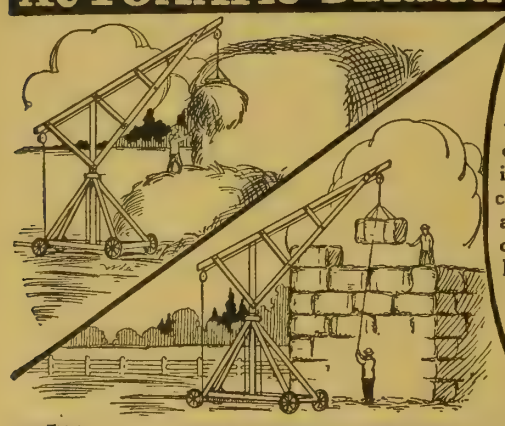

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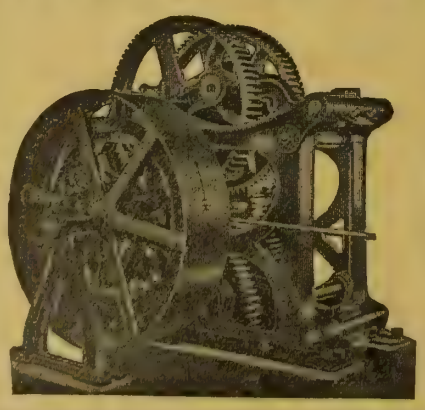

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Small Fruits Vegetables

THIS MONTH IN SOUTHERN CALIFORNIA

Written for the California Cultivator
By O. M. Morris

JUST at this time the most important work to be performed is keeping the soil thoroughly cultivated and irrigated. With the approaching warm weather this must not be neglected if best results are desired. If water for irrigation is lacking it would be a good idea to thoroughly mulch all plants, trees and shrubs with a good covering of straw or light manure. Weeds or other protection to shade the ground will assist materially in holding the moisture near the surface. The majority of planting should be done by this time. However, one may still plant beans, corn, potatoes, melons and cucumbers, table and stock beets, carrots, lettuce, pumpkins and squash.

Early cabbage and extra early cauliflower are being planted for late summer or early fall marketing. The best variety of cabbage for planting now is All Seasons or Succession. This is a large cabbage which is a bit late in maturing. It has large foliage, which protects the head from the extreme heat of summer. In cauliflower the only variety recommended for planting at this time would be Extra Early, Snowball or Dwarf Purple.

Peppers for field crop can be planted directly where they are to grow if the soil is in perfect condition. Plant the seed in hills about 12 to 14 inches apart. It is best to lower the hill an inch or two below the surface and plant about one inch deep. It is absolutely essential that the soil be thoroughly irrigated before planting.

Tomatoes may be treated in the same manner for a late crop.

This is the best season of the year to plant casabas. There is such a large variety of these that one may choose liberally from the different classes. The improved hybrid is a large, early maturing variety of fine quality. The Golden Beauty and Winter Pineapple are late varieties which may be kept in storage up until February. These do not mature as early as the hybrids.

If one has good sub-irrigated soil onions may be planted. These require naturally moist soil or an abundance of irrigation water. They should be watered every week or ten days and given continuous cultivation until the bulbs are formed.

Celery plants should be transplanted to the field or seed for winter crop may still be planted. The most popular variety on the coast is the Golden Self-Blanching. By some, however, the White Globe is preferred.

ADVANTAGES OF SPRAYING POTATOES

Potato growers have long realized that in seasons when blight is present spraying will check the blight and considerably increase the yield, but some growers have doubted that spraying is profitable on the average. It is impossible to foretell the appearance of blight, but since the disease generally does not appear every year, the tendency has been not to spray regularly in the belief that the aggregate gains will not repay the expense of spraying for a series of years. The 20 years' potato-spraying experiments at the Vermont station and 10 years of similar work at the New York state station recently completed answer the question as to the profitableness of spraying potatoes regularly in the affirmative and show such a margin of profit therefrom that the subject should command the earnest consideration of all potato growers.

The work at the Vermont station was begun in 1891. In the early experiments comparative tests of different fungicides were made, but the superiority of Bordeaux mixture soon became apparent, and in the subsequent years Bordeaux alone was used. The results showed conclusively that Bordeaux mixture very efficiently protected plants from the attacks of the early and of the late blight and seemed to serve in some way as a stimulus to the plant, so that it remained green from one to two weeks longer than the unsprayed plants and also yielded more and larger tubers.

The physiological effect on the plant is shown by the fact that even early in the season the sprayed plants stored more starch in their tubers than those not so treated. While the plants themselves from the sprayed and the control plats were of approximately the same size, "the weight of the tubers at this time was 24.8 bushels per acre in favor of the potatoes to which the Bordeaux had been applied. This would seem to indicate that during the months of July and August, while the tubers were growing, the unsprayed plants were not able to fix as much carbon dioxid and transform it into starch as were those that had not been so treated."

The results of the entire 20 years' work at the Vermont station show that Bordeaux mixture, even in years when no blight ocurs, increases the yield of the plants to which it is applied. This increased yield is always sufficient to pay for the cost of spraying operations. Spraying is to be regarded as an insurance that pays for itself. If the blights are prevalent the potatoes if thoroughly sprayed are insured against loss therefrom; if the season is a dry one and no disease occurs still the crop will be enough larger to pay for all the cost of spraying. The careful potato sprayer wins either way, no matter what the weather or disease conditions.

The results with iron sulphate-copper sulphate mixture indicate that Bordeaux mixture "in which part of the copper is replaced by iron has as great a stimulating effect as does the ordinary Bordeaux. Whether it is as good a fungicide has not yet been proved."

The increased yields from plats where the Bordeaux mixture was applied only to part of each plant indicates that even here there was a sufficient effect produced to manifest itself in a yield of 28 bushels per acre more than that obtained on the plats left entirely untreated. This is about what would be expected if half the leaves were touched by the Bordeaux.

In applying the mixture it is important to cover the plants uniformly and very thoroughly. The following directions for spraying are given by the New York state station:

In general commence spraying when the plants are six to eight inches high and repeat the treatment at intervals of 10 to 14 days, in order to keep the plants well covered with Bordeaux throughout the season. During epidemics of blight it may be advisable to spray as often as once a week. Usually six applications will be required. The Bordeaux should contain four pounds of copper sulphate to each 50 gallons in the first two sprayings and six pounds to 50 gallons in subsequent sprayings. Whenever (potato) bugs or flea-beetles are plentiful add one or two pounds of Paris green, two quarts of arsenite of soda stock solution or three to five pounds of arsenate of lead to the quantity of Bordeaux required to spray an acre.

Thoroughness of application is to be desired at all times, but is especially important when flea-beetles are numerous or the weather favorable to blight. The more frequently and thoroughly the plants are sprayed the better. There is no danger of injuring the foliage by too much spraying. Using the same quantity of Bordeaux frequent light applications are likely to be more effective than heavier applications at long intervals; that is, when a horsepower sprayer carrying but one nozzle per row is used it is better to go over the plants

(Continued on Page 647)

THIS MONTH IN SOUTHERN CALIFORNIA

Written for the California Cultivator
By O. M. Morris

PLANTING operations at this time are confined mainly to asters, stocks and chrysanthemums. If chrysanthemums already planted are showing too tall a growth they should be cut back to within four to six inches from the ground and allowed to make new growth, leaving about three canes from each root. Remove all other growth and thoroughly mulch with good stable manure or commercial fertilizer. The chrysanthemum requires plenty of water and should be kept in good growing condition from now on. If the supply of asters is short seed may be planted in permanent bed or border. Plant in drills, in rows about two feet apart, covering the seed about one-half inch with good soil. Snapdragons, winter stocks, centaurias and delphiniums should be planted as early as possible if flowers are wanted for the holidays. Foxgloves, Canterbury bells, sweet william and hollyhocks planted now will give strong plants for fall bedding. These will not bloom this season, but will furnish early spring bloom. Florists about Los Angeles plant in succession nearly every month in the year the annual gypsophila. These require about four months to come into bloom. Planted in this manner one may have flowers the better part of the year.

If possible to obtain gladiolus bulbs they may be planted for midsummer blooming. Large bulbs will bloom more quickly than the smaller ones. For a succession plant the baby bulbs and the small, medium and large-sized bulbs, thus insuring a blooming period covering the better part of the summer. The little bulblets or corms separated from the larger ones in the early spring will bloom in about six months.

PLANTING GLADIOLI

A succession of plantings can be made from now on until the end of June. Plant them in rows from two to three feet apart, leaving about three to four inches between the bulbs in the rows. They should be set at least four inches deep. By planting the bulbs at intervals of about two weeks we secure a long season. See that the soil is worked deep and that there is plenty of well-decayed manure mixed into it. When they show above the ground keep the cultivator going every week until they have reached a height of about eight inches. During limited rainfall they should be watered at intervals quite profusely. It would be well to sort the corms over and plant all the small ones at first planting, leaving the largest for the last. Just before the last cultivation give some quick-acting fertilizer between the rows. It can be put on at the rate of three or four hundred pounds per acre. —Horticulture.

BILTMORE ROSES

One of the handsomest catalogs we have ever seen is that of the Biltmore Nursery of North Carolina. It devotes more than 100 pages to description and beautiful illustrations both in halftones and colors of the latest and finest in roses.

Don't expect to have fine blooms if you fail to feed the plants good manure every year.

The old fashioned garden pink is again coming into favor.

THE WHITE GRUB IN LAWNS

IT takes two years or more for these white grubs to reach maturity from the egg. In the first season they are so very small that the effect of their work is not noticeable, but the second year after the egg is laid we are apt to receive dozens of complaints.

There are several ways of combating this injurious insect which not only attacks lawns, but also the roots of strawberries and other plants. Copious watering of the lawn where possible will sometimes keep the grass ahead of the ravages of this grub. The robins, too, seek out and devour these, to them, delicious morsels. An entomological friend—a practical man—claims that he has got rid of them by putting tobacco stems thickly on affected parts of the lawn, allowing rain to leach them, as it were, and take the tobacco solution into the soil. Of course, water from a sprinkler would take the place of rain in a rainless season. We have caught with lantern traps a large number of mature June beetles or "June bugs," and eggs have been laid after females were trapped; indicating that lantern traps are a very good thing, used early in the season, and may attract females before the period of egg-laying. At Lakewood cemetery, Minneapolis, following our suggestion, they have used lantern traps made by placing lighted lanterns over tubs, and in each tub a little water covered with kerosene—which latter is deadly to all insect life—and caught hundreds of these brown beetles. Of course the effect of this wholesale slaughter of the brown beetle would not be seen on the lawn the summer the lantern traps were used, for the grubs doing injury at that time come from eggs laid a year or so before. It is possible that some apparatus may be devised for piercing the grubs as they lie an inch or so below the surface of the ground—some kind of "pounder," filled with spikes closely set together, might be used with success, where the sod has begun to show brown.—F. L. Washburn, Minnesota University Farm.

BULBS MAKE INDOORS MORE BEAUTIFUL

There are no other plants that can take the place of bulbs indoors in the winter. They need but slight attention to give a profusion of bloom through the cold winter months. They blossom freely where there is but slight sunlight and return to their owner many times their original cost.

"It is well to get your bulbs early and pot them in rich loose soil," says R. H. Denniston, assistant professor of botany, University of Wisconsin. "The pots should then be put in a dark cool place to let the roots develop. Do not water them after planting unless the soil becomes very dry. The soil used for potting should be thoroughly moistened and the bulbs planted so that just the tips show above the ground. If the conditions are right, the roots will begin to develop at once and when a good growth has been produced, green tips appear at the tip of the bulb. Then put the pots where the light is not too strong and let them remain till the buds show plainly. Remember that bright light is good for the bulb only after the buds appear."

The Chinese sacred lily and paper white narcissus may be grown in water and always give satisfaction.

Roman hyacinths and the various kinds of narcissus are easily grown if the above simple rules are followed.

Freesias, tulips and crocus will do well in pots if grown in a cool place.

The two lilies, candidum and harrisi, are grand bloomers, but are slow to develop.

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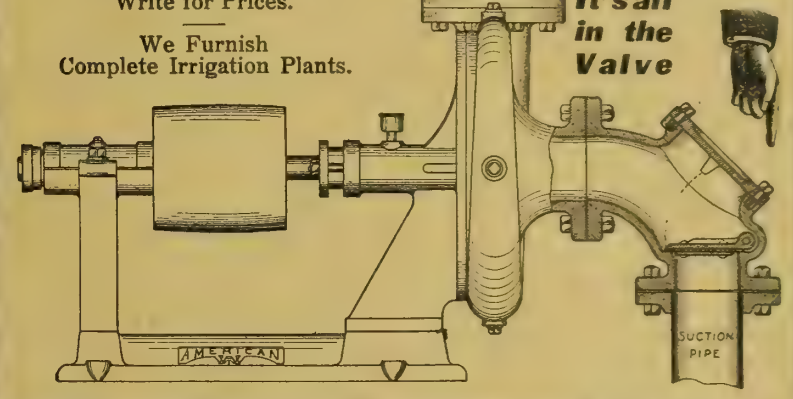

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SLUG-SHOT
USED FROM OCEAN TO OCEAN FOR 35 YEARS.
Sold by Seed Dealers of America.
Saves Currants, Potatoes, Cabbage, Melons, Flowers, Trees and Shrubs from Insects. Put up in popular packages at popular prices. Write for free pamphlet on Bugs and Blights, etc., to
Hammond's Paint and Slug Shot Works, Beacon, New York

Giant Winter Rhubarb
Special Prices on Subdivisions for a Short Time
Last season I sold $672.00 worth of stems from ⅝ of an acre set out the preceding June.
Now is the time to plant. Circular free.
W. A. Lee, Covina, California

Established 1888. Twenty-seventh Year.

The California Cultivator

Rural California Combined with the California Cultivator

A Journal of Horticulture and Agriculture

By
THE CULTIVATOR PUBLISHING CO., Inc.
115 and 117 N. Broadway,
Los Angeles, Cal.

Frank H. Thomas, Pres. and Manager.
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Thursday, June 3, 1915

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

BEAN SITUATION

The board of directors of the Lima Bean Growers' Association will not meet until next Tuesday. It is rumored, however, that the 50,000 acres which it was stipulated should be signed up for the coming year's crop before June 1 have not been signed up. The final action which will be taken next Tuesday can only be guessed at, but it is assumed the original intention will be carried out and the association discontinued. We fear this will be a serious misfortune for the bean industry. However, it is the growers' own decision, and presumably members feel this step is safest.

FREE FAIR

Kansas inaugurates a departure in state fairs. In common with all other state fairs that of Kansas has charged a regular admission to all comers. Some other fairs have gone somewhat farther in absolutely refusing passes for any reason whatsoever; everyone who entered paid his 50 cents. Now Kansas proposes that its fair gates shall be wide open, and all the world is invited to come and view, without price, what agriculture can accomplish in Kansas. A special tax levy has been voted to pay for all premiums and to cover all expenses. Kansas anticipates that this may revolutionize fairs everywhere.

The Kansas fair grounds cover 78 acres near the state house at Topeka. The county has already invested about $320,000, and the city of Topeka and the county are aiding this movement for a free fair. This fair has been held at Topeka for 30 years, and this will be the first exposition without charge for admission.

LABOR WANTED.

The post office department is acting as intermediary between the wheat growers of the Middle West and the laborers. A call is being sent out for 18,000 men to aid in the harvest fields of Kansas. We doubt not Kansas will find it difficult to secure competent help to harvest her great crop. There are thousands without employment, but a very small proportion are fitted for the strenuous and intelligent work required in the harvest fields.

ATTRACTIVENESS PAYS.

We note in an eastern farm paper, "In these days of autos and rapid travel there is no beter advertisement for the farm than a good lawn and well-kept flower garden. This pays now that direct dealing with consumers is on." Attractiveness pays in so many ways that it hardly seems necessary to call atention to it, and it is not necessary to call attention to it so much in California as in Eastern farming sections, but of course there is always room for growth. If we would attract better people to make homes in our neighborhood we must first offer what they like. If we do not, the people who come in will be of a class which will join with us in maintaining the lower standard.

STANDING PAT

We note in the resolutions passed at the regular meeting of the board of directors of the Lindsay-Merryman Citrus Exchange that "It is resolved, That, having every confidence in the present management and general policy of the California Fruit Growers' Exchange, and feeling satisfied that they are fully awake to the necessities of our industry, we hereby desire to go on record as endorsing their general policy, believing they will protect our interests in every way."

From the whereas's which precede these resolutions it is shown that the members "have full realization of the fundamental and well-known causes which are responsible for the low prices—the excessive production of citrus fruits in other sections, the European war, the poor shipping quality of much of California's fruit, etc."

The citrus people are thinkers and of a class which will not be stampeded, and it will take even more than two or three seasons of disaster to make them desert the one organization which stands between the state's greatest industry and failure.

PURE MILK

Chief Lively and Superintendent Quisenberry of the department of live stock of the Panama-Pacific Exposition write that there is much interest manifested in the pure milk and cream show which will be held at the exposition June 14-19. The exhibits will be made in Congress Hall which is headquarters for the live stock department and for live stock people in general.

City and state boards of health and the dairy division of the United States department of agriculture are cooperating with Chief Lively in his efforts to bring together a creditable exhibit and to create an interest in more, better and purer milk and cream. Such exhibits as this will tend to impress upon the producers and dealers the great importance of cleanliness and better methods in producing and handing milk and cream.

It may appear to some dairymen that this is in the interests of the consumer, and perhaps that is true, but if it is, it certainly is in the interests of the producer, for unless producer and consumer keep fairly close together, the service or returns of the one or the other will be less satisfactory.

RURAL EDUCATION

Colman's Rural of May 29, 1875, makes this statement: "We have in the United States 38 agricultural colleges, with 389 professors and 3,917 students. Few of the graduates, however, become farmers."

This indicates a material difference in conditions 40 years ago and today. Outside of the increase in numbers—and there are single states which exceed in number all the agricultural students in the country 40 years ago—there is a vast change in sentiment as to the needs of the farmer. As stated in the above quotation, but few of the graduates of the agricultural institutions followed farming. While it is possible today that all who attend agricultural colleges do not become farmers, yet we believe the vast majority of those taking the agricultural work are doing it because they intend to make agriculture their lifework. Forty years ago agriculture was largely followed by main strength and awkwardness, and with the rich prairies just coming under cultivation, the crude methods yielded fortunes. Today the problems are greater and a better education is demanded to solve them. The boy of today who would become a farmer is compelled to fit himself to the limit if he intends to bring success out of farming.

AUTOS TO EUROPE.

It is possible that one good thing will come to Europe out of the war, and that is the introduction of vast numbers of autos and trucks. This suggestion is made, not in a spirit of sordidness, but from the standpoint of European interests. For example, writing regarding conditions in Russia, Mr. W. V. Logan of the Goodyear Tire Company, says:

"Take the automobile industry; when the war started there were only 12,500 motor vehicles in Russia, trucks, pleasure cars, large and small. The government purchased between $15,000,000 and $20,000,000 worth while I was there. After the war American automobile products will be very well known."

Of course this was written more from the commercial standpoint, but when we consider that in all Russia prior to the war there was not one auto for every ten now in California, it may be seen there was not very rapid transit in that country, especially when we take into account the fact that most of the railways are narrow gauge, single track affairs. Russia's greatest handicap during the war has been lack of transportation facilities. It is likewise a handicap in times of peace. Modern day methods call for quicker service. In other words, "Let gasoline do it."

In fact, Mr. Logan says that his trip from London to Petrograd required seven days, part of the trip being made in reindeer sleighs.

Agricultural Notes

A wireless telegraph station at Rio Grande, Tierra del Fuego, has been inaugurated and will shortly be opened for public service.

The tuna pack of California for 1914 was nearly double the 1913 pack. It amounted to 310,000 cases, valued at over a million and a half.

Eggs are forming a new and important factor in our exports to Argentina. One recent report showed 2,842,000 eggs, valued at $64,942, sent in a single shipment to Buenos Aires.

The smallest homestead in the United States is eight-hundredths of an acre. It is on Turtle Lake, Minnesota. It was commuted after 17 months' residence for 10 cents.

Sixteen thousand to 18,000 men will be needed in Oklahoma for the grain harvest, reports the commissioner of labor at Oklahoma City. Wages will be from $2 to $3 per day and board. Most of the farmers have expressed a preference for English-speaking white men.

Before the outbreak of the present European war practically all the fresh fruit and much of the dried fruit imported into Goteborg, Sweden, came through Liverpool or other intermediate ports. Now Goteborg fruit agents are ordering direct from the United States.

A report received in Paris from Basle says that all the employes on the Berlin Underground Railway are now women. Women are also employed on suburban lines, where they are to be seen cleaning the cars and even working with the picks and shovels.

The department of state of the United States has issued programs for the Second Pan-American Scientific Congress which will be held in Washington, D. C., December 27, 1915, to January 8, 1916. Appropriations aggregating $50,000 have been made by the United States for the congress.

The apple yield of the island of Tasmania this year was cut to one-half normal by drouths and frost. Nevertheless after supplying domestic needs and using large quantities of apples in cider and jam factories, Tasmania exported 2,000,000 cases of apples to the other states of Australia and to foreign countries.

Large quantities of coffee and cocoa from South America are now being re-exported from the United States to Europe. Over 40,000,000 pounds of coffee, chiefly from South America, has been exported during the period from August 1 to March 1, against about 7,000,000 pounds in the same months of last year, and approximately 20,000,000 pounds of cocoa, against 3,000,000 pounds in the corresponding months of last year, and nearly all of it has gone to Europe.

One vessel leaving New York for the eastern coast of South America a few days ago carried for Brazil $25,000 worth of printed and advertising matter, $3,000 worth of agricultural implements and $10,000 worth of miscellaneous machinery; for Montevideo, Uruguay, $6,000 worth of paper, $13,000 worth of malt and $40,000 worth of miscellaneous merchandise; for Buenos Aires, $20,000 worth of automobiles, $11,000 worth of fertilizer, $12,000 worth of agricultural machinery, $17,000 worth of electric material, $20,- worth of dry goods, $25,000 worth of shoes and $25,000 worth of miscellaneous machinery.

Agricultural News Notes of the Pacific Coast

Northern California

Orland's alfalfa meal mill was opened last week.

The first shipment of peaches was made from Placer County May 17.

Colusa County expects to have a county library established in the near future.

The early cherry crop was practically a total failure owing to rainstorms.

Some rust has been showing in the wheat and barley fields of Butte County.

Improvements costing nearly $38,000 will be made on the Tahoe national forest this season.

A steel lookout tower will be built by the forest service in the Truckee-Sierraville district.

Approximately two and a half tons of butter were shipped from Orland on Monday of last week.

The citriculture class from the University of California visited orange and lemon groves of Orland last week.

The Alameda Sugar Company has entered into contracts with farmers for nearly 5,000 acres of sugar beets.

The Placerville Fruit Growers' Association has awarded a contract for the erection of a new fruit packing house.

A dairymen's association was formed at the farmers' picnic, held at Greenwood Grove, Glenn County, on May 29.

Farmers' short courses at the university farm, Davis, Yolo County, will begin on Monday, October 4, continuing for six weeks.

It is reported that Cedarville, Modoc County, will soon have a modern creamery with capacity for handling butter fat from 2,000 cows.

Farmers of the section about Bogue, Sutter County, met at Bogue on June 1 to organize a local branch of the Farmers' Protective League.

There will be a big farm bureau picnic at Newark, Alameda County, June 19. Demonstrations of cattle and poultry judging will be given by experts.

The Congressional Rivers and Harbors Committee will visit California in July. The irrigation districts will then present their claims to appropriations.

El Dorado national forest service crews are now busily engaged repairing telephone lines and putting the system in perfect working order to all fire stations.

The Grass Valley High School Agricultural Club announces there will be 18 entrants among its membership in the potato growing contest conducted by the state farm school.

Prof. Davidson, recently elected professor of agricultural engineering at the university farm school at Davis, will superintend construction of a testing plant for agricultural machinery.

The Oroville Chamber of Commerce has received word from officials of the Missouri Pacific Railway that extensive publicity is being given by their passenger service to the gift of flowers made by the people of Oroville to exposition visitors passing through on the trains.

Central California

Ceres, Stanislaus County, is now assured of a $50,000 condensary.

Last month California shipped 500,000 pounds of butter to Australia.

Large plantings of beans are being made in the Porterville district this spring.

Livingston, Merced County, shipped out 30 crates of summer squash last week.

Kings County claims to be shipping 150 tons of alfalfa hay per week to New York.

Redbanks, Tulare County, made the first shipment of early peaches, consisting of 97 crates.

Weather conditions have delayed the tomato crop of central California for some two weeks.

Hundreds of acres of walnuts have been planted in the section about Visalia this last season.

The McFarland, Kern County, cooperative creamery is manufacturing 100 pounds of butter daily.

A meeting of citrus growers at Sultana, Tulare County, is called for June 5 to organize a citrus fruit exchange.

The Farmers' Union of Gilroy, Santa Clara County, has purchased a site for a cooperative packing house.

The cutting of grain has started in Kings County. It is estimated the yield will run an average of about 40 sacks to the acre.

The Tulare Cooperative Poultry Association transacted a business during May amounting to within a fraction of $6,000, exceeding last month's business by $700.

Fresno commercial organizations are discussing method of disposal of a bumper peach crop. The estimated crop of the valley this season is 40,000 tons.

The Visalia Creamery, the Lakeview Creamery Company of Corcoran and the Tulare Cooperative Creamery have joined in opening up Los Angeles headquarters for their products.

Many orchardists along the Pajaro river are reported to be planning to dig up their orchards, as they are losing in thrift, presumably from the high water of the last few years.

The Wells-Fargo Express Company has asked for a rehearing of the butter and cream rate case recently brought against it by the Dairymen's Cooperative Creamery Association of Tulare.

Stanislaus County has declared off its squirrel extermination campaign, as it is considered too expensive to continue it at the present time, although good work has been done in the past.

Members of the state water commission visited Owens Valley the last week in May. Many petitions have been received by the board to determine water rights of residents of Owens Valley.

Raisin growers of the San Joaquin Valley estimate that there will be a saving to them of $350,000 a year on raisins shipped from the Valley because of lower fruit rates recently applied for by the Southern Pacific Company.

Southern California

A broom factory has been established at Huntington Beach.

Banning peach growers are busily engaged in thinning a big setting of fruit.

An unusually heavy grain crop all over the southern part of the state is indicated.

The walnut aphis is said to be doing considerable damage in orchards of Santa Paula, Ventura County.

A report from walnut groves of Ventura County states that walnuts are setting in clusters like grapes.

Two crates of bell peppers, raised in Villa Park, Orange County, brought the record price of 40 cents a pound.

A laboratory has been established at Brawley to conduct experiments in utilizing cull watermelons and cantaloupes.

Ranchers of the San Fernando Valley are already putting in pipe lines which will connect them with the Los Angeles aqueduct.

The new $30,000 plant of the Pomona Valley Canning Company has just been completed. Its apricot run will begin about June 20.

All Southern Pacific and Santa Fe trains operating on the San Joaquin Valley lines are being detoured by the coast route owing to a tunnel fire in the Tehachapi.

Eighteen hundred more acres will be planted to beans this year along the coast between Oceanside and La Jolla than in 1914. Much of this land will be planted to blackeyes.

Fourteen extra rangers will be added to the force of the forest bureau of Southern California this summer. This will make a total of 50 men at work south of the Tehachapi.

The Victor Valley reclamation project, which contemplates the irrigation of 56,000 acres, has been placed in the hands of engineers of the United States reclamation service.

The annual meeting of the Ventura County Farm Bureau, held at Foster Park Saturday, May 29, was addressed by Dr. Thomas Forsyth Hunt, dean of the college of agriculture, University of California.

Taking walnut growing sections of the state as a whole, the crop this year is a good average one, according to reports received at a recent meeting in Los Angeles of the California Walnut Growers' Association.

David Coey of Yucaipa, San Bernardino County, has been made general chairman of the committees which will arrange for the annual apple show this fall. The date for the show has not yet been set, but it will probably be some time in October.

The San Gabriel Valley Potato Growers' Association has chosen J. D. Cleminson of El Monte president for the ensuing year. The organization has about 100 members in Puente, El Monte, Baldwin Park, Whittier Heights, Bassett and Arcadia sections.

The Ventura County Dried Fruit Association was reorganized at its annual meeting held Saturday, May 15, at Santa Paula. It will hereafter be known as the Ventura County Cured Fruit Association and will market through the California Cured Fruit Exchange.

The Coast

Boll weevil has been found feeding on wild cotton in Arizona.

Northern Idaho is reported by the state veterinarian free from hog cholera.

The sixth annual state horse show was held at Ritzville, Washington, May 14.

Chandler, Arizona, is forming a local of the Arizona Farm Improvement Association.

Chandler, Arizona, has promise of a new creamery and ice plant to be erected very soon.

A summer session of the Washington Agricultural College will be held at Puyallup, June 23 to July 31.

Dairymen of the coast district of Washington are organizing a company to establish a cheese factory at Palouse.

The recent Idaho legislature created a department of farm markets under the directorship of W. D. Scholtz at Boise.

The Texas Cattle Growers' Association is urging Governor Ferguson to remove the quarantine against Mexican cattle.

It has been estimated that the Pima and Papago Indians in Arizona will receive about $125,000 for their grain crop this season.

The Northern Pacific is handling from 10 to 15 carloads of horses weekly, shipping them East for use on the European battlefields.

The Farmers' Union and Granges of Washington and Adams Counties of Idaho held their third annual union picnic at Cambridge May 27.

A flock of 1,200 sheep at Boyds, Washington, were crazed by eating death camas and many of them jumped to their death in the Kettle river.

Farm Adviser Armstrong of Maricopa County addressed members of the Farmers' Union at Chandler, Arizona, Saturday evening, May 22.

A quarter of a million head of sheep have been gathered at Riverside, Oregon, for shearing. This shearing plant runs through about 5,000 head daily.

Tick fever or spotted fever is more prevalent in eastern Oregon this year than ever before, according to the statement of the state board of health.

The Tillamook Cow Testing Association of Tillamook, Oregon, now proposes to organize a branch association for cooperative calf marketing.

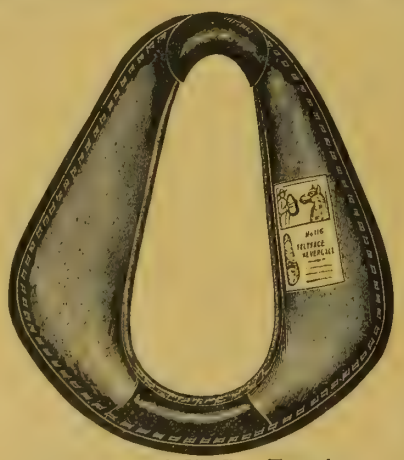
Oregon requires that all buyers of milk and cream for manufacture and all operators of Babcock testers on milk or cream offered for manufacture must secure a license.

The United States department of agriculture will assist in destruction of coyotes of eastern and southern Oregon, to put an end to the epidemic of rabies in those sections.

The Inland Empire Jersey Breeders' Association held its first annual sale on the fair grounds at Spokane Monday, May 10, when 46 pure bred Jerseys and 23 grade cattle were sold.

O. T. Clawson of Wenatchee, Washington, has been chosen to inspect fruit shipped from the Wenatchee Valley this fall, his services to be paid for jointly by the state and the Growers' League.

SORE SHOULDER INSURANCE



If you could get insurance against your horses becoming sore-shouldered when most needed, you would take it at any reasonable price.
Why not take it FREE by using
W. DAVIS & SONS'

Horse Collars

"Felt-Face" .....each $5.00
"Cushion" Collars.....each 3.00

This "Cushion" Collar is a combination of leather and canvas, guaranteed to cure sore shoulders and "stand the racket."

The "Felt-face" collar is all-leather, first-quality of oak-tannage, hand-thonged throughout. It has a facing of felt under the leather face, producing a soft yet firm surface against which the animal pulls.

It is natural for any manufacturer to say that his collars are "the best," but it is only about "FELT-FACE" collars that letters like this are written:

W. DAVIS & SONS, San Francisco.
Gentlemen:—I sold the Red Bands Orchard Co. two Felt-face collars about a month ago for two sore-neck mules which are all healed up now. They came in today and ordered one dozen. Please send me soon as possible 1½ dozen, from 17 to 22-inch. Very truly,
W. F. INGWERSON,
(Harness-maker) Visalia, Cal.

A selling agent (dealer) in nearly every town. If none in your town, write us

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Live Stock and Dairy

REPELLENTS FOR PROTECTING ANIMALS

VARIOUS kinds of flies tend to injure cattle by weakening them and reducing their milk supply. It is fairly well established that the stable fly does considerable damage, especially in northern Texas, where it was found that it killed stock directly, made cattle more subject to the recurrence of Texas fever and reduced milk supply, causing a loss estimated at over $25,000 in a single year. The test experiments with dairy cows seem to indicate that the effect of flies on milk is not of great economic importance, although evidence seems to show that animals protected from flies feed better and are generally in better condition. Reduction in milk, some authorities believe, is due as much to the fact that cows do not graze as freely in the hot sun in summer as at other seasons.

In general the conclusions are that many of the substances, such as pyrethrum powder, camphor, citronella and sassafras, while temporary repellents, lose their effectiveness very shortly. Ten per cent solutions of the liquids in cottonseed oil, therefore, commonly have to be applied daily.

Various oils, emulsions of oils and mixtures of oils are used in repelling flies. Crude petroleum, cottonseed oil, fish or train oil, and light coal-tar oil may be used pure.

Jensen (1909) recommends the following formula, which is said to protect cows for a week: Common laundry soap, one pound; water, four gallons; crude petroleum, one gallon; powdered napthalin, four ounces.

Cut the soap into thin shavings and dissolve in water by the aid of heat; dissolve the naphthalin in the crude oil; mix the two solutions, put them into an old dasher churn and mix thoroughly for fifteen minutes. The mixture should be applied once or twice a week with a brush. It must be stirred well before being used.

Fish oil is rated as one of the best repellents and has been used alone and in combination with various other substances. Other substances that have repellent qualities and that have been used in various mixtures are pine tar, oil of tar, crude carbolic acid, oil of pennyroyal and kerosene. The protective action of fish oil is stated to range from less than two days to six days. Moore's formula is said to protect for two days. This mixture is safe when applied lightly with a brush, but not when applied liberally with a pail spray pump. The formula is as follows: Fish oil, 100 parts; oil of tar, 50 parts; crude carbolic acid, 1 part.

Laurel oil is a very effective repellent. Mayer found that the protection lasted from two to twelve days. The oil when used pure has an irritating effect unless it is applied lightly. According to Mayer, the irritating effect may be overcome by combining it with linseed oil in the proportion of one to ten. In the experiments of the department of agriculture it was found that 10 per cent of laurel oil in cottonseed oil was active for less than a day.

A number of formulas for repellents for application to wounds have been recommended by various authors.

In experimental tests carried out by the department the following results were obtained:

A 10 per cent mixture of crude carbolic acid (21.8 per cent phenols) in cottonseed oil has a very strong repellent action on flies, but this lasts less than a day, in consequence of which it is necessary to apply the mixture every day. The mixture should be applied lightly with a brush, since a heavy application with a spray pump is likely to cause phenol poisoning.

Mixtures consisting of 10, 20 and 50 per cent of pine tar in cottonseed oil have marked repellent qualities. They should be applied lightly and it is necessary to apply them every day. A liberal application of a 10 per cent mixture is deleterious to animals.

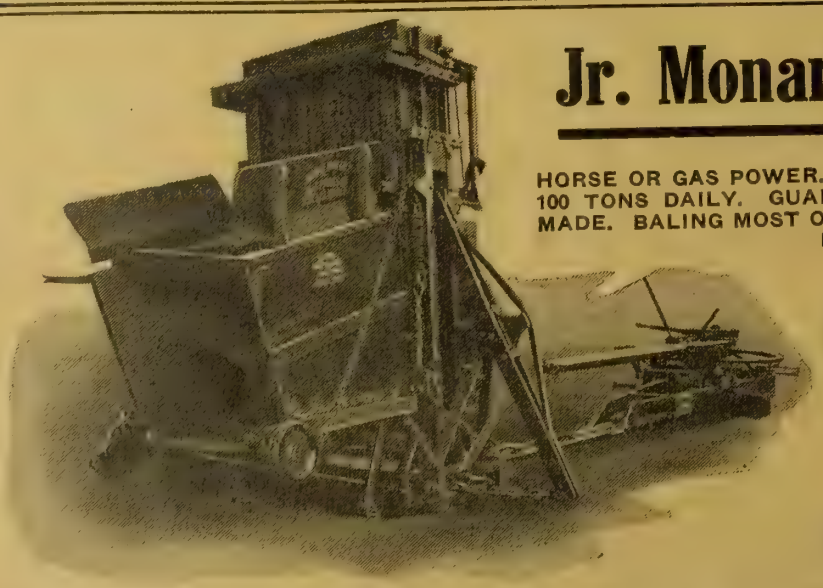
GLANDERS VACCINE NOT SATISFACTORY

That glanders vaccine is not effective in rendering horses immune from this dangerous disease is the conclusion reached by specialists of the Bureau of Animal Industry, United States Department of Agriculture, as a result of extensive experiments with horses and other animals. The experiments show that while mallein is highly effective as a means to discover the presence of glanders in a horse, neither mallein nor glanders vaccine has shown any positive value in curing animals sick with glanders.

In the experiments 17 horses were used. These were stabled under such conditions that vaccinated and unvaccinated horses could be brought into contact with a good discharging case of glanders. Mallein and eye tests were used carefully to determine the results. The investigators report the following conclusions, which appear in a professional paper published by the department, entitled "Immunization Tests with Glanders Vaccine":

"The results obtained by these investigations appear to be sufficient to demonstrate the unsatisfactory results of this method of immunization. Of the 13 immunized animals nine contracted the disease from natural exposure, which is a large proportion when it is considered that all animals were aged and kept most of the time during the exposure out of doors. Of the four remaining immunized horses one died of impaction after the second vaccination, while the other three animals were killed August 20, 1913, in order to ascertain by post-mortem examination the possibility of glanders existing in these animals which had given positive serum reaction, but which had returned to normal. In artificial infections of the vaccinated animals they showed no resistance whatsoever, as both vaccinated horses promptly developed an acute form of the disease from touching the Schneiderian membrane with a platinum loop which had been touched to a growth of glanders bacilli. For the present, therefore, it seems advisable to abstain from immunizing horses by this method, as a practice of this kind may do more harm than good. Owners having horses which are supposedly immunized would naturally become careless, thinking their animals were resistant to the disease, and thus even a better opportunity would be offered for the propagation of the disease than if the horses were not vaccinated. Furthermore, the fact that the blood of vaccinated animals cannot be utilized for serum tests for two or three months after the injections is also a great disadvantage in the eradication of the disease.

"As a result of this preliminary work it appears that the control and eradication of glanders must still be



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W. F. Young, P.D.F., 244 Temple St., Springfield, Mass.

dependent upon the concentration of our efforts in eliminating infected horses and the adoption of proper precautions against the introduction of infected animals into stables free from the disease. The results achieved in Germany, Austria and Canada by these methods have proved very encouraging, and no doubt if executed in the same spirit in this country a marked reduction in the cases of glanders would result."

FURNISH PLENTY OF GOOD WATER

I have had a good many years of experience in raising hogs with pleasing results and have always been very careful in seeing that their water supply was the purest to be had on the farm. I believe it is just as important to furnish hogs good, clean water as it is any other animal. I know by closely observing them that they prefer it to any other kind. Some men are particular about the drinking water for their cows or other stock and for themselves, but consider anything to be good enough for their hogs. This is a mistake. If furnished with plenty of good water the hog will more than repay the trouble with a goodly gain in pounds and many grateful grunts of satisfaction.

The question of the amount of water is usually left to the hog to decide for himself, and this is a pretty good way to settle the matter, unless the owner knows of a better one. One of our greatest authorities on swine, Prof. William Dietrich, says that a hog will drink too much water during hot weather and not enough during cold, and that better results can be obtained by forcing him to take a definite amount according to his size by mixing the water with his feed, so that he will be sure to get enough and not too much. This is reasonable, for the hog consumes a great amount of carbonaceous food, especially when fattening is going on. Such food, with the large amount of fat carried in his body, would cause a feverish condition during hot weather, and the animal will drink much water in an effort to lower the temperature of his body.

As to the proper time to supply the water, that can be left for the hog to decide, if a supply is always accessible. But if the water is pumped to them or carried and poured into troughs, I consider it a good plan to water just before each meal. The stomach of the hog is comparatively small and if he does his drinking after eating a full meal there is danger of part of the feed being washed from the stomach before the digestive juices have had sufficient time to act upon it as they should. During warm weather they want another drink just before time for the next meal, so it is best to refill the troughs after all have taken a drink.

This subject of watering hogs may seem a small matter, and it may not be of as much importance as some others connected with the growing of swine, such as breeding and feeding, but the majority of us spend nearly all our time looking after those bigger things and do not give enough thought to some of the lesser details, while our time should be divided according to the importance of our different operations among all the subjects pertaining to our work. The watering isn't such a small matter, either, for practically one-half the weight of the hog when he walks over the scales is made up of water, while many times this amount has to be used during his life to carry the food to the parts of the body where it is needed and in removing the waste matter from the tissues. —Farmers' Guide.

POINTS IN FAVOR OF SILAGE

More feed can be stored in a given space in the form of silage than in the form of fodder or hay.

There is a smaller loss of food material when a crop is made into silage than when cured as fodder or hay.

Corn silage is a more efficient feed than corn fodder.

An acre of corn can be placed in the silo at less cost than the same area can be husked and shredded.

Crops can be put in the silo during the weather that could not be utilized in making hay or curing fodder.

The silo must be plastered inside with a one to three mortar, wetted with strong alum water. Sift the sand. A two-inch square strip should be

SEEING the Difference BETWEEN THE DE LAVAL AND OTHER Cream Separators

IT DOESN'T TAKE AN EXPERT knowledge of mechanics or a long working test to tell the difference between the De Lavel and other cream separators.

ON THE CONTRARY, WITH A 1915 De Laval machine placed beside any other separator the difference is apparent at first sight to the man who never saw a separator before.

IF HE WILL THEN TAKE FIVE minutes to compare the separating bowl construction; the size, material and finish of the working parts, particularly those subject to wear and requiring to be occasionally taken apart and put together; the manner of oiling, and everything which enters into the design and construction of a separator as a simple, durable machine, he will still further see the difference.

IF HE WILL GO A STEP FARther and turn the cranks of the two machines side by side for half an hour, particularly running milk or water through the bowl, he will see still more difference.

AND IF HE WILL TAKE THE two machines home, as every De Laval agent will be glad to have him do, and run them side by side in practical use, the De Laval one day and the other machine the next, for a couple of weeks, he will see still greater difference in everything that enters into cream separator practicability and usefulness.

THE MAN WHO TAKES EVEN the first step indicated in seeing for himself the difference between the De Laval and other cream separators doesn't put his money into any other machine one time in a thousand.

THE COMPARATIVELY FEW buyers of other separators are those who merely read printed matter claims or listen to the argument of some dealer working for a commission, and who do not think it worth while to see the difference for themselves.

THE WISE BUYER OF A CREAM separator today does see this difference when buying his first separator, while the unwise or careless one usually finds it worth while to do so when he comes to buy a second cream separator a year or two later.

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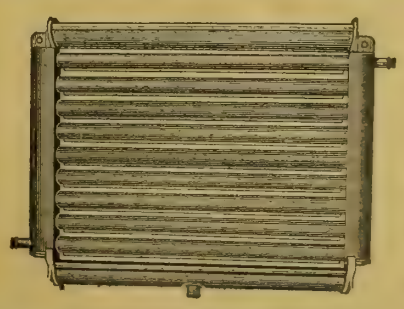

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Make more money on your clover, alfalfa, timothy, peas, flax, vetch, soy beans—all short grain crops, by using the Thornburgh Side-Delivery Buncher and Windrower. Save waste of time, seed, fodder. Chalmers, Oregon, writes, "Best assistance I've had in 16 years. Cuts a third more acres in half the time, cuts clean, puts hay in shape for quicker loading, turns it out of horses way, no waste of seed."

Easily Attached to any Mower Leaves crop in either loose bunches or windrows. Heads and leaves in center, stems out to dry quick. Saves seed and leaves. No raking or tedding. Buncher can be folded for moving, not necessary to detach. Thornburgh Bunchers used in every state. Positively warranted to work right. Costs little—pays for itself every day. Write for catalog. Mention dealer's name. Write nearest distributor or to us.

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Thoroughbred Poland China Swine
High Grade Stock of Best Strains.
Young Stock For Sale
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nailed on outside of door frame, inside edge, and curved in middle of top and bottom. This will make a groove for doors to rest in. The door should be in two parts, top and bottom, and held in place by silage. Make door of matched spruce, with a layer of felt roofing between and a strip where door rests on cement jamb.

DAIRYING IN AN ORCHARD

(Continued from Page 627)

ing time. The pigs are counted as a dairy asset and do not figure on the books as a separate item. Undoubtedly they are very profitable.

Labor

Two men care for the 40 cows, doing all feeding, milking, cleaning the barn, separating cream and delivering milk and cream at the electric car. They have nothing to do with gathering feed or disposing of manure after it is once out of the barn. Such work belongs to teamsters. If the milker has a family he receives $60 a month and a cottage to live in. If single, $40 and board.

Results

The dairy product is sold chiefly as whole milk to foothill towns. A little cream is always separated, and when there is a surplus of milk there is more sweet cream to sell. The price obtained for milk is 20 cents a gallon and for sweet cream, $1.25 a gallon for about 30 per cent fat, all f. o. b. electric cars at the farm and cans washed and returned free.

During 1914, the sales of milk, cream cows, calves and pigs exceeded the dairy expenditures by $1400. The investment in buildings, equipment and stock is inventoried at $7000. Interest on this at six per cent still leaves a profit margin of approximately $1000 for the year. Into this calculation the value of the manure does not enter. Neither does the dairy carry the cost of distributing the manure, as that is charged to the orchard. The value of the manure made by a cow is variously estimated at $12 to $18 per year. If this were considered, there would be at least $600 more to be added to the profit side. However, since the dairy is not charged with the value, or cost, of orchard pasture, nor with the green alfalfa, there had best be no manure credit. Probably the benefit to the orchard from nitrogen fixation by the legumes, humus added by winter crops not consumed by the cows, and soil penetration by alfalfa roots, balance the cost of growing these crops.

For the crop season of 1912 a test was made of the effect of applying liquid manure. Four hundred gallons of liquid were placed about five prune trees, or eighty gallons per tree,—this in the early winter. The following fall these trees bore fruit at the rate of twelve green tons per acre, while the average for a similar orchard was four tons. Returns from the application of solid manure are not so quickly apparent, but if slow they seem to be sure.

If a good market could be obtained for the milk product, it would seem that many an orchard would profit by a dairy equally well and carefully managed as the Sorosis.

The feeding of the boar is often neglected, since he is used for only a brief period each year. He should be always kept in good condition and his feeding should not be neglected even though he is not being used. For best results he should not be too fat or too thin but kept always in good breeding condition and should be kept in such condition the year around.

One mistake which is often made is selecting the best looking pig in the litter at the time of weaning the pigs, as at that time he is perhaps short of leg, compact and very blocky in appearance. Experience has shown that oftentimes the leggy, more rangy pigs in a litter will later grow out into the type of a much better sire.

With proper care and handling of the boar he should, if fully mature, be able to handle about 50 sows. After one has obtained a satisfactory sire he should be kept in the herd and used just as long as he produces satisfactory animals, since a tried sire is worth a great deal more than an untried one.

When a farmer is breeding up his herd by raising heifers to take the place of his poorest cows it is especially important to keep records of production, for in no other way can he know whether he is advancing or standing still. Guesswork as to which are the best cows is an unreliable way as has been proved in many cases.

Loss is due often to a failure to recognize the fact that the fattening period with most hogs is but a continuation of the growing period and that the greatest difference in the rations used during the two periods should be in the amount rather than in the kind of feed.

A clean yard is a great help in keeping the cows from becoming soiled by mud and manure. The yard should drain away from the buildings and manure should not be allowed to accumulate in it.

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ECONOMICAL FEEDING.

Written for the California Cultivator
By Jean A. Koethen

ECONOMY in feeding has two sides, the side of actual saving and the side of efficiency. The man who reduced his horse to a straw a day accomplished a feat in saving, but the plan was far from efficient. If we can think of saving in money as one straight line and of efficiency of feed used as another straight line, then we may expect to find real economy at the point where these lines intersect.

In the feeding of chickens we have a definite aim, according to the age, sex and character of the stock. The laying hen must have materials for the manufacture of eggs, protein for the white, fat for the yolk, lime for the shell. The growing chick needs material for building tissue and muscles; this again is protein. The pullet that is being developed into a fall layer will not develop into the right sort of layer unless she has the right feed and plenty of it, and here again protein is needed. In the case of the chick and the maturing pullet time is the very essence of economy, for the sooner the chick can be passed on from the rich feed of baby chickhood to the cheaper grains that are used for general feeding the less will be the cost of raising. In the case of chicks intended for market this is doubly true; every week taken from the time before the broilers are placed in the fattening coops is so much clear gain.

But another factor comes in here which must be considered more or less in all feeding. I mean the bird itself. Some breeds reach market size considerably earlier than others; some strains reach market size more quickly than others of the same breed; and, to bring the matter to a still finer point, there are great differences among individuals of the same strain and even of the same parentage. Ability of the bird to digest and assimilate food seems to be quite as important a factor in economical feeding as the character of the food given. Some hens will lay on almost any feed; others will not lay however they are fed. Some chicks will grow and thrive on the poorest ration; others never thrive at all. The bird that can digest and assimilate the greatest amount of food is almost always the bird with a good appetite, and a good appetite is the first and most important mark of vigor.

This brings us down to constitutional vigor as a basis for economical feeding as well as for almost everything else. No matter where you start all roads lead to a strong constitution in the bird itself as the basis of all profit in poultry culture.

The first step to economy in feeding must be then to eliminate from the flock all birds that are not worth the feed you give them; the hen that consumes feed to the tune of a dollar and a half in the course of a year and does not lay 100 eggs; the chick which falls behind the rest of the brood the first month; the pullet that is undersized and likes to linger on the roost; cull them out, every one. Here is where economy begins. I do not know how true is the statement I have seen made more than once that half the hens the country over do not pay for their keep, but I suspect it is at least half true of the hens kept on farms and in backyards. Get rid of the boarders, sell off all but one breed, build that up by the addition of better blood, and then you will have a basis for the study of economy in feeding.

Next to good stock in building up a scheme for economical feeding comes exercise. Unless you are feeding market stock with the intention of increasing weight as much as possible in a given time, there is absolutely nothing to be gained by giving stock feed which shall merely go into layers of fat, and this is just what happens when stock is fed all it will eat and not compelled to exercise. This is not saying, of course, that exercise takes the place of protein, but even protein does not accomplish its full purpose unless the muscles are developed by exercise. With birds of all ages there is always danger when exercise is not provided for, of a flabby, over-fat condition which often induces disease. Hens stop laying, young stock get leg weakness and turkeys, blackhead, unless there is a chance for using the muscles which protein builds up. Feed given under such conditions is obviously wasted.

Wheat has been known as "the perfect food," containing as it does, just the right amount of protein (about one part to six of fats and carbohydrates), but wheat just now is out of sight, and the question is what can take its place. With wheat go bran and middlings which are by-products of the milling of flour. Eastern poultrymen turn to corn in place of wheat, but we of the Pacific Coast look to barley, partly because it is cheaper than other grains, partly because in the warmer portions of California corn is found to be too heating. The nutritive ration of whole barley is a little wider than that of wheat, being 1:7.7, and its per cent of digestible protein is also a little less, being 8.75 where that of wheat is over 9 per cent, but it is easily balanced with beef scrap or milk and is a very good feed after the birds have been taught to like it. Probably it is more palatable sprouted than in any other form, but it loses a large part of its protein content when it has been sprouted five days and is of most value as green feed. Rolled barley has a nutritive ratio of 1:9.6 as against the 1:7.7 of whole barley and is by that much a poorer feed, but it may sometimes be had so cheaply as to make it worth while. Some poultrymen have good success with rolled barley. I have never been able to teach my hens to eat it dry, and they soon tire of it when it is steamed. This is on account of the hull I presume. Doubtless they could be starved to it.

Ground barley, which has a nutritive ratio of 1:8.1, is by no means as good a feed as wheat bran, yet it may be substituted for part of the bran in the mash, and this is quite generally done. At the Panama-Pacific egg-laying contest the following mash formula is being used: Five pounds bran, 5 pounds shorts, 5 pounds ground barley, 3 pounds meat scraps, 2 pounds soy bean meal, ½ pound fine charcoal, 1-10 pound salt. The management of the contest declares that, while it is possible to give these hens other good rations, "it is not thought possible to give them a ration which will be productive of best results and which will exceed in economic value the one here named." With this mash ration is given a scratch feed consisting of 15 pounds wheat, 7½ pounds barley and 7½ pounds cracked corn. A daily ration of sprouted oats is also given. Barley, it will be seen by examining these two rations, is one-third the ground grain and one-fourth the scratch grain. A greater proportion than this is not considered economical.

The term protein is applied, not to a single material that can be isolated and identified, but to the nitrogenous materials of the body. Some of these are more digestible than others. Some of them are more often used as if they were carbohydrates, the sugars and starches which are converted into heat and energy. But all are classed as either protein or crude protein and all are useful for growth and egg production. They are found to a greater or less extent in all kinds of feed, and their availability depends partly upon their digestibility and partly upon the digestion of the bird to which they are fed. Sometimes perhaps their digestibility depends upon the foods they are used with. Thus it is said that corn when used with a large amount of animal food loses its objectionable features. I have read that some poultrymen in this state have been successful in using corn in this way, but how permanent the success was I cannot say.

Alfalfa contains a relatively large proportion of protein in spite of the fact that it is 80 per cent water and could probably be used advantageously in much larger quantities than is common. Some experts see in its use the easiest method of cutting down the feed bills. Fowls are very fond of it, and hens and chicks that have alfalfa range certainly eat less grain than those without it. Cut alfalfa in the mash is very wholesome, and even dry alfalfa hay when used for scratching litter furnishes considerable nourishment. Alfalfa meal in the dry mash takes the place to a certain extent of bran and is quite generally used.

Some careful feeders advocate the use of the moist mash in place of the dry. It is claimed that the mash goes farther in this way. Undoubtedly young stock does grow more rapidly on a moist mash ration, and it is well to use it once a day when rapid growth is desired, especially if it can be moistened with sour milk, but I have never found that a meal of moist mash, even twice a day, quite takes the place of the always accessible dry mash. "Little and often" is the rule for feeding of all fowls. It is the way they like to eat, and we are going against nature when we compel them to fill their crops in a few minutes. If the mash is left standing before them, so that they may eat when they will, there is always the chance of its souring or becoming contaminated, and the still greater chance of waste.

The use of sour milk is one of the greatest economies, since it takes the place of the expensive animal and vegetable protein in the shape of meat meals and the various oil meals and bean meals. I should like to see the experiment tried of feeding hens and growing stock on green alfalfa and sour milk with a minimum amount of grain. I believe there would be a very great saving of grain with a corresponding increase in the health of the birds. Some whole grain is of course a necessity, and it is hard to see how bran could be left out of the dietary, but there seems no good reason why unlimited access to these two nitrogenous foods should not greatly reduce the grain bills. Sour milk is a by-product too valuable to waste, and those who have figured the thing out say it brings a greater profit when fed to chickens than when given to hogs. When milk is used it should be served in vessels which keep it from the contamination of the chickens' feet and which can be thoroughly cleaned, for a dirty milk vessel soon becomes a source of disease. The pan or fountain should also be placed on a wooden platform where it cannot be spattered onto the ground, for the soil on which milk has been spilled soon sours and becomes a breeding place for gape warms. Properly fed, milk is one of the cheapest and most valuable of poultry foods.

Is there any economy in cutting down the ration? Yes and no. Many of the hens in our back yards today would be better off with less food, but the caretaker needs to study the needs of his flock, and not cut down the feed simply for the sake of saving. When hens are laying well and not over fat they may be assumed to be eating the right amount. When they feel soft and flabby in the abdomen, and sit around in the sun instead of hustling for food, they will probably be better off for a less liberal ration. The hen whose crop is empty when she goes to roost, either is underfed or lacks the appetite she ought to have.

A liberal use of green feed, other than alfalfa, and of waste vegetables, is a help in saving grain. Hens should have all the green they will eat at all times. It is better to keep it always before them, so that they may nibble at will. On one of the most up-to-date ranches in California I saw the breeding pens supplied not only with boxes in which alfalfa was kept growing under a wire, but with pans full of cut up greens at which the birds could pick all day. When Emperor William, a few months ago, urged his people to feed every scrap of vegetable waste from their kitchens to their domestic animals and fowls I don't suppose he was thinking about economy in feeding hens, yet the suggestion is worth while. All sorts of vegetables and vegetable skins may be cooked and chopped and fed to chickens either in a moist mash or by themselves. I have seen the use of small potatoes in this way advocated repeatedly, and one eastern expert goes so far as to say that potatoes cut up raw make one of the best of feeds for chicks. Here on this coast we can hardly call potatoes a cheap feed, and they are undoubtedly too fattening for heavy birds, if fed liberally, but the skins and potatoes too small to be marketable may often be utilized in this way.

The use of stale bread, when one is within reach of restaurants and bakeries, is another economy. The only trouble is that it is quite likely to be moldy, and moldy bread can never be safely fed to any bird. When the bread is free from mold it can be soaked and mixed with cooked vegetables and a little bran into a most economical mash.

Gilbert Hess
Doctor of Veterinary Science
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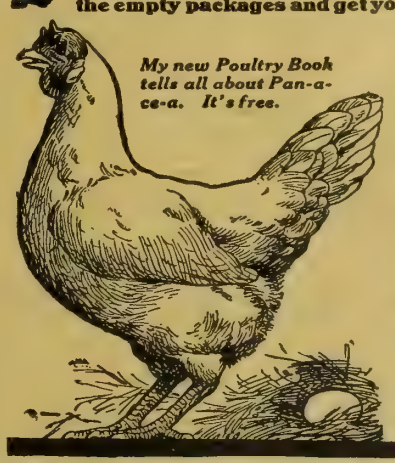

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Single Comb White Leghorn Pullets—Two months old, also yearling hens and breeding cockerels at reasonable prices. Model Poultry Farm, Corning, Cal.

Chicks—Day old chicks from my healthy, vigorous, heavy-laying, free range stock of S. C. White Leghorns. Price $6.50 per hundred. H. P. Hansen, R. 4, Box 177, Petaluma, Cal.

Trapnested White and Buff Leghorns, records 120-279 eggs per year. Eggs, chicks, stock. Arthur R. Schroeder, R. 18, Box 179-D, Mountain View, Cal.

Revenue Strain—White Wyandotte eggs, $3.00 for 15, from prize winning stock; 221 pen average, chicks 25c. Mrs. W. L. Duvall, Franklin Ave., Pomona, Cal.

Barred Plymouth Rocks—"The kind that Lay and Win." Choice stock for sale. Catalog free. C. H. Vodden, Los Gatos, Cal.

At Your Service 365 Days in the Year—First-class chix; eggs for hatching, eight breeds. Hawkeye Hatchery, Turlock, Cal.

For Sale—Barred Rock Cockerels, also Barred Rock, R. I. Red, Anconas, Buff and White Orpington chix. Enoch Crews, Santa Cruz, Cal.

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USED RANCH MACHINERY, PUMPS, WINDMILLS, TANKS, ENGINES, HAY MACHINERY, PUMPING PLANTS, SPECIAL SNAP, PRACTICALLY NEW
38 H.P. White Middleton engine complete with $65 friction clutch, $75 belt, 5 two-step B. J. centrifugal pump with frame, shafting, pipe, fittings, pulleys, gates, 50,000 gal. redwood tank, 30-ft. stand. Take entire plant for $1200, engine alone cost $1500, or will separate.

1½ H.P. new engine	$25
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8-ft. mills, $19.50; 10-ft., $27.50; 12-ft., $45. NEW 1000-gal. tanks, $19.50; 2000, $29.50; 3000 used redwood and stand, $30; 30,000 redwood like new, $125; many others 50 gallon up. FINE wagon and tank, $75; H. P. BALER, $90; SOUTHWICK power baler, $350, cost over $700; WHITMAN power baler, $200. Steam tractor with complete baling outfit, $600.
Mowers, Rakes, Sprayer, harrows, potato, beet machinery, Fan Mill, Corn Sheller, Ensilage Chopper; small ranch tools.

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Eighty H. Boiler, Smith Valle Steam engine 14x18 and Compressor 12x18, $1000, cost $6000. Absolutely cheapest serviceable material can be produced for. Pioneers in our line. DEMMITT CO., UPSTAIRS, 120 N. Main, Los Angeles. Yard, 816 Yale. Buy Tools of All Kinds.

For Sale—Used and new Gas Engines, 2 H. P. up, rebuilt and fitted with modern equipment. 22 years' experience enables us to repair and rebuild Gas Engines correctly. Get prices. Lloyd, 806-808 N. Main St., Los Angeles. F7020—Broadway 4103.

For Sale—40-Horse Power Distillate Engine, nearly new. Near Pasadena. Address Box 144, Altadena, Cal.

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Farms Wanted—We have direct buyers. Don't pay commissions. Write describing property, naming lowest price. We help buyers locate desirable property free. American Investment Association, 12 Palace building, Minneapolis, Minn.

Wanted—Cows, calves and weaned pigs or cash in exchange for spineless cactus or citrus trees. LUTHER BURBANK AND MEDITERRANEAN SPINELESS CACTUS PLANTATIONS, SAN DIMAS, CAL. Covina phone 902.

Wanted to hear from owner of Farm or Fruit Ranch for sale. O. O. Mattson, Minneapolis, Minn.

DUCKS

Mammoth Pekin Indian Runner Duck Eggs, $1.00 per eleven. Black Minorca and Ancona Eggs, $1.50 per fifteen. Mrs. W. L. Duvall, Pomona, Cal.

Select Pekin and Indian Runner Duck Eggs. Ducks all ages. Special prices. Black Bros., 455 Lucas, Los Angeles.

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Billiken Herd—Pure bred, registered. O. I. C. Swine. The Big White kind. Sows now farrowing. Three herd boars used; new blood lines. Weaned pigs will be ready soon for shipment. Cholera immune; first class in every way. Make your reservations now for singles, pairs and trios. Write for my new circular. C. B. Cunningham, Mills, Sacramento County, Cal.

Hogs—Forty head of BIG TYPE POLAND CHINA boars of any age. Sired by IOWA WONDER, who is a son of A WONDER, the greatest hog living or dead. No females to sell at present. On account of large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

For Sale—Registered Tamworth swine—boars, sows and gilts of this famous bacon hog. This breed commands a premium on the market. Our original sows from the University Farm at Davis. Sweetwater Fruit Company, Bonita, San Diego County, Cal.

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Exchange—Have a $900 equity in a $1700 rented 5-room plastered house on corner lot in City of Santa Ana. Will trade for Holstein cows or heifers. Owner, 416 Stimson Bldg., Los Angeles.

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Berkshires—Pedigreed Boars ready for service. Bred sows, weanling pigs, both grade and thoroughbred, finest stock. C. H. Thompson, Novato, Cal.

Poland Chinas—Young stock; either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

Glenview Poland China—Stock for sale. Chas R. Hanna, R. F. D. No. 3, Riverside, Cal.

Pedigreed Duroc Jersey Boars or sow pigs—Extra fine. John Kincaid, Box 151, East Bakersfield, Cal.

For Sale—Thoroughbred Duroc Jersey Boars and Gilts, strong and vigorous stock. Fred Hart, Exeter, Cal.

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N. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale.

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Chinese Ringneck Pheasant Eggs $2.50 for 15. Powars Pheasantry, 935 S. 10th St., San Jose, Cal.

Pheasants—Ringneck and Golden. Also eggs. T. D. Morris, Agua Caliente, Cal.

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A FAMILY INDUSTRY

"Now," said Mr. Jones energetically, "I think it's high time, Jimmie, that you began to learn something, and I am going to teach you. We will begin by counting the people in our family."

"Yeth, sir," said Jimmie.

"Now, mother is one, and I am one, so that makes two, doesn't it?"

"Yeth, sir," said Jimmie.

"And now, grandma is one more, and she makes how many?"

Jimmie looked interested, but doubtful.

"Three, isn't it?" prompted father.

"Yeth, sir," said Jimmie.

"And now, there's grandpa. He makes—how many? Four, isn't it?"

"Yeth, sir," said Jimmie.

"And then there's Aunt Ellen. She makes—how many? Five, isn't it?"

"Yeth, sir," said Jimmie.

"And then, there's Uncle Stephen. He makes—"

"But daddy" exclaimed Jimmie, "do they all make hominy?"

WUFF

"You used to call me kitten," cried
His wife to Binks, the surly pup.
"I did, but since then," he replied,
"I've found that kittens will grow up."

"Dinah, did you wash the fish before you baked it?"

"Law, ma'am, what's de use ob washin' er fish what's lived all his life in de water?"—Philadelphia Ledger.

QUESTIONS AND ANSWERS

(Continued from Page 632)

tions, haversack or lunch rations, travel rations, Philipino or extra rations and emergencies rations. Men are like animals, though we should at least give them credit for more intelligence in what they should eat, and from my experience I would give the individual credit for knowing more nearly what he requires to keep healthy and in condition to properly do his work than any one man or chef would be able to tell him.

I think the inquirer would get more harmony and work out of the men if he gave them a little too much than not enough. The rations issued by Uncle Sam, where available, give just a little bit more than the ordinary man cares for and I don't know who has things figured out to a finer science than the officers in charge of the United States Army.—Capt. Bert I. Demmit, N. G. C., Los Angeles.

Feed for Cow

What is the best feed for family cow where green feed is not available? Have no ensilage. Wish to feed for quantity of milk.—Subscriber, Covina.

If it is not possible to plant corn for soiling crop, nor beets nor pumpkins, why not use dried beet pulp? We assume you have sufficient alfalfa, which is the milk-maker. However, you need an appetizer or some feed containing succulency, and if unable to grow the green feeds the dried beet pulp is perhaps one of the best feeds.

Loquats Not Bearing

I have two large loquat trees, one a budded fruit. During the past two seasons they have borne very little fruit, but make a big growth of leaves and branches. Can you tell when and how a loquat should be pruned to bear fruit?—Subscriber, Azusa.

You do not state how old your trees are. Age often has a great deal to do with their bearing. Should they fail to bear after they have completed their rank growth, try a little fertilizer on them, containing phosphoric acid and some potash, little or no nitrogen. Pruning would only promote more growth and reduce the bearing surface. However, some pruning is desirable, as it is necessary to strengthen the branches when the trees bear very heavy crops.—J. W. M.

Sheep for the Orange Grower

In a recent issue you had a short but very interesting article, signed "W. S. G.," on the different varieties of sheep. The gentleman evidently knows sheep. Now, I want to ask him for a longer story. I am an orange grower and am thinking seriously of raising enough sheep to supply my family and my neighbors with mutton, killing perhaps one animal per week. We are told that a ton of alfalfa hay is worth $9 to an orange grower as fertilizer. I am keeping four cows and supplying the neighborhood with milk, the profit and the resulting fertilizer making it a paying venture. If the alfalfa is fed to animals and all the manure is saved its value as fertilizer should be nearly as great as if applied to the soil in the form of hay. I am preparing to keep all stock on cement floors, generously bedded with straw as an absorbent, the manure to go into a spreader and be applied to the land each day. What I want to ask of W. S. G. is this: Will sheep thrive in close confinement if all other conditions, feed, water and shade, are good, and how would you proceed to get into the venture? I may say in explanation that the use of cover crops and animal manures seems to have eliminated mottled leaf from my orchards, but that I must have more manure. I am too far from any source of supply to get it at a reasonable price and I am trying to satisfy myself that I can afford to produce it at home.—Orange Grower, Highlands.

You certainly can keep sheep under the conditions you mention and they should be a valuable adjunct to your proposition in every way. There are very few fruit farms in the state that would not find it a benefit to have a small band of sheep to keep roadsides clean, to keep down weeds in corners and to be general "vegetable scavengers." In order to get this cleaning up work done it will be necessary to herd them and have a place such as is suggested where they will be kept in rather close quarters and fed for a greater part of the time, but they will stand this confinement all right, particularly the heavier breeds like the Shropshires, Oxfords, Hampshires and Dorsets. As was indicated before, if there can be a small pasture or a good sized paddock that they may have access to it will be better, but the occasional grazing along the roads and around the place will afford considerable exercise.

If you follow out this plan and make a market for this delicious, well finished mutton that you will be able to produce, you will have a patronage that no one can touch. The best mutton grown is that which is raised and fed on small farms.

As to getting into the business, an inquiry in the Cultivator should put you in touch with some one who has some mutton ewes for sale. Then use a good, pure bred ram on them. If there is anything further that can be suggested let us hear from you again, for this is a subject that should be of a great deal of interest.

Squirrels and Rabbits

Please give formula for spray or dust bath for young pumpkin plants to prevent them being eaten by squirrels and rabbits, something which will not injure the plants?—Subscriber, Ontario.

The best method to pursue in this case is to poison the squirrels and rabbits. Any poison applied to the vines of sufficient strength to prevent squirrels and rabbits eating them would also no doubt prove injurious to the vines. In any case it is against the law to harbor squirrels on land in California so you should see that they are destroyed or, if they come onto your land from adjoining lands owned by other parties, the owners should be requested to abate the nuisance. If they do not do so your horticultural inspector or county board of supervisors have power to act in this matter. At this period of the year fruit bait is excellent to use for poisoning. Apples or almost any fruit with strychnine will aid materially in reducing the pest, though more effective eradication is accomplished by the use of gas, the application of which has been described in former Cultivators. It is possible that a liberal distribution of dried blood will frighten away the pests. Rabbits especially avoid anything with strong animal odors. Besides the blood is one of the best fertilizers.

Best Variety of Avocado

What variety of avocado would you advise planting for home use 50 miles from the coast, where the temperature frequently goes down to 28?

F. O. Popenoe of the West India Gardens answers:

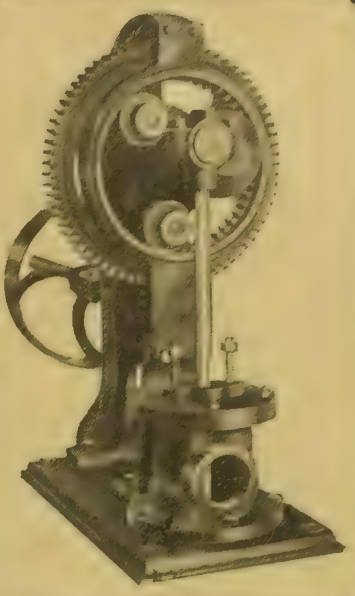
Replying to your inquiry as to best variety of ahuacate to plant where the temperature "frequently goes down to 28" will say that the thin-skinned Mexican varieties are somewhat hardier than the larger fruited thick-skinned varieties and will probably be a safer kind for your correspondent. They will stand a temperature of 28 without any trouble. The Northrop, Chappelow, Harman or Ganter will succeed where it is that cold and colder.

If the temperature does not go below 28 he can plant the larger fruited varieties by giving them for the first few years some winter protection. The trouble is that where the temperature "frequently goes down to 28" it occasionally goes lower. But by using a little care to protect his trees during the colder periods he will be safe in planting also the Taft, Sharpless, and Blakeman.

Ringrolling

In your article on culture of beans you refer to "ringrolling" the land. What is this process?—Subscriber, Porterville.

Ringrolling is a term applied to the process of rolling the land with a corrugated roller.



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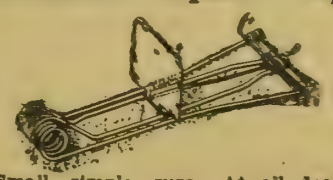

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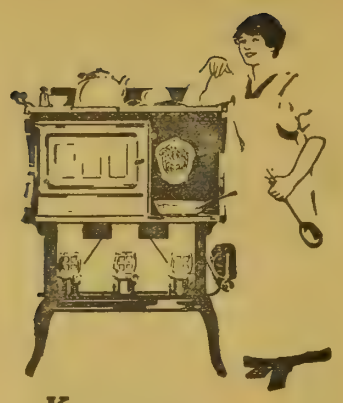

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Ready, like gas—full heat in a minute.		Bothersome — waiting for the fire to burn.
Adjustable heat — a slow fire or a hot one.		Difficulty in getting the right heat.
Heat only as long as you need it.		Waste of fuel before and after actual cooking.
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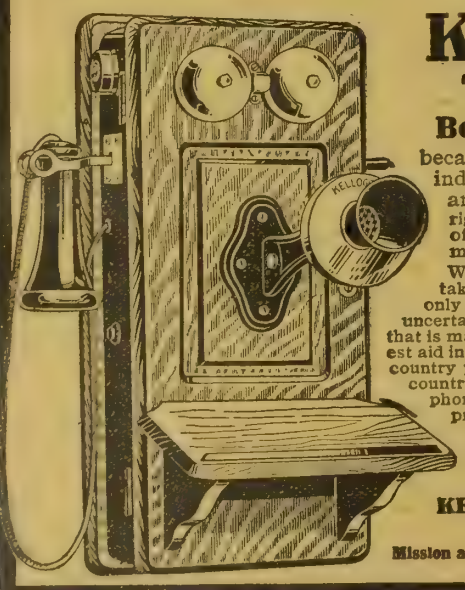

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See Announcement at Head of Editorial Page

The Household Department

THE CROAKER

Once on the aidge of a pleasant pool,
Under the bank where 'twas dark and cool,
Where bushes over the water hung,
And rushes nodded and grasses clung,
Jest where the crick flowed outer the bog,
There lived a grump and a mean old frog,
Who'd set all day in the mud and croak.

Till a blackbird hollered, "I say, yer know,
What is the matter down there below?
Are you in trouble, er pain, er what?"
"Nothin' but mud and dirt and slime
For me ter look at all the time;
It's a dirty world!" so the old frog spoke,
"Croakity-croakity-croakity, croak."

"But yer lookin' down!" the blackbird said;
"Look at the blossoms overhead;
Look at the lovely summer skies;
Look at the bees and butterflies;
Look up, old feller. Why, bless yer soul,
Yer lookin' down in a mus'rat hole!"
But still with a gurglin' sob and choke
The blamed old critter would only croak.

And a wise old turtle, who boarded near,
Sez to the blackbird, "Friend, see here:
Don't shed no tears over him, fer he
Is low-down jest 'cause he likes ter be;
He's one er them kind of chumps that's glad
Ter be so mis'rable-like and sad;
I'll tell yer somethin' that ain't no joke,
Don't waste yer sorrow on folks that croak." —Exchange.

PROFITABLE GARDENING FOR WOMEN

Written for California Cultivator
By Roberta Rollins

THERE are many women engaged in office work who are longing for a change to some occupation that will take them out of door in the open air and away from the crowds and noises of the city.

They have worked long hours in poorly lighted and illy ventilated rooms, have lived a life of such hurry and at such a high tension that they are starving for sunlight and fresh air and quiet.

These women for the most part are dependent upon their work for their support or the support of others, and for that reason they are afraid to give up the salaried position they can fill as long as their work is satisfactory for the uncertainty of a new venture where all would depend upon their own efforts.

But the time comes when the woman whose hair is beginning to gray or whose nerves are on edge from the years of office work finds it harder and harder to secure a good position. There are so many bright, young girls coming out of the business colleges, inexperienced perhaps, but quick, bright and eager to learn, and somehow they secure the most desirable positions.

There are many opportunities open for such women if they have the courage and determination to make the change. Some of these opportunities are most interesting and fascinating and remunerative as well. Every woman has some one thing she likes and can do out of doors. One may have good luck in growing roses, another likes to grow vegetables, another is interested in growing fruits, still another may have a knack in handling cut flowers.

We know of two women, a mother and daughter, who have made a success in growing dahlias. They built up a good local trade at first and are now supplying some of the big eastern seed houses with their new seeds and bulbs. In speaking of their business they said they were both great lovers of flowers, liked to work with them and watch them grow. Their little bungalow home was surrounded with flowers which they had grown.

They selected dahlia growing because in the locality they lived they were hardly known to any extent at least, so they had something new to offer the public. They spent several months reading everything they could find in the public library on dahlias and read and studied the seed catalogues, besides experimenting on a small scale in their own yard.

Then some time was spent in finding the right location as to soil and easy marketing and not too far from the city, for they did not wish to give up all the city comforts to which they had been accustomed. They found a small place of three acres, the kind of soil and slope they wanted, plenty of water, close to an interurban car line and on the main highway leading in to the city, with its steady stream of auto travelers who would be attracted to the place once the flowers were in bloom.

Her years of training in the business world had taught the daughter the value of system. So they began by making a plan of the three acres. This served not only for the purpose of planting but enabled them to lay out the ground to the best advantage as to location of walks and buildings. A tiny bungalow was built containing just the necessary rooms for the two of them. Climbing roses were planted which soon covered it with their wealth of foliage and flowers. Then a small office and storeroom for the bulbs and seeds was built near at hand but separated from the bungalow by a rose covered pergola. The remainder of the small caital was invested in the bulbs and seeds with barely enough left for running expenses. They had been fortunate in securing good terms on the land which enabled them to put more into first improvements.

Enough of the ground was reserved for their garden, which soon supplied them with their own vegetables and a few chickens furnished them with eggs, thus helping out materially on their living expenses.

The first season no attempt was

CANDY MAKING

This Difficult Art Greatly Simplified by Use of the Right Syrup

Many housewives who are considered excellent cooks experience a great deal of trouble in attempting to make good candy. Candy making, more than any other species of cooking, requires strict attention to directions, both as to quantities and methods.

One of the most important ingredients used in candy making is syrup—and the quality of the syrup used will go a long way toward making or marring the confection.

Many of the most noted culinary experts in the country, including the world famous Marion Harland, most strongly recommend the use of Karo Syrup for this purpose.

Among the many delicious candies which can be best made with Karo are Fudge, Fondant, Divinity, Caramels, Walnut Caramels, Cream Caramels, Chocolate Caramels, Peppermint Candy, Taffy, Yellow Jack, Cream Drops, Peanut Candy, Butter Candy, Butter Scotch, Sea Foam, Karo Wafers, Comanche, Cocoanut Candy, Nougat and many other kinds too numerous to mention.

Do not experiment with inferior syrups, but insist upon Karo. You can obtain it at all modern grocers. When ordering Karo ask for a copy of the little Karo cook book containing recipes for making all of the above candies, and many other toothsome dishes. Try each of these recipes and you will always keep Karo in the house thereafter.

made to sell bulbs but they were planted with an eye to their display from the public highway.

When the plants were in bloom people began stopping to see them. They were something new in flowers, which was one attraction, and as great care had been used in planting them as to their colors and variety, they made a fine showing. Many orders were taken for future seeds and bulbs while they were in bloom. A display at one or two places in the city also brought several inquiries and many visitors.

At the end of the third year they have as large a business as the two of them can handle. They have over 500 varieties, some selling as high as $2.00 apiece. They sell not only locally but are shipping some of the new varieties to eastern seed houses. The work is fascinating, for a new variety is frequently grown. They are learning all the time how to try for new colors and varieties and to improve the different strains. They have made it a financial success and the outdoor work has brought added health to both the mother and daughter.

Domestic science instruction has become so important in Germany that a special domestic science dictionary has been issued for the use of teachers and others interested in education for the home.

Housekeepers Should Know More About Cornstarch

Their Cooking Possibilities Greatly Increased by Knowledge of This Delicious Food Product.

If the average housekeeper should make a study of the diversified uses of one food product—Cornstarch—she would enlarge the range of her cooking possibilities immensely. In addition to constituting the basis of many toothsome desserts, cornstarch can be used incidentally with much benefit in many ways.

For instance, the housekeeper can prepare her own pastry flour by mixing cornstarch with her regular bread flour in the proportion of one part cornstarch to three to five parts of flour—according to the amount of gluten in the bread flour she is using. By lightly dusting a cake with cornstarch she can prevent icing from running off while being spread. A little cornstarch introduced into a juicy fruit pie, such as rhubarb, cherry, etc., prevents its running over. Cornstarch also is fine for powdering candies, such as marshmallows, etc., while it can be used in hundreds of other ways too numerous to mention.

To insure satisfactory results, however, it is essential that the best quality of cornstarch be used. This can be assured by insisting upon the famous Kingsford's brand, which can be obtained at all modern grocers. Those who obtain the best results with cornstarch recipes always depend upon Kingsford's.

Relief From Ants

How To Cope Effectively With This Intolerable Nuisance.

If you are one of the thousands of women whose homes are over-run with ants, you will be interested to know that an absolute riddance for this plague has been discovered. After long experimenting, a Los Angeles baker, whose shop was infested with ants, prepared a paste which not only drove every ant out of his place in one day, but prevented their ever getting a foothold again.

So great a sensation was caused by this discovery that he was obliged to put up the paste for general use—and a large factory is now required to manufacture the remedy in the tremendous quantities necessary to keep pace with the demand.

This little remedy is known as Kellogg's Ant Paste and can be obtained at all modern druggists. Try it today and you will always keep it in the house.

HOUSEHOLD QUERIES

Substitute for Linoleum

We think a great deal of the Cultivator and like the household department; it has so many fine recipes and helpful hints for housewives. I would like to know how to fix an old Brussels carpet, to take the place of linoleum, as I want to make the change.—Subscriber, Turlock.

Old Brussels carpet has been used for kitchen floor covering by cleaning and tacking on the floor upside down. Then apply two coats of paint. This will leave a finish that can be washed with warm water. A coat of shellac applied over the paint will keep it from wearing off and will give it a glossier finish. Many housewives apply the shellac to linoleum to prevent wear.

Mint Jelly

Please print in your household department a recipe for mint jelly.—Subscriber, Dehesa.

Two tablespoons gelatin, one-half cup cold water, two and a half cups boiling mint extract, three-fourths cup sugar, one-quarter cup lemon juice. Soak the gelatin in cold water 20 minutes. Dissolve it in boiling mint extract, which has been prepared by steeping three cupfuls of finely chopped mint in three cupfuls of boiling water for half an hour. The liquid will be reduced to three and a half cups in this process. Strain and add the lemon juice and sugar. Turn into a mold wet in cold water, and chill. Serve in individual molds if desired. To give a pronounced green color to this jelly, add a bit of green vegetable coloring matter.

Carrot Pudding

Among the excellent recipes in October 15, 1914, number of the "Cultivator" is a carrot pudding. I have tried this a number of times, adding orange juice for moisture. Please learn of the one who gave the recipe if she omitted some kind of a liquid because it is very dry without something—as the recipe reads. The German nut loaf given in the same issue is very nice, and a favorite with us. I turn to these pages first with a new number.—Mrs. F. A. Marks, Santa Ana.

Miss Rebecca Strutton of San Diego, who sent us the recipe for carrot pudding, writes:

"Please tell your subscriber that she might use less potato in carrot puding or if she flours the nuts to keep them from sinking she must use a little less than one and one-half cups as per recipe. Some flour is more pasty than others. Her orange juice is a wise addition and I will try it myself."

Candied Citron.

Please give method of candying citron. Should the fruit be ripe or green for best results?—Subscriber, Pasadena.

We assume our subscriber refers to the true citron of commerce and not to the citron melon. Regarding the handling of this fruit we quote from Coit's Citrus Fruits: "The fruit as it first begins to assume a bright yellow color is picked and placed in brine for a month or longer, the brine being renewed occasionally. Sometimes tender young leaves of the citron tree are soaked with the fruit to deepen the green color. The fruit is then boiled in fresh water to remove the salt and soften it. It is then halved, the pulp and seed scooped out; and immersed in cold fresh water to intensify the greenish color. After that it is covered with hot sugar syrup and allowed to stand three or four weeks, during which time the strength of the syrup is gradually increased. The fruit is then put into boilers with crystallized sugar syrup and cooked; then allowed to cool. More sugar is added and it is cooked again until it will take up no more sugar. It is then dried and packed in wooden boxes, each piece being coated with white sugar crystals and wrapped in tissue paper."

Heat your plates before putting hot pies on them when first taken from the oven. The hot pies on cold plates cause a sweat that makes soggy under crust.

UTILIZING NEWSPAPERS

Written for the California Cultivator By Georgina S. Townsend

The amount of good material that goes up in smoke in every home where newspapers are read, is amazing. It is easier to burn up old newspapers to get rid of them than to plan to use them to some advantage. After one has gotten into the habit of making use of papers, it looks like wanton waste to see them burned up as rubbish. Almost every California home has an air-tight heater. During the summer, as papers accumulate, it takes but a few moments at a time to twist them up, as the newsboy does when he throws them into the yard, and toss them into a box or barrel. When cool fall days come one has enough newspaper "wood" to keep the little heater throwing off spasms of heat, which is all that is necessary to take the chill from the room.

A great many uses can be made of papers in the housework. A number of layers folded together and cut in circles may be quickly stitched up on the machine into mats for setting hot kettles upon. As soon as they become black they are burned up in the stove. Paper may also be used to clean smut from kettles—then burned—and for wiping out greasy frying pans, nothing is better than soft papers. I save every sort of paper—packing paper, laundry paper, paper used about bread, etc. All have their uses, especially all soft and tissue paper.

The easiest way to clean windows is to wipe them with kerosene and polish with paper. The gas or coal range may be kept clean by rubbing with paper once a day. All vegetables may be cleaned and prepared on papers, which then can be folded up about the debris, and easily emptied.

A great help to anyone when ironing is a thick pad of papers upon which one may stand. It will be found very restful to one's feet.

It is an excellent plan to cut papers into whatever size one has need of, and have a shelf or place for them.

STOCKTON COMMERCIAL COLLEGE
AND
NORMAL SCHOOL

Stockton's Leading School

We Pay Your Railroad Fare.
We Rent Your Books.
We Board You at Reasonable Rates.

Write for Catalog

Record Bldg. Opp. Postoffice **Adolph Johnson,** President

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, June 2, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade 3 to 4 cents above following quotations:

Creamery Extras 23
Firsts 21
Country 20
Ladle 19

CHEESE

Prices to trade, 1 and 2 cents higher:

California Fresh .... 13@13½
Cheddar .... 19@20
Domestic Swiss 20
Eastern Daisy .... 18½@19
Oregon Triplets .... 15½@16
Longhorn .... 19@19½
Imported Swiss .... 30@32
Tillamook .... 16½@17

EGGS AND POULTRY

Prices to trade, 3 cents higher than following quotations:

Fresh Ranch, case counts 21
Candled .... 23@25
Petaluma—Santa Rosa 23
Northern Case Counts 22
Other Outside Stock 19

Prices to producers:

Hens, lb. .... 15@18
Roosters, old .... 6@8
Broilers, lb. 17
Fryers .... 23@25
Roasters, lb. .... 20@24
Turkeys .... 16@19
Ducks 15
Geese 14
Squabs, doz. 2.00

LIVE STOCK

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs., per cwt. 8.75
Prime Steers .... 7¼@7½
Heifers .... 6¼@6½
Calves, lb. .... 8½@9
Sheep—
Ewes, head 4.50
Wethers 5.00
Lambs, head .... 4.50@4.75

POTATOES

Wholesale selling prices:

Idaho Russet 2.40
Idaho Rurals 1.65
Sweets, lug .... 85@90
New Early Rose, lug .... 55@60
Wisconsin Burbanks 1.75
Lompocs .... 2.60@3.00

ONIONS

Wholesale selling price:

Australian Brown, cwt. 1.00
Bermudas—
Imperial Valley, crate .... 75@80
Crystal Wax, crate 1.00
Garlic 15

VEGETABLES

Wholesale selling price:

Asparagus, green, lb. .... 6½@11
Artichokes, Northern, doz. .... 25@75
Beets, doz. 30
Beans—
String 6
Wax .... 3½@4
Kentucky Wonders 10
Cabbage, sack .... 90@1.00
Carrots, doz. .... 30@35
Cauliflower, doz. 1.50
Celery, doz. .... 50@55
Chicory .... 35@40
Chives, doz. 1.00
Cucumbers, box .... 45@55
Egg Plant, lb. .... 14@16
Escarole, doz. .... 35@40
Horseradish, lb. .... 12@15
Leeks, doz. .... 35@40
Lettuce, crate .... 75@1.00
Mint, doz. .... 35@40
Okra, lb. 10
Onions, Green, bunch .... 15@20
Oyster Plant, doz. .... 35@40
Parsnips, doz. .... 35@40
Parsley, doz. 15
Peas—
Small .... 3@4
Telephone .... 4@5
Peppers, lb. .... 25@30
Pumpkins, lb. .... 1¼@1½
Radishes, doz. 15
Rhubarb—
Crimson Winter, box .... 65@75
Strawberry .... 90@1.00
Spinach, doz. .... 15@18
Squash—
Summer, lug .... 35@40
Tomatoes, Mex., crate 1.25
Turnips 30

FRESH FRUIT

Wholesale selling price:

Apples—
Pippins 2.50
Rome Beauties 2.75
Pearmains 2.50
Apricots, lug 2.25
Avocados, doz. .... 4.00@5.00
Bananas .... 4@4½
Berries—
Strawberries, basket .... 3½@8
Blackberries, basket 4
Raspberries .... 3@4
Loganberries, basket .... 4@5
Gooseberries, lb. 8
Cantaloupes—
Pony 2.25
Standard .... 3.00@3.50
Cherries—
Red .... 7@9
White .... 6@7
Cherimoyas, lb. .... 20@25
Figs, box 1.50
Loquats, lb. .... 7@9
Pears, Winter Nelis, lug 1.50
Peaches, lug 1.50
Pineapples, lb. .... 6@7
Watermelons, lb. .... 5@6

CITRUS FRUIT

Wholesale selling price:

Lemons .... 1.50@2.50
Grapefruit, Seedless .... 1.50@2.75
Navels .... 1.75@2.50
Tangerines, lug .... 90@1.00
Limes, basket 1.00

DRIED FRUITS

Wholesale prices to retailers are:

Evaporated Apples, Fancy, lb.
Boxes .... 7¾@11½
Apricots .... 8½@10
Nectarines 12½
Peaches .... 5¾@6¾
Pears .... 10@11
Prunes .... 6½@12½
Plums 10

HONEY

Wholesale selling price:

Comb, Fancy, Water White 14
White 12
Light Amber 12½
Extr. Water White 7
White 6½
Light Amber 5½
Beeswax 32

NUTS

Prices named by California Walnut Growers' Association are:

No. 1 .... 16½
Budded Walnuts 20
Jumbos 19
No. 2 12
Culls 9

Prices fixed by California Almond Growers' Exchange, f. o. b. California.

Almonds—
Nonpareil .... 21@22
I X L .... 19@19½
N P U .... 17½@18½
Drake's Thinshell .... 18@18½
Pecans 17
Peanuts—
California, Raw 6
Japan 7½
Eastern 7½
Rice Corn .... 5.00@5.25

RICE

Wholesale selling price:

California .... 4.75@5.00
Broken .... 3.75@4.00

BEANS

Wholesale selling price:
Producer's price not far from one dollar under these quotations:

Limas .... 5.50@5.75
Bayous .... 6.00@7.00
Lady Washington .... 5.50@5.75
Pinks .... 4.65@4.75
Black Eyes .... 6.75@7.00
Lentils .... 13.00@14.00
Small White .... 5.50@5.75
Garbanzos .... 8.35@8.50

HAY

Prices to producer f. o. b. Los Angeles:

Barley Hay .... 9.00@13.00
Wheat Hay .... 8.00@11.00
Tame Oat .... 9.00@14.00
Alfalfa .... 8.00@11.00
Volunteer .... 5.00@7.00
Straw .... 5.00@6.00

GRAIN

Wholesale selling prices f. o. b. Los Angeles:

Corn, Yellow 2.20
Corn, White 2.30
Wheat .... 2.40@2.45
California Red Oats 1.85
Oats, White .... 2.15@2.20
Oats, Hulled 2.45
Egyptian Corn 2.20
Barley Seed 1.45
Barley, Hulled 1.80
Milo 1.90
Rye 2.30
Sunflower Seed 7.00

FEED STUFF

Wholesale selling prices f. o. b. Los Angeles:

Bran, Heavy 1.90
Alfalfa Meal 1.15
Alfalfa Molasses. per cwt. 1.20
Beef Scraps 3.00
Beet Pulp 1.25
Cracked Corn, cwt. 2.25
Cracked Wheat, cwt. 2.65
Cotton Seed Meal 1.80
Bone Meal 1.95
Meat Meal 3.00
Bone, Green 1.65
Charcoal 1.90
Oil Cake Meal 2.50
Fish Meal .... 3.15@3.25
Rolled Oats 2.20
Middlings 2.20
Rolled Barley 1.40
Feed Meal 2.30
Scratch Feed .... 2.20@2.40
Clam Shell .... 60@70
Oyster Shell .... 1.15@1.25

San Francisco Market

SAN FRANCISCO, June 1, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade, 4 cents above following quotations:

Extras 22
Select Pullets 19
Firsts 20½

CHEESE

Wholesaler to retailer.

Oregon Y. Am. 14½
Young America 12½
California Flats .... 8@10½
Cheddar 20
Oregon Twins 13½

EGGS AND POULTRY

Prices to trade 3 cents higher than following quotations:

Extras 23½
Select Pullets 20½
Firsts 22
Seconds 20

Price to producer:

Hens, lb. .... 15@16
Fryers .... 26@28
Broilers .... 18@20
Roosters, Young .... 25@26
Old .... 10@11
Squabs .... 1.75@2.25
Ducks .... 15@17
Geese .... 2.50@3.00
Belgian Hares, lb. .... 7@8
Dressed .... 10@12½
Turkeys, live .... 16@18

LIVE STOCK

San Francisco prices. gross weight:

Steers .... 4@6¾
Cows and Heifers .... 3@6
Calves, lb., live weight .... 6@9¼
Hogs .... 5@8¼
Wethers .... 6½@7
Ewes .... 6@6½
Milk Lambs, lb. .... 8@8¼
Shorn stock ¾@1c less

POTATOES

Wholesale selling price:

Idaho .... 1.50@1.75
Idaho Russet .... 1.50@1.75
Burbanks .... 1.65@2.00
New Delta .... 85@1.25
Oregons .... 1.85@2.00
Shimas .... 1.00@1.40
New Potatoes, lb. .... 1¼@2
New Garnets .... 3@3½
Sweets, cwt. .... 2.00@2.25

ONIONS

Wholesale selling price:

Onions, cwt. .... 55@65
Bermudas .... 65@75
Australian Browns .... 2.50@3.50
Oregon .... 80@90
Garlic, new .... 7@12½

VEGETABLES

Wholesale selling price:

Asparagus, box .... 1.75@2.50
Beans—
String .... 2@3
Wax .... 2@3
Brussels Sprouts, lb. .... 3@5
Corn, Imperial Valley, doz. .... 10@25
Cucumbers, Hothouse, box .... 75@1.00
Egg Plant, lb. .... 8@10
Lettuce—
Southern, crate .... 50@80
Local, small crate .... 75@1.00
Large .... 25@50
Okra, crate .... 1.00@1.25
Peas, sack .... 1.00@1.75
Peppers—
Bell, lb. .... 25@35
Chili, Mexican .... 10@20
Rhubarb—
San Jose .... 60@85
Alameda .... 50@75
Squash, Summer, crate .... 30@50
Tomatoes, Mexican, lug .... 1.50@3.00
Imperial Valley, crate .... 1.50@1.75

FRESH FRUIT

Wholesale selling price:

Apples—
Newton Pippins .... 1.25@1.50
Other varieties .... 40@75
Apricots, box .... 1.00@1.25
Bananas, Hawaiian, bunch .... 1.50@2.25
Blackberries, crate .... 40@60
Cantaloupes—
Ponies .... 3.00@4.00
Specials .... 75@1.00
Cherries—
Blacks, lb .... 1@5
White, lb. .... 2@4
Currants, chest .... 5.00@6.00
Figs .... 2.00@2.25
Gooseberries, lb .... 3@7
Loganberries, chest .... 3.00@5.00
Loquats, crate .... 50@75
Peaches, crate .... 1.25@1.50
Pineapples, doz. .... 2.50@3.00
Raspberries, crate .... 75@90
Strawberries—
Longworths, chest .... 4.00@6.00
Other Varieties, chest .... 2.50@4.50
Blackberries, crate .... 2.50@5.00
Raspberries, crate .... 1.00@1.25
Gooseberries, lb. .... 4@7
Oregon Gooseberries .... 5@6
Loganberries, chest .... 5.00@7.00
Loquats, crate .... 1.00@1.50
Bananas, Hawaiian, bunch .... 1.50@1.75
Cherries, box .... 45@75
Cantaloupes—
Ponies 4.55
Specials .... 1.25@1.50
Pineapple, doz. .... 2.50@3.00
Peaches, crate .... 1.75@2.00

CITRUS FRUIT

Wholesale selling price:

Grapefriut, Seedless, new crop .... 2.25@2.75
Lemons .... 1.50@3.25
Lemonettes .... 1.00@1.75
Navels .... 1.75@2.75
Limes, Mexican, case .... 5.50@6.00
Tangerines, halves .... 75@1.75
Valencias .... 2.00@2.75

DRIED FRUITS

Wholesale prices are:

PRUNES—1914 crop, bulk basis: 30-40s, 5¾c; 40-90s, 5½c. The above are for both Santa Clara prunes and the stock from outside sections.

Other Fruits—

50-lb. boxes—	Stan.	Ch.	Ex. Ch.	Fcy.
Evaporated apples	5¼c	5¾c	6½c	
Apricots	6 c	7¼c	7¾c	9 c
Peaches	3 c	3¼c	3½c	4¼c
Pears	7 c	8 c	9 c	10 c

RAISINS

The following prices are f. o. b. Fresno, as given out by the Associated Raisin Company, for immediate shipment, and are guaranteed against a decline till June 1st:

Fancy seeded, 16-oz., 7½c; 12-oz., 5⅞c; bulk, 6c; choice seeded, 16-oz., 6⅞c; 12-oz., 5⅝c; bulk, 5½c; Thompson seedless, No. 1, 16-oz. pkgs. 7c; 12-oz., 6¼c; 50-lb. cs., 6½c; loose, Muscatels, 1-crown, 5½c; 2-crown, 5½c; 3-crown, 5⅞c; 4-crown, 6c; Sultanas, 50-lb. cs., 5¾c; bulk, layers, 50-lb. bxs., $2.75; in 20-lb. boxes, 6-crown, $2.75; 5-crown, $2.25; 4-crown, $1.60; 3-crown, 5-lb. bxs., $1.50; on all bulk stock, 50c additional. Cartons—Clusters, 20 to cs., No. 1, $1.70; No. 2, $2.10; No. 5, 4 to cs., $2.25. Local representatives of the Associated are asking about ¼c higher, while several of the largest independent packers are quoting ½c under these figures.

NUTS

Local stocks of all nuts practically cleaned up.

ALMONDS—Prices fixed by Almond Growers' Exchange to the trade, f. o. b. California:

Nonpareil .... 11@13
I X L .... 11@13
Ne Plus Ultra .... 11@13
Drakes 10

Wholesale selling price:

Peanuts—
Unpolished .... 3½@4½
Polished .... 4@5½
Shelled, China .... 5½@6
Italian Chestnuts .... 6½@7

BEANS

Wholesale selling price:

Limas .... 5.00@5.10
Pink .... 4.00@4.10
Black Eyes .... 6.00@6.25
Cranberry .... 5.00@5.10
Small White .... 4.80@4.90
Garbanzos .... 6.50@6.75
Large White .... 4.75@4.90
Bayou .... 4.90@4.95
Manchurian Speckled Bayous .... 3.60@3.80
Manchurian Butters .... 4.50@4.75
Red Mexican .... 5.30@5.40
Red Kidney .... 5.90@6.00
Horse Beans .... 3.50@4.00

HONEY

Wholesale selling price:

Comb, Water White 18
Light Amber .... 10@12
Amber .... 7@10
Extracted White .... 6@7
Light Amber .... 3½@4½
Dark Amber 2
Beeswax .... 25@28

HOPS

1914

Wholesale selling price:

Sacramento Valley .... 8@10
Sonoma-Mendocino .... 11@12½
Oregon Clusters .... 11@12½

WEATHER CONDITIONS

May 29, 1915

Report from the various California stations of the United States Weather Bureau by George H. Wilson, director, San Francisco.

	Rainfall Data			Temperature Data —Past Week—	
	Past Week	Seasonal to Date	Normal to Date	Maximum	Minimum
Eureka	.46	42.64	44.84	60	48
Red Bluff	.18	34.72	24.51	90	46
Sacramento	.01	17.16	19.91	90	48
San Francisco	.01	27.41	22.06	81	52
San Jose	.04	22.72	16.67	88	46
Fresno	.00	10.89	9.54	92	46
Independence	.00	3.47	9.40	86	...
San Luis Obispo	.00	28.13	20.36	90	48
Los Angeles	.00	17.03	15.55	96	52
San Diego	.02	14.43	9.96	82	54

HAY

Under date of May 29, Scott, Magner & Miller say:

Arrivals of hay during the past six days have amounted to 3118 tons, a good part of which was for movement on export account.

Prices on low grade and medium hay remain unchanged, while an occasional consignment commands a little above top-most quotations. Alfalfa shipped into this market has been readily taken care of in the usual trade. None of the new crop has yet been baled for shipment.

We quote the average wholesale price of hay in carload lots on today's market as follows:

Fancy Wheat Hay (lt. bales)	11.50@12.50
No. 1 Wheat or Wheat and Oat	9.50@11.00
No. 2 Wheat or Wheat and Oat	7.00@9.00
Choice Tame Oat	11.00@12.00
Other Tame Oat	6.00@9.00
Barley	5.00@8.00
Wild Oat	6.00@8.00
Alfalfa	6.00@9.00
Stock Hay	4.50@5.00
Straw, per bale	.30@45

GRAIN

Alfalfa Seed	16½
Wheat, Cal. Club	2.22½@2.25
Corn, Egyptian White	1.80@1.85
Corn, Eastern Yellow	1.77@1.78½
Barley Feed	1.12½@1.15
Oats, Red, Feed	1.45@1.55
Oats, White Feed	1.65@1.70
Millet	2½@3¼
Flaxseed	5@5½
Rye	2.00@2.25
Sunflower	5@5½

FEED STUFF

Wholesale prices.

Alfalfa Meal, car lots	13.50@14.50
Bran, ton	26.50@29.50
Feed Cornmeal	40.00@41.00
Cracked Corn	40.00@41.00
Rolled Barley, ton	26.00@27.00
Rolled Oats, ton	37.00@37.50
Middlings	32.00@34.00
Shorts	30.00@31.00
Oilcake Meal	38.00@39.50
Cocoanut Oilcake Meal	24.00@25.00

Citrus Fruit Market

Los Angeles, June 2, 1915.

"Good oranges, good price; poor oranges, poor price," is about today's situation in the orange market. In other words, there is no keen demand but all the dealers are anxious to keep up their supply of good stock. This cares for all the good stock there is to forward. Indifferent stock has to take any price which is offered. There are perhaps 500 carloads of navels on sidings or in transit and when these are disposed of the Valencias will have command of the market. There are yet 7,000 or 8,000 carloads which will be ample to supply the trade until November.

There are 600 carloads of lemons on the way to market. In addition there are 300,000 boxes, or 750 to 800 cars, of lemons due to arrive in New York within the next ten days. Eastern weather is cool and very unsatisfactory from a lemon standpoint. Until the weather changes there is little hope for long prices. In addition there are in California packing houses 2,500 to 3,000 cars ready for shipment.

Shipments

Shipments of oranges from Southern California to date since November 1, 1914, 25,936 cars, lemons 3,960, total 29,896. To same date last season: oranges 27,803, lemons 1,595, total 29,398. From Tulare County this season: oranges 5,536, lemons 197, total 5,732. To same date last season: oranges 5,259, lemons 30, total 5,289. From northern counties: oranges 629, lemons 2. Same date last season: oranges 405, lemons 5.

NEW YORK, June 1. — Twenty-seven cars navels, eight Valencias, two St. Michaels, two seedlings, two Jaffas, seventeen mixed cars, and five cars lemons sold. Market unchanged on both oranges and lemons. Fair.

NAVELS—	Avge.
Golden Cross, O. K. Ex.	$3.25
Red X, O. K. Ex.	2.95
Blue U, O. K. Ex.	2.00
Moose, O. K. Ex.	3.05
Paul Neyron, S. A. Ex.	2.95
Pinnacle, O. K. Ex.	2.80
VALENCIAS—	
Anaheim Supreme, S. T. Ex.	$3.60
Mother Colony, S. T. Ex.	3.15
Duquesne, A. C. G. Ex.	3.35
Glendora Heights, xf., A. . G. Ex.	3.65
Evolution, A. C. G. Ex.	2.80
Robusta, A. H. Ex.	3.05
SWEETS—	
Lotus	$2.45
Monogram	2.10
Quail	2.50

ST. LOUIS, June 1.—Nine cars sold. Market unchanged.

NAVELS—	Avge.
Gray Elephant, Elph. Orchards	$1.50
Monopole, A. C. G. Ex.	1.80
VALENCIAS—	
Gabriella	$2.60
Freedom	2.40
Rooster	2.80
Searchlight	2.15
S. S. Brand	2.45

PITTSBURGH, June 1.—Five cars sold. Market unchanged.

NAVELS—	Avge.
Chess King, Heath P. Co.	$1.95
Bishop, Heath P. Co.	1.80
Kingmaker, T. Strain	1.35
Uncle Sam, Riv. Ex.	2.40
Billiken, Riv. Ex.	2.15
LEMONS—	
Arab, S. D. Ex.	$2.25
Pup	2.00

PHILADELPHIA, June 1. — Seventeen cars sold. Market doing better on oranges, stronger on lemons.

NAVELS—	Avge.
Emperor, Upland M. O. A.	$1.90
Queen, Upland M. O. A.	1.80
Scout, Upland M. O. A.	1.40
VALENCIAS—	
Champion	$2.90
A One	2.30

BOSTON, June 1. — Thirty-four cars sold. Market is unchanged on both oranges and lemons.

NAVELS—	Avge.
Blossom Red, M. O. Co.	1.70
Chief, Redlands Hgts. Or.	1.70
Kingmaker, T. Strain.	1.40
Jackrabbit	1.30
VALENCIAS—	
Carmencita, S. T. Ex.	$3.30
Colombo, S. T. Ex.	2.95
Aurora, Amer. Ft. Dis.	3.30
Blue Banner, Sutherland Ft. Co.	3.05
Green Banner, Suth. Ft. o.	2.90
Native, Suth. Ft. Co.	2.75
LEMONS—	
Ambassador, Q. C. Ex.	$2.45
Consul	2.25
Arab, S. D. Ex.	2.55

CHICAGO, June 1.—Two holidays and a half holiday caused fruit consignments to pile up, and much of it suffered by the delay. Prices were shaded to unload the surplus stock. Cherries, California black, sweet, 10-pound boxes, 1.35@1.65; white sweets, 1.40@1.75; southern sour, cases, 24 quarts, 1.00@1.25. Peaches, California, boxes, 20 pounds, 1.75@2.00. Apricots, California, cases, 4 baskets, 1.75@2.00. Oranges, boxes, California, navels, 2.25@3.25; seedlings, 2.25@2.75; Valencias, 2.75@3.25. Lemons, boxes, California, 2.75@3.25. Cantaloupes, California, cases, 54 melons, 6.00; 12 to 16 melons, 2.00. Grapefruit, boxes, 2.50@3.25. Blackberries, cases, 24 pints, 1.00. Blueberries, 25@30 quart. Gooseberries, cases, 24 quarts, 1.00@1.50. Strawberries, cases, 24 quarts, 2.00@2.50. Apples, boxes, western stock, 1.50@2.00.

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Hair Not Shedding.

I have a horse 15 or 20 years old. I give him all the oat hay he will eat and a gallon of rolled barley three times a day. He does not shed hair well. It is rough and stands on end. I can't get him to take on flesh. Have had his teeth looked after.—Subscriber, Los Gatos.

You are overfeeding the horse. Give him the medical treatment recommended below and reduce the feed one half: That means the hay as well as the grain. Get of your druggist: Aloin, one ounce, turpentine, three ounces, raw linseed oil, one quart. Mix, shake well and divide into three doses and give the three doses three days apart. Also get powdered gentian, four ounces, powdered nux vomica two ounces, bicarbonate of soda four ounces, and farina six ounces. Mix and give a tablespoon in the feed every night. Do not commence giving the powders until about a week after using the drenches.

Colic.

I have a young mare six years old. Think she is about four months with foal. She seems to be subject to spasmodic colic spells. Does not seem to bloat much. Sweats profusely. Is fed on good barley hay and rolled barley. Works right along and stays in barn. Seems healthy.—Subscriber, Lindsay.

The following tonic will probably relieve her. Powdered gentian four ounces, powdered nux vomica two ounces, bicarbonate of soda four ounces and enough ground fenugreek to make one pound. Mix and give a tablespoon in the feed once a day. A handful of ground flaxseed in the feed once a day will have a tendency to relax the bowels a little and help some also.

Catarrh.

My horse has constant watering of both eyes. Nose also runs water slightly. Condition appears chronic. Is it a cold? What can I do to check the trouble?—Subscriber, Highland.

This is probably the result of a cold. Some powders for the blood will probably dry it up. Get powdered gentian six ounces, and sulphate of iron leaves two ounces, and sulphate of iron two ounces. Mix and divide into 16 powders. Give one powder every night in the feed.

Hard Milkers.

Some of my young cows are very hard to milk. Is there any good, safe remedy? The holes in the teats seem to be too small.—Subscriber, Hemet.

The openings in the teats can be enlarged by cutting or stretching the sphincter muscle that surrounds the opening. In cutting great care must be exercised as one is liable to do more harm than good. It is better to stretch the opening by inserting an instrument for that purpose. There are several different kinds that can be purchased from veterinary instrument manufacturers. Some are of the form of a collar button. These can be inserted after milking and left until the next milking. The instruments are of different sizes, and by using the small ones at first and changing to the larger ones you will soon get the result desired. The instruments should be kept clean so you will not introduce any dirt that will irritate the parts and cause inflammation.

Bloody Milk.

Goat gave birth to twin kids one week ago. The kids were well developed but both were born dead. The doe was off her feed at first but is now eating better. She has gradually come up in her milk until she now gives nearly two quarts per day. There are bloody settlings in the milk after it sets a few hours and her udders seem tender but there is no indication of sores. Is there a remedy for the bloody milk?—Subscriber, Pasadena.

Gife her a physic of four ounces of epsom salts, two ounces of common salt and a teaspoon of ginger. Dissolve it all in a pint of hot water and give at one dose as a drench. Also get about three pounds of ground flaxseed (with the oil left in) and give a small handful in the feed once a day.

Rheumatic.

We have a one year old colt that has an enlarged stifle or stifle lameness. When she was about six weeks old she got an enlargement on the left knee and also one on the right stifle. We used some blistering salve and blistered both places. After a while both enlargements disappeared. This season the one on the stifle is there again. Bad enough to prevent her from trotting free. It does not hurt her to pinch it a little.—Subscriber, Escondido.

Have your druggist prepare the following: Nitrate of potash four ounces, salicylate of soda one ounce and bicarbonate of soda one ounce. Mix and divide into 20 powders. Give one every morning. Also iodide of potash one ounce and water enough to make one pint. Give a tablespoon of this every evening.

Inflammation of Joint.

An 11-year-old horse had a nail stuck in stifle joint. Cleansed the wound with syringe and carbolic acid and applied liniment. This has apparently not relieved the pain. I fear the nail has injured bone.—Subscriber, Alpaugh.

A blister is the only thing that will do any good now. Have your druggist prepare this: Cantharides one ounce, biniodide of mercury one ounce and axunge six ounces. Mix. Rub in well and tie the horse so he cannot reach it to bite it for 24 hours. Then grease the parts well with lard. Repeat this every two weeks until the lameness is gone.

Farcy.

I have a horse that has a disease called "button farcy." Will you please give cure?—Subscriber, Chicago.

There is no disease known to the profession by the name of "button farcy." If it is genuine glanders or farcy there is no known cure for it. If your horse has small swellings under the skin which sometimes follow distemper or influenza, he may get relief from the following. Have your druggist prepare this: Creosote (Beachwood) four drams, eucalyptus oil four drams, carbolic acid two drams and alcohol enough to make one pint. Mix. Give half an ounce morning and evening. Get a syringe and inject the medicine into the mouth.

Horse with Kidney Trouble.

Have a horse which seems to have kidney trouble, requiring the services of a veterinarian after being driven. Is it possible to cure this trouble and what is the cause of it?—Subscriber, Vacaville.

Your description of the case is not very full. Try the following powders and if they fail to cure then write again giving fuller description of the symptoms. Get nitrate of potash eight ounces, bicarbonate of soda four ounces, and powdered digitalis leaves two ounces. Mix and divide into 16 powders. Give one powder in the feed every night.

SPRAYING POTATOES

(Continued from Page 634)

once a week than to make a double spraying once in two weeks. In the first two sprayings while the plants are small one nozzle per row may be sufficient, but when the plants become large at least two nozzles per row should be used. Large vines are especially liable to blight and should be sprayed very thoroughly. Such vines will be somewhat injured by the wheels of the sprayer, but the benefit from spraying will far outweigh the damage done.

A single spraying is better than none and will usually be profitable, but more are better. Spraying may prove highly profitable even though the blight is only partially prevented. It is unsafe to postpone spraying until blight appears. Except perhaps on small areas, it does not pay to apply poison alone for bugs. When it is necessary to fight insects Bordeaux mixture and poison should be used together. For the best results spraying should be continued as long as the plants live. It is a mistake to discontinue spraying because the weather is dry and no blight present. A late attack of blight may result in heavy loss from rot. As a rule those who spray most obtain the largest net profit.

The foregoing statements show that thorough spraying of potatoes every year has three distinct advantages which make it profitable: (1) It insures against loss from blight; (2) it protects against insect damage; and (3) it stimulates the growth and thus increases the yield.

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—Take a photograph or snapshot of it, write us what you think of **Amiwud** and mail both to us. (Be sure to write name and address on photo.) We will enter the picture you send in the big contest.

If You Haven't an Amiwud Room

—And intend to build, or refit, a room, you'll want to know about **Amiwud.**

—Fill out coupon below and mail to us. We'll send you full information and name of local dealer selling **Amiwud.**

Contest ends November 15th. To every woman sending us a picture of an AMIWUD Room in her house we'll send a stamped sofa pillow top, guest towel or doll outfit, or a further selection from the famous Royal Society Package Goods.
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Three prizes awarded outside California.

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—**Amiwud** is tough and durable. Is cheaper than wood. Takes the place of lath and plaster.
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Rural Californian combined with California Cultivator

An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

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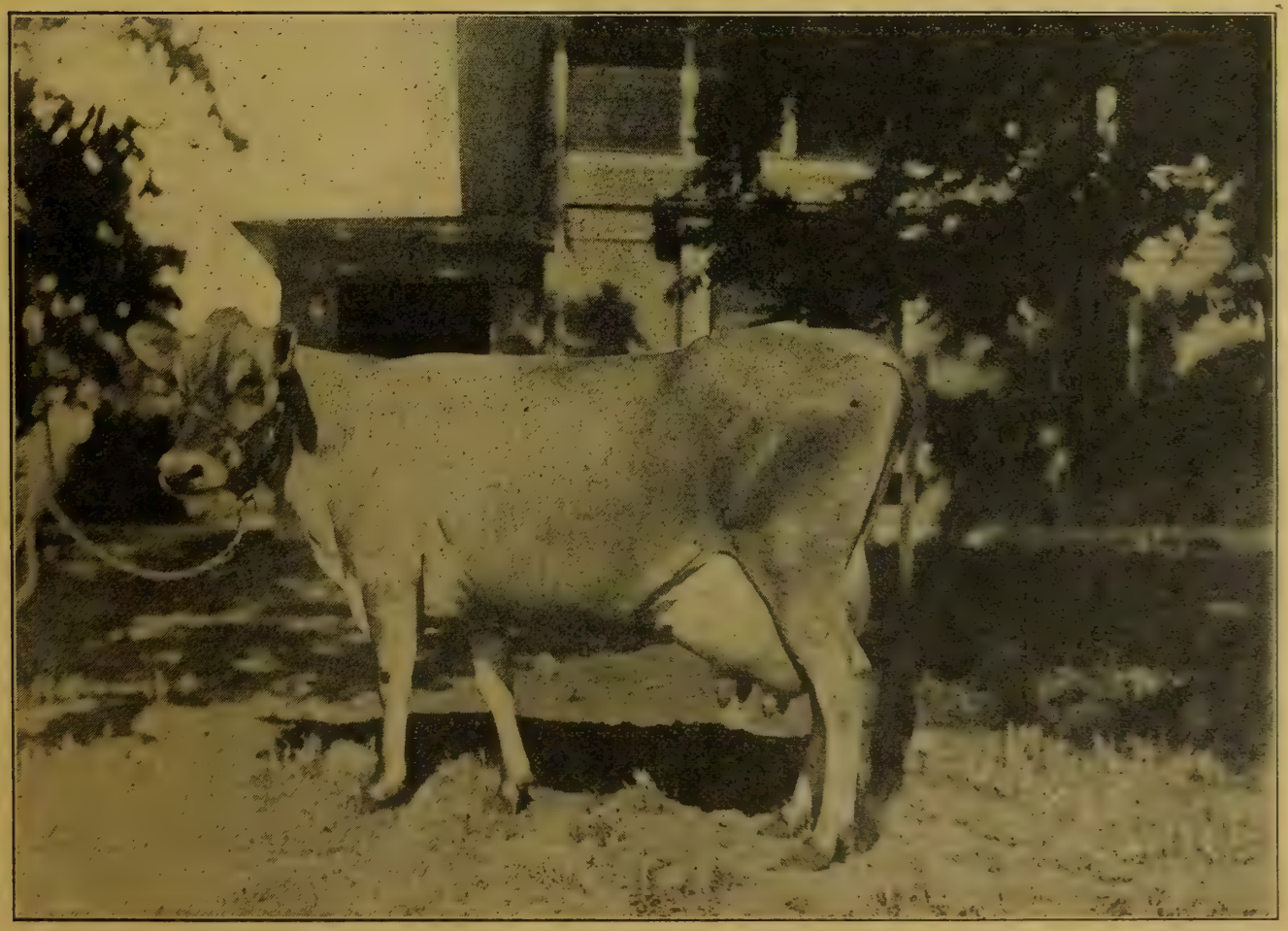

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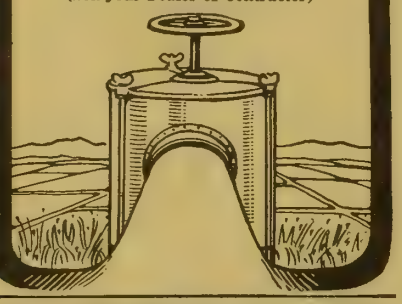

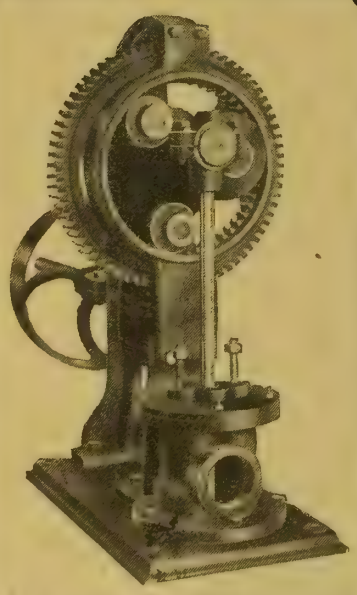

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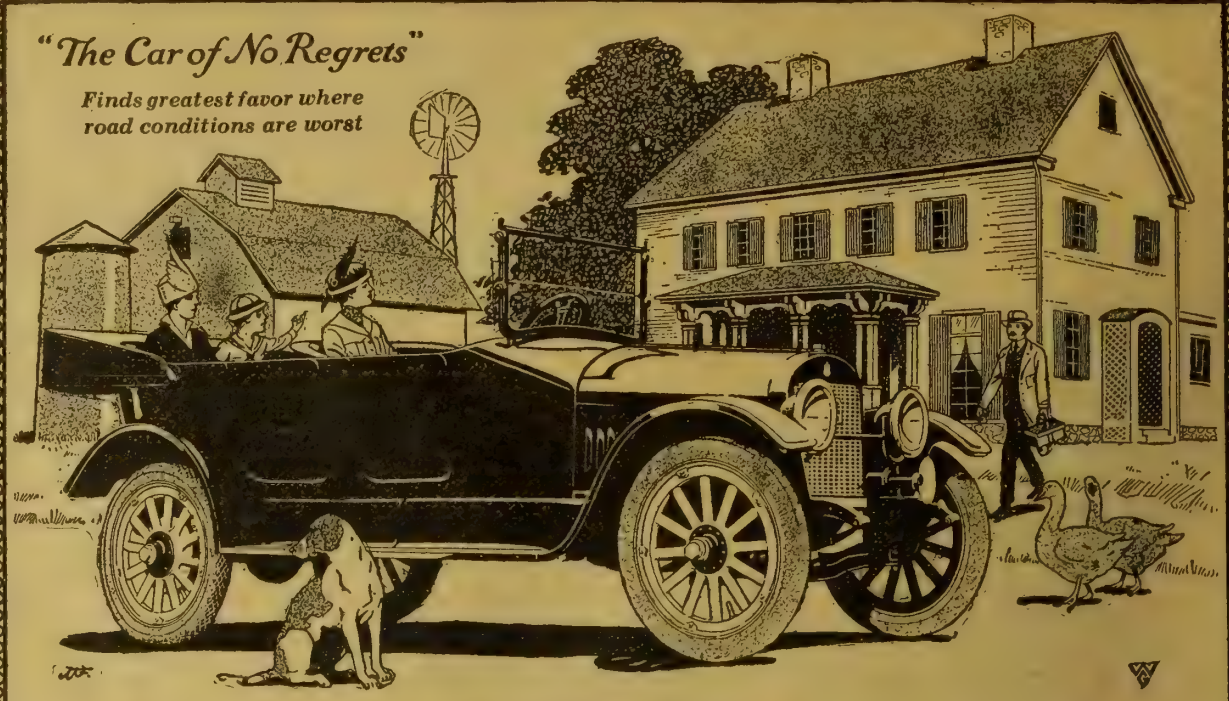

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The extraordinary success of this super-car can only be understood by a ride behind its engine

A believable description of the King "Eight" in action defies even "advertising" English. It is a performance that must be "felt"—and exulted in.

The superior flexibility of an "eight" is beyond argument or dispute. It is an immutable mechanical fact that an "eight" has one power impulse for every 90 degrees of crank rotation, as against the 120 degrees of a "six" and the 180 of a "four."

This almost "turbine" smoothness of operation means *more* than the mere avoidance of gear-changing for practically all speeds and grades: It reduces vibration to nearly nil, which in turn results in silence and longevity and adds to riding comfort.

Notwithstanding its greater number of cylinders and 40-45 horse-power, the King "Eight" gives 15 to 20 miles to a gallon of gasoline and 800 to 1000 miles to the same measure of motor oil. Thus, low operating cost is added to the car's other virtues.

The King "Eight" is *not* an experiment, but the same successful type of car made by celebrated European builders for the past six years. It is King designed and King manufactured and has many thousands of miles of grueling road tests behind it. Enthusiastic owners all over America, and in many countries of Europe, are making King sales by their praise of this wonderful "eight."

What you should *now* expect from a motor car is taught by a King "Eight" demonstration. There's a King dealer in your locality.

Four Cylinder Model C—30-35 Horse-power—$1165 Complete

Two body styles for both "Eight" and "Four"—Touring Car and Roadster

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GOOD AUTO ROADS

JUN 15 1915

California Cultivator

Rural Californian combined with California Cultivator

Vol. XLIV No. 23 LOS ANGELES: THURSDAY, JUNE 10, 1915 One Dollar Yearly

The Butte County Spring Exposition

Cultivator's Representative Present at the Fair Recently Held at Chico. The Attendance was Very Large. Great Interest Centered in the Stock Show

THAT district fairs and expositions have a large place in the great agricultural uplift movement that is making itself felt all over America is the belief of a number of enterprising citizens of Butte County, and their faith in this belief has been expressed in the holding of a particularly successful industrial and live stock exposition.

The first Butte County spring exposition was held on the Bidwell ranch grounds, in Chico, May 4 to 31, 1915. The attendance for the week was about 20,000, increasing every day until the close. There was an excellent display of live stock and agricultural products, one that was a credit to the managers of the show and the district.

There is probably no question but that the show will be held again next year, and if it is there will be a larger list of exhibitors and a larger attendance.

The greatest interest centered in the live stock show. A fine lot of horses were shown, good representatives of the dairy breeds of cattle, a few Shetland ponies, much fine poultry including a splendid show from the Mahajo farm, Perkins, of which H. S. Kirk is owner, and C. J. Struby manager, and a lot of high class hogs.

In the industrial exhibit were attractive displays of a number of land companies. Rice was shown as it grows in the fields. The Rodgers Sanitary Chicken House, made at Williams, and the Diamond Match Company of Chico had a model of their silo and a full line of bees keepers' supplies. All were well put up and the exhibitors should have been well rewarded for their enterprise.

The show was managed by J. A. Gorman of Gridley and he is entitled to great credit for the able way that all of the details were handled. He is a born exhibition man, and if there was a disappointed visitor or exhibitor on the grounds the Cultivator representative did not learn of it. But on every hand there was praise for the manager, the directors and the show in general.

The executive committee consisted of John H. Gill, Jr., A. G. Eames, W. B. Dean and J. A. Gorman. The live stock show was in charge of John H. Guill, Jr., W. A. Perley of Chico and H. L. Murphy of Perkins.

E. R. Neilson was in charge of the poultry show; C. E. Porter of horses and mules; Fred Peterson of flowers and plants; Theo. Schwein of olives and olive oils; C. H. Camper of the educational display; W. E. Luman of the food products; and the Butte County and Chico creameries of the dairy display.

Chico has a population of over 15,000 people, and is one of the most beautiful cities in California. It is in the heart of a very rich agricultural section and one that is making rapid progress at this time. All around Chico are profitable deciduous orchards. To the south at Oroville is one of the great citrus and olive districts of the state and the great rice fields of Biggs and Gridley. Just to the north is the attractive Los Molinos project and the Vina ranch of the Stanford University. Across the river is Corning with its groves of olives and all other varieties of fruit, Orland and the best irrigation project ever started by the reclamation service of the United States government, and the great project of the Sacramento Valley Irrigation Company, where the Kuhns of Pittsburg spent $10,000,000 before the failure of banks and other properties temporarily involved the financial affairs of the project but in no way interfered with the interests of the settlers or of the successful development of their properties. It is a significant fact that every newcomer to California on the irrigated projects in this district tributary to the Chico exposition, who has come to his new home with the money and intelligence and energy that are required for success anywhere, has done well here, and it is due to the development in an intensive way of thousands of acres of rich land that this exposition may hope for a bright future if the present management and enthusiasm continues as it has started.

At Chico is the plant of the Diamond Match Company, the shops and offices of the Northern Electric Company, the state normal school, Healds Business College and many other institutions of merit. The city bears the distinction of owning a natural park of 1920 acres extending from the city up into the foothills of the Sierras. This was the gift of General Bidwell who started the town and to whom the city is indebted for many other parks and trees that were planted many years ago.

In the cattle show Holsteins were shown by John H. Guill, Jr., and L. Herman of Chico; Angus by A. C. Stevens of Live Oak; Devons by Garner Brothers of Chico; Jerseys by S. F. Williams of Chico, C. E. Barrows of Los Molinos and J. Troxel of Chico; Shorthorns by H. L. Murphy of Perkins.

In the hog show there were some splendid Poland Chinas shown by J. S. Williams of Chico and a large herd of Duroc Jerseys exhibited by Rucker and Coppin of Fair Oaks.

The keenest competition of the live stock show developed in the Berkshire hog classes. With the great interest that is being manifested in this breed in northern California this Berkshire show promises to attract attention all-over the coast.

The first prize in the class for boars two years and over was awarded to Panama Lee, the boar at the head of the herd of C. E. Barrows, Los Molinos. He is a well finished hog of good length, has a deep body, short legs, a well sprung rib and a short head. T. W. Goethe of Perkins won first in the yearling boar class with a son of Royal Masterpiece. For boars over six months and under one year Barrows won on Panama Lee, 2d, a young boar recently brought out from the East, an animal with great substance and remarkable bone. Goethe was second with a very stylish, well made hog with lots of finish. There was keen competition on boar pigs under six months old. H. L. Murphy of Perkins won with a well grown pig with a good head and back and a long body. Barrows was a close second with a younger animal. Harvey Blodgett of Perkins was awarded first on aged sow.

There was considerable interest at the ringside when the yearling sows were judged. Murphy won with a very nice type, a sow that had a litter of pigs in the show and was in fine show condition herself. Her right to first honors was closely contested by a sow from the Barrows herd, another mother of a large litter, a good headed one and even all through, but not in the show condition of the Murphy entry. She was awarded second. The sensation of the show developed in the over six months and under year sow class in a daughter of Panama Lee shown by A. L. Stevenson of Los Molinos, weighing 285 pounds at a little over six months of age and carrying with her size a lot of quality and finish. She has a nice head, a splendid back, plenty of depth and is a fine example of what can be done with hogs on alfalfa, milk and grain in Northern California when they are bred right and fed right. Mr. Stevenson is one of the best hog feeders in the state. This sow was made first, Goethe had second with a beautiful daughter of Royal Masterpiece; while Murphy and Barrows had two fine animals just outside the money. On sow pigs Murphy won both first and second. Murphy won first on three sows and one boar under one year, Goethe second. For produce of sow Goethe was first, Murphy second. For get of sire Murphy was first, Barrows second, Goethe third. Panama Lee, owned by Barrows, was made champion boar of the show. Murphy's yearling sow was made champion female. Murphy was awarded first for the best herd, quality to count 50, numbers 50 per cent.

The live stock awards were made in a very satisfactory manner by Prof. Gordon H. True of the University of California. It was a very fortunate thing for California when Professor True consented to come to California to take charge of the animal husbandry department of the agricultural college, for he ranks with the very best live stock judges of the world and is not only thoroughly trained in all of the scientific things pertaining to animal industry, but is a practical common sense stockman who has bred, fed and exhibited winning stock at the leading shows and fairs. It is worth going a long way to see Professor True judge stock and hear his reasons for placing awards.

It is a pleasure for the Cultivator to record the success of this first exhibition and extend best wishes to the organization for a long life of continued usefulness.

The Orland Farm Bureau Picnic

The Cultivator's Special Representative Attends the Orland Farm Bureau Picnic and Gives an Interesting Account of the Gathering

THERE has been much of interest in agricultural circles in Northern California during the past week or so, and one of the most interesting events was the big picnic of the Orland branch of the Glenn County farm bureau.

Over a thousand people gathered on Saturday, May 9, at the Greenwood picnic grove on the bank of Stony Creek. There were games and other amusements for the little ones, a ball game for everybody, a big picnic dinner and addresses that were of interest and benefit to all.

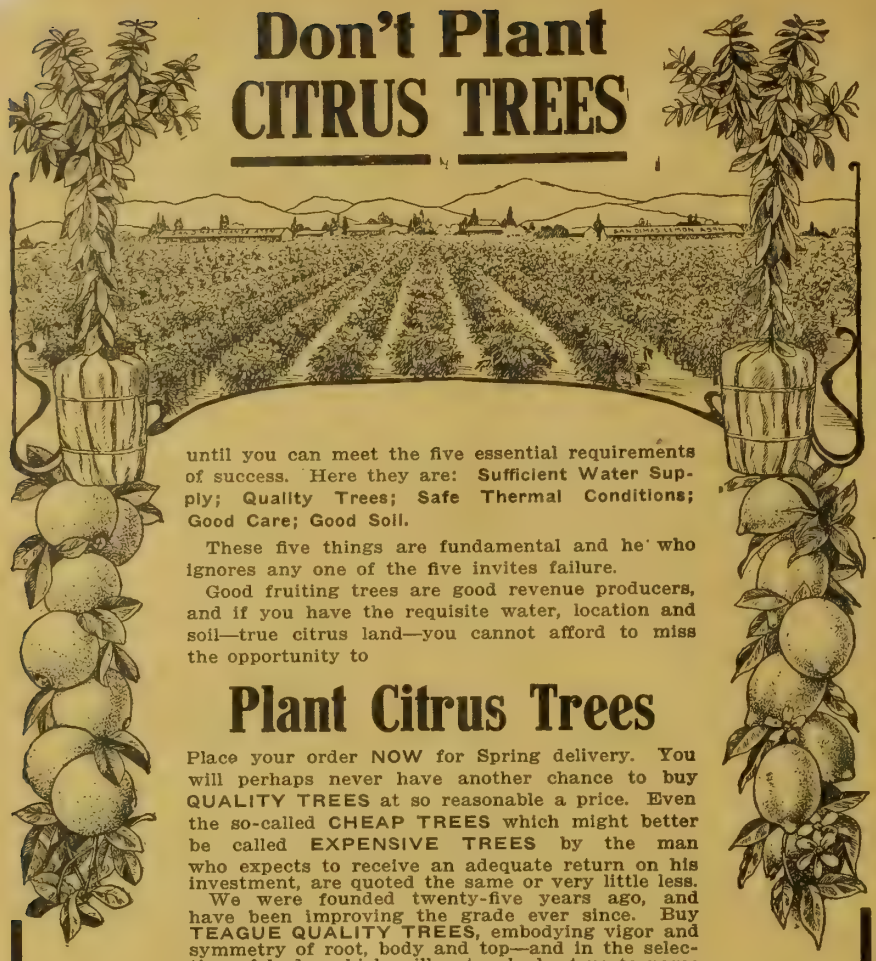
There is a great deal of interest in the farm bureau movement in Glenn County, and in his opening remarks Farm Adviser Hellemann urged every farmer in the county to try out the service that may be obtained by joining the bureau that is organized in his district and getting in touch with the United States department of agriculture and the California college of agriculture and experiment station. Every farmer belonging to any one of the branches of the bureau and paying his one dollar for dues can bring to the attention of the adviser any agricultural problem that may arise, and if he does not have the information necessary for its solution he calls in any expert advice that there may be available. If it is one of those unanswerable questions that beginners in farming can ask by the dozen the only thing that can be done is to frankly admit that some things are beyond the realm of possibilities. For instance there are settlers on many projects in all parts of California who have made small payments on a piece of land and have very little capital, one-tenth perhaps as much as they need for the proper buildings and equipment, and who have no experience in farming, who would like to have the farm adviser or someone else tell them how to get rich in a few months. But there are no quick, bonanza roads that lead to wealth in farming except in the story books and some advertising literature.

There was a proposal some time ago to hold a big May day picnic to be attended by all of the farmers of the county, but the lateness of the season and the difficulty of finding a suitable central location caused it to be postponed. Then the Orland people took up the idea and invited the farmers of the entire county, and the result was one of the most successful gatherings of the season.

Prof. G. H. True, chief of the animal husbandry department of the agricultural college of the University of California, delivered an address on dairying, a particularly timely subject in this district that is rapidly developing into one of the best dairy sections of the United States. Professor True called attention to the fact that while in this part of California it is possible to grow any kind of fruit suited to California conditions, that live stock and animal manures are essential to

(Continued on Page 655)

Don't Plant CITRUS TREES



until you can meet the five essential requirements of success. Here they are: **Sufficient Water Supply; Quality Trees; Safe Thermal Conditions; Good Care; Good Soil.**

These five things are fundamental and he who ignores any one of the five invites failure.

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Citrus and Tropical Fruits

"CITRUS FRUITS IN THE PHILIPPINES"

P. J. WESTER, horticulturist in charge of the Lamao experiment station, Philippine Islands, is the author of "Citrus Fruits in the Philippines," a department of agriculture publication. Mr. Wester gives a bit of history in his preliminary statement of the citrus conditions in the Philippines, with technical description of the different varieties cultivated there. From this section of his book we quote

"While the orange is nowhere planted in orchards it is fairly well distributed. Judging from the prevalence of the citrus fruits in the markets in the various parts of the archipelago it ranks fifth in production, as compared with the mandarin, pomelo, lime and calamondin, the only citrus fruits beside the orange that may claim to be of any economic importance even from a Philippine point of view. Excepting a few budded trees of recent importation or distribution by the bureau of agriculture all trees are seedlings and nearly always the fruit is poor in quality."

The author then gives items regarding the sour oranges which grow on the Island of Mindanao. The mandarin is confined to a small district around Santo Tomas and scattered trees are found in other parts of the archipelago. Mr. Wester also describes the tizon, a form of the mandarin but one which is extremely rare in cultivation. After giving botanical description of this fruit the writer says:

"The tizon is extremely rare and only a few trees are found in cultivation, confined to the citrus district of Batangas, Luzon. The trees are said to be quite prolific, and the fruit matures from September to December. This fruit, on account of its scarcity, is of no commercial importance. However, it would be an acceptable dessert or breakfast fruit, being a little more acid than the orange. It is said to be an introduction from Spain. The tizon is without doubt the C. papillaris described by Blanco in 'Flora Filipinas.'

"The tizon is believed to be a natural hybrid between the mandarin and the pomelo. It has inherited the loose-skinned character, large juice cells and partial absence of spines and leaf character of the first named species to which it is (without the writer having had the opportunity to examine the flowers) unquestionably more closely related than to any other species in the genus. The tizon is represented in the citrus collection at the Lamao experiment station under bureau of agriculture No. 744 and 745."

The pomelo is the most widely distributed species but with this fruit "the quality is wretchedly poor, dry and insipid with a very thick skin." A new variety, Citrus webberii, known popularly as the alsem, is spoken of as a shrubby tree with small, sharp spines, the surface of the fruit fairly smooth, greenish yellow to lemon yellow, skin thin, of the "kid glove" type, flesh whitish to grayish, very juicy and aromatic. Regarding this tree the author says:

"Plants of the alsem have never been seen by the writer in the provinces, the description of the plant having been made from budded plants growing at Lamao, propagated from material collected in Bulacan. The trees have a long flowering season, as fruits are offered in Manila through the summer to late in autumn. The variation in the fruit is very great, some being of little value while others are extremely thin skinned, well flavored, juicy, aromatic, with less rag than perhaps any citrus fruit that has been examined by the writer. The floral characters correspond closely to those of the mandarin, which the fruit in some forms also resembles in appearance and in its loose-skinned character. Flavor and aroma place the alsem in close relationship with the cabuyao, C. histrix, and it is a curious fact that the Tagalogs always call it 'cabuyao.' In common with the cabuyao it is frequently infested with the rind-borer, Prays citri, while the mandarin is practically immune to this pest."

"The alsem was considered a variety of the mandarin, but a closer study of the plant and fruit shows that it differs so greatly from all other Philippine species of the genus as to be entitled to specific rank, and it has been named in honor of Dr. H. J. Webber, director of the citrus experiment station, Riverside, California, association with whom, in connection with his citrus and pineapple breeding work, more than any other cause influenced the writer to take up the improvement of the tropical economic plants."

Another, Citrus webberii, var. Montana, popularly known as cabugao, is referred to as follows:

"Budwood and fruits of the cabugao were forwarded to the bureau of Mr. A. M. Burton from the Mountain province. The writer did not have the opportunity of examining the fruit, of which, however, an excellent photograph was made, and to date of writing the plants at Lamao not having bloomed there has been no chance to examine the floral characters. The general character of the plant and fruit indicates that the cabugao is a form of the alsem."

Regarding the talamisan, citrus longispina, we quote:

"The talamisan is exceedingly rare, and is found in cultivation in Bohol (one plant has been seen in Cebu) and is fairly productive. Excepting the mandarin, which is also of rare occurrence, it is much superior to all other citrus fruits grown in these two islands, and is eaten by the inhabitants; it is nevertheless very rare and of no economic importance at present. The fruit ripens in January and February, and is a poor keeper. Introduced into cultivation, the fruit of the talamisan could to advantage be used as an ade fruit, and with a little sugar it would make a good breakfast fruit. The dense growth of the plant, with numerous suckers, armed also with formidable spines, would make it a good live fence.

"The talamisan, or tamisan as it is also called, is one of the most interesting citrus fruits that has come to the attention of the writer. Its angular growth, formidable spines, broad, sometimes almost orbicular, distinct leaves and fruit easily distinguish the talamisan from all other species in the genus."

Many other varieties of the citrus are referred to. We will only refer to the Royal lemon, citrus excelsa, regarding which it is said:

"Plant material of the limon real has been collected in Tarlac, Bontoc and Bohol, and the fruit is at rare intervals offered for sale in small quantities in Manila.

"The name of the plant, 'Royal lemon,' indicates the esteem in which the fruit is held by the people, and while it is unfortunately true that most fruits tested have been too dry to be of any value, yet in the best types the fruits in quality and aroma surpass all lemons and limes that the writer has had the opportunity to sample. With its robust, thorny growth, large leaves and broad winged petioles and considering its affinity to the lime and lemon together with the roundish oblate fruit with 34 to 35 stamens as against the 20 to 26 in those species and with its 10 to 14 locules, this plant is apparently as distinct from the lemon and lime as these species are from each other.

"The horticulturist and plant breeder ever on the alert for new plant material that may enhance his profits, extend the cultivable area of his crop, or be used in making new cross combinations, will naturally ask himself of what value are these new plants and fruits. Briefly stated, it may be said that the tizon is a dessert or breakfast fruit of high, if not perhaps the highest, order, its main defect being

the unsightly basal projection. Then, as stated elsewhere, the best 'limon real' is unsurpassed in quality for 'ade' making. Perhaps third in importance are the better types of the alsem for the manufacture of citric acid, etc., and it might find a sale in competition with the lemon and lime, depending to a great extent upon its keeping qualities. The juicy, thin skinned and few-seeded talamisan may find lovers as a breakfast fruit and is also of the right size for an ade fruit. If cultivation would increase the juiciness of the panuban, this fruit may find favor with many. A good marmalade may be made of the calamondin. The above species or varieties have more or less of a future on account of their pomological merits, and the plant breeder, by crossing them and the cabuyao and canci with old cultivated species, might obtain valuable results."

From the series of remarkably fine plates in the bulletin we would judge that these fruits are all of very low grade as compared to products in this state. However, we doubt not the work of men like Mr. Wester will materially alter conditions of these fruits in the Philippines.

ORANGE MARMALADE

By H. D. Kingsbury in Redlands Facts.

Orange marmalade has been known for many years. It was first called by this name in honor of Mary, Queen of Scots, who when detained as a prisoner at Lochleven became ill. A Scotch confectioner made up a jam of oranges for her which she greatly relished, and the confection was therefore dedicated to her under the name of "Marie malade." Hence our word "marmalade."

Most of the marmalade is made from the bitter Seville oranges which are shipped to England and Scotland from Spain. From these oranges the marmalade derives its characteristic tartness. The California oranges make a sweeter marmalade which is considered better by many people.

Orange marmalade is a jam from oranges and sugar, in which almost the whole of the fruit is used. As the peels of the fruit, however, differ from the pulpy part in consistency, it is necessary to give a different treatment to these two parts of the fruit.

It is best to discard the white part of the peels because this contains a very bitter principle called hesperidin which affects the taste of the finished product. In order to make the peels tender and transparent a special treatment is necessary.

The household formula which follows will make a very good marmalade, and the proportion of the different ingredients can be increased to a commercial scale if desired.

Use ten pounds of oranges and two pounds of lemons. Peel all of this fruit with a sharp knife as thinly as possible, cutting off the colored, oil-cell layer of the peel, but not taking any more of the white part of the peel than is necessary. And one-half cup of salt to half a gallon of water, making a brine. Cover the thinly cut peel with this brine and set it away for 24 hours.

Remove the white rag of the peel from the fruit, then slice the fruit and boil it with its juice and just enough water to cover it, for ten minutes, and set it aside for 24 hours.

Next day drain and rinse the peels, cover them with water and boil until they are tender, changing the water twice. Then drain the water from them and cut into long thin strips with scissors or a sharp knife.

Weigh the pulp and its juice and the liquid it is in, and also weigh the drained peel. To the total weight of both pulp and peel thus found use an equal weight of granulated sugar. Add all of this sugar to the pulp and its liquid. Boil for 15 minutes, then add the drained peel and continue the boiling to a jelly. Pour into jars just taken from boiling water and immediately seal or cap with caps also just taken from boiling water, and set aside to cool.

Foreign competition on marmalade is strong. There have been long established plants in England and Scotland for the manufacture of marmalade which have supplied the world's market for many years. It is a difficult proposition to introduce a sweet marmalade on the market which is accustomed to the foreign standard of goods and flavor.

The cost of orange marmalade made from our California fruit includes the items of fruit, labor, fuel, sugar, jars, cases, freight and selling expense or brokerage.

When making the marmalade in considerable quantity for sale the cost items are as follows: Fruit, one-half cent per pound; labor, one-half cent per pound; fuel using crude oil, one-twentieth of a cent per pound; sugar, four cents per pound; glass jars and tops, including shipping cases, four and one-half cents per pound; freight, in car lots, one and three-quarters cents per pound; and selling expenses, eight-tenths of a cent per pound, thus making a total expense of a little over twelve cents per pound delivered in the East. This, however, is the cost on making large quantities, and therefore it will be somewhat higher when making smaller lots.

There are many variations of the above formula, as some add more lemon, some use a certain percentage of grapefruit, some use no lemons or grapefruit at all. Some use the entire fruit with the white part of the peels.

Orange peel does not become transparent nearly as readily as do both lemon peel and grapefruit peel, therefore to make a beautiful piece of goods all of the orange excepting the peel can be used, and instead of using the orange peel, substitute grapefruit peel treated in the same way, which becomes as transparent as glass.

The success of the dairy farmer depends to no slight extent upon the careful rearing of the calves. The careful dairyman sees in every heifer calf the possibility of a cow that will not only replace a discarded member of his herd but help to raise the average production.

YEAR BOOK

The Year Book of the United States Department of Agriculture for 1914 is being mailed. Copies may be had by subscribers of the Cultivator if they will write representatives of their districts in the United States Congress.

Of course the usual report of the secretary occupies the first part of the book. Following that are a number of papers by specialists in the service of the department. We note such topics as national forests and the farmer, organization of rural communities, clean water and how to get it on the farm, story of the thermometer, cooperative marketing, management of public roads, American farm women, selection of household equipment, farm wood-lot, and, of course, a mass of statistics.

I believe it is safe to say that the majority of the men who are attracted by the "back-to-the-land" movement belong to that class who have by economy laid by a modest sum. To this class of men the investment of a lifetime's savings becomes a vital question. To the man who has plenty of money it makes little difference as to the price of the land or the home that he wants.

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Sliding door locks, with one bronze key, finished in dull brass, antique copper or sand blast, single, $1.40; double, $2.10.

Cupboard turns, cast brass, T handle, antique copper, dull brass, sand blast or nickel plated, each 40c.

Drop handle drawer pulls, same finishes as above, 20c each.

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Bungalow front door handles with plate and thumb latch but no lock, antique copper, dull brass or sand blast, $3.25, or complete with lock, $7.

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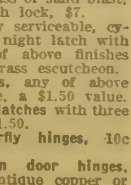

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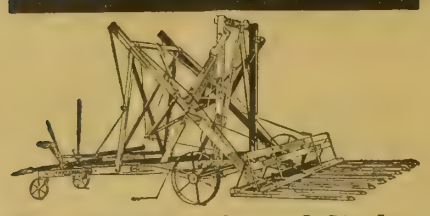

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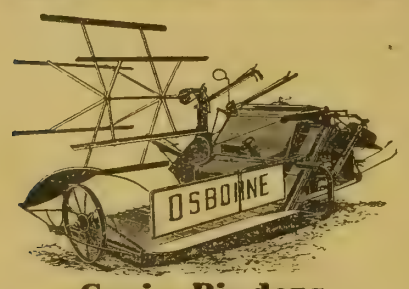

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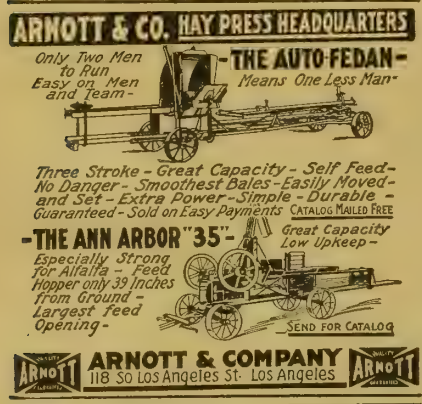

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Deciduous Fruits

CROP ESTIMATES

WITH all the other great things of 1915 California's deciduous fruit crop seems to be outdoing itself. In general we believe it will be close up to normal as to quantity, and the promise for quality is the very best. Marketing conditions are not so promising as we would wish, but the uncertain conditions are causing a general getting together, which will lead to more general cooperation than usual. Regarding almonds we have the following from

George W. Pierce, Yolo County

Complete data is not yet available. In some sections nuts are falling badly as a result of shot-hole fungus. It is also affecting the quality of the product. It would seem that about 3,000 tons may be anticipated.

* * * *

While not so closely connected with almond marketing as formerly, Mr. Dargitz is a large grower and shrewd observer. From him we have the following:

J. P. Dargitz, Sacramento County

In compliance with your request my opinion is that the 1915 almond crop from present appearances will be as good as any we have ever had in the state. That is about 3,200 tons. Some orchards are light, some are medium and some are heavy, and there are some young orchards which will begin to figure this year. Personally, I have seen very few orchards this year, but the above is from what I have seen and what I have heard from others.

* * * *

Mr. George P. Weldon, chief deputy of the state horticultural commission, following his usual custom, is sending out its summary. From this we gather:

The principal almond producing counties of the state are Butte, Contra Costa, San Joaquin, Solano, Stanislaus, Sutter and Yolo. Colusa, Los Angeles, Placer and Riverside each produces less than 5 per cent of the state's output. Contra Costa estimates 80 per cent of a normal crop; Sacramento, 85; San Joaquin, 75; Solano, 75; Stanislaus, 100; Sutter, 75, and Yolo, 80.

Santa Cruz County produces 53 per cent of the apples of our state. It reports present outlook as 70 per cent of a normal crop. Sonoma is the second largest county with 18 per cent; it reports 75 per cent of normal. Monterey is next in the state's production, with 9 per cent, and its estimate is 75 per cent of normal.

Apricots are a far more important crop. Santa Clara is our greatest producer, with 85 per cent of the state's total. The horticultural commissioner of that county reports conditions about 70 per cent of normal. Ventura County produces about eight per cent of the state's crop and its estimate is 75 per cent crop. Yolo's four per cent of the state's fruit will run about 70 per cent. Other counties producing about same quantity of fruit are Kings, Los Angeles, Orange, Riverside, San Benito, San Bernardino, San Joaquin and Santa Cruz. These all report from 75 to 100 per cent of a normal crop, excepting Orange, which reports a 25 per cent crop. Fresno produces about nine per cent of the state's output and reports condition at 85 per cent.

The cherries of the state are produced largely in Alameda and Santa Clara Counties, which produce almost one-half of the state's output. Placer, Sacramento, San Joaquin, Solano and Sonoma run from four to 18 per cent of the state's total. Conditions in these counties are as follows: Alameda, 60 per cent; Santa Clara, 40; Placer, 60; Sacramento, 90; San Joaquin, 100; Solano, 25; Sonoma, 25.

In figs practically every county reporting shows 100 per cent crop.

Citrus friuts are still dropping and it is impossible to give very definite estimates. So far as made the state commission reports approximately 100 per cent crop.

Also with olives, nearly every producing county reporting estimates full normal crop.

Fresno is our biggest peach producing county. More than one-third of the state's output comes from that one county. Its estimate is 75 per cent crop. Some of the smaller producing counties estimate as low as a 25 per cent crop. Other counties vary their figures from that up to 100 per cent.

Practically one-fourth of the state's pears are produced in Sacramento County. It reports production at 80 per cent of normal. Santa Clara and Sonoma Counties, also large producers, estimate respectively 60 and 75 per cent of normal; other counties generally running at about 75 per cent.

Table plums are produced principally in Placer, 75 per cent; Santa Clara and Solano, 80 per cent.

Two-thirds of the prunes of California are produced in the Santa Clara Valley. It reports 65 per cent condition. Sonoma, the next most important county, reports 60 per cent condition; other counties estimate 60 to 80 per cent.

More than two-thirds of the walnuts of the state are produced in Orange and Los Angeles Counties. The former reports 90 per cent condition; the latter, 105. Santa Barbara and Ventura Counties also have full crop; Ventura only sending in report, which is 110 per cent of normal.

* * * *

Regarding crop conditions Mr. Weldon adds:

The excessive rains and winds during the cherry season did a large amount of damage to this crop.

As was expected, the unfavorable climatic conditions resulted in the development of various fungous diseases, and peach leaf curl, pear and apple scab, apricot shot hole, walnut blight, brown rot of stone fruits and other kindred troubles are taking their toll of fruit. In a few localities, especially at high elevations, frost has played its part in damaging the apple and pear crop. While there are prospects for quite a heavy production of the various fruits in the main producing counties of the state, considerable of the deciduous fruit output will be of low grade, because of the attack of fungous diseases.

* * * *

In addition to report formerly given from Ventura County, County Horticultural Commissioner A. A. Brock writes regarding the present outlook:

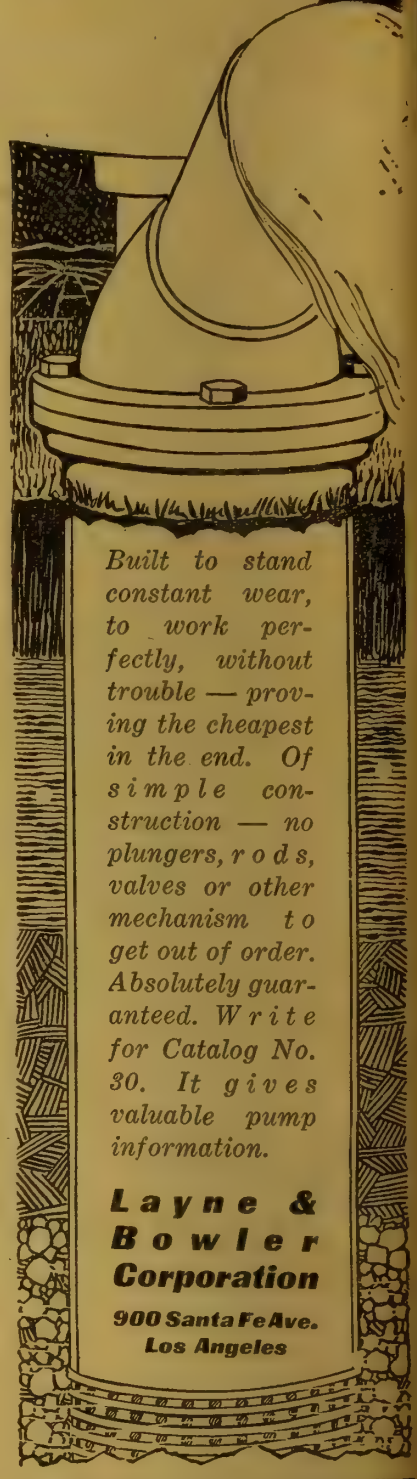
"Our apricots will be ready to harvest about July 4, and there is not over 75 per cent of a normal crop. The walnut crop promises a heavy production for 1915, about 110 per cent. Blight is doing considerable damage in some sections of the county at present. It is too early to make an estimate of the orange crop, as fruit is just setting, but the prospects look good in most of the orchards I have been in. Beets are in every stage of development from planting to harvest. There is a promise of about 110 per cent beet crop; olives about 100 per cent, and lemons about 100 per cent. Beans are being planted throughout the county. Almond rust and shothole fungus is doing considerable damage in the Bardsdale district to apricots. Some of the trees are almost defoliated.

Nearly all apricot growing sections are reporting freedom from frost injury. After the severe rains there were a few cold nights which caused considerable uneasiness, but so far as learned the injury was practically nil.

Our consul at Seville, Spain, reports that the olive trees of that section are in splendid condition, that abundant rain has put the ground in excellent shape, and that there is every prospect of a good olive crop in Andalusia next season.

Supervisors of Riverside County have formally put themselves on record as favoring appointment of a county farm adviser.

Layne & Bowler PUMP



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CROWN GALL

In purchasing nursery stock, as well as in buying other commodities, the investor does well to go into the deal with his eyes open. From the standpoint of the horticulturist there are always certain things to be desired in young tres, but equally important is it that the stock shall be in perfect health and entirely free from disease.

Crown gall in any of its various forms is the one disease to be feared most not only because of its disastrous nature but because it is one which the unscrupulous nurseryman will attempt to pass off on the unsuspecting and inexperienced orchardist. In whatever form crown gall manifests itself, whether as hard gall, soft gall, or hairy root, it has been shown to be caused by a germ that lives in the soil and which enters the plant through wounds induced by poor grafting, careless cultivation and by borers, nematodes, etc.

In its ordinary form crown gall is characterized by the appearance of swellings or galls, small at first usually just below the ground line (crown) at or near the junction of the stock and scion; these may also occur on the small secondary roots. They may be either soft or hard galls; the former are smooth, soft spongy white or flesh-colored outgrowths which may reach a very appreciable size during one season and then be entirely decomposed and disappear by the following spring; the latter increase in size more slowly, persist year after year, harden and become rough and warty on the surface with age. Frequently the disease assumes a form known os "hairy root", characterized by the presence of bunches or tufts of closely matted rootlets with marked enlargements at their bases.

As the galls increase in size the function of the adjacent conducting tissue is interfered with, and the circulation is impaired as is shown by the poor growth and dwarfed appearance of affected trees.

The removal of the galls, a practice often indulged in by dishonest nurserymen, results in no permanent benefit. The thorough inspection of nursery stock and care in the cultivation of the orchards not to wound the crowns are important factors in the control of the trouble. Plant only on uninfected land and avoid heeling in healthy stock where the disease is known to be present in the soil.

Crown gall is an infectious disease and can be communicated from tree to tree and from one plant family to another. A partial list of the plants upon which it occurs naturally or upon which it has been produced by laboratory inoculation includes the daisy, tomato, potato, carnation, peach, rose, cabbage, grape, hop, sugar-beet, turnip, red beet, carrot, radish, chrysanthemum, oleander, marigold, pyrethrum, almond, clover, white poplar, Persian walnut, gray poplar, cotton, alfalfa, raspberry, geranium, apple, willow, quince, and tobacco.—Walter G. Sackett, Colorado Experiment Station.

THE ORLAND FARM BUREAU PICNIC.

(Continued from Page 651)

the maintenance of successful agriculture everywhere in the world and that there is no better way to establish a successful fruit proposition than to combine with it a herd of good cows. He explained the necessity of records and the great advantage of the cow testing association in which the cows of the members are tested regularly for the entire year. Any dairyman can test his cows, but testing is one of the things that is frequently left undone on a busy dairy farm, and year after year goes by without getting a definite line on the unprofitable cows in the herd. In the next year it is expected that several of these associations will be started in the upper Sacramento Valley. The importance of using good pure bred sires was impressed upon all dairymen and it was made very clear that an animal must be not only pure bred and registered, but also an individual of merit and with ancestors that have been good producers or he might be worse than a good grade. What is known as a pure bred scrub, or an animal that is a poor individual and with ancestors of no merit, is worse than a good grade because the pure bred scrub is more apt to transmit his bad points and qualities than is a good grade.

Professor True is a very forceful speaker and knows his subject thoroughly. His instruction was very much appreciated.

Hon. James Mills, the great citrus fruit and farming authority, made a very interesting and inspiring address, telling of the great opportunities along fruit and live stock lines here. Mr. Mills is developing a large live stock proposition in connection with the orchards at Maxwell and Hamilton and is the father of the farm adviser movement in Glenn County. He is doing a great work for the development of California agriculture, not only in the projects he is developing and through his official capacity as regent of the University of Califrnia, but in his unselfish endeavors to be of service in every uplift movement of every kind.

Since the department of agriculture began its first campaign work against the Texas fever tick in 1906, over 250,000 square miles have been totally freed from the ravages of the pest. This is an area greater than the combined states of Mississippi, Alabama, Georgia, Florida and South Carolina.

A pure milk and cream show will be held at the Panama-Pacic Exposition at San Francisco, June 14 to 20.

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DAISY FLY KILLER placed anywhere, attracts and kills all flies. Neat, clean, ornamental, convenient, cheap. Lasts all season. Made of metal, can't spill or tip over; will not soil or injure anything. Guaranteed effective. Sold by dealers, or 6 sent by express prepaid for $1.

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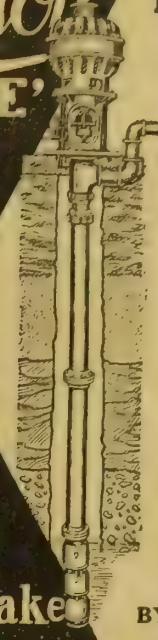

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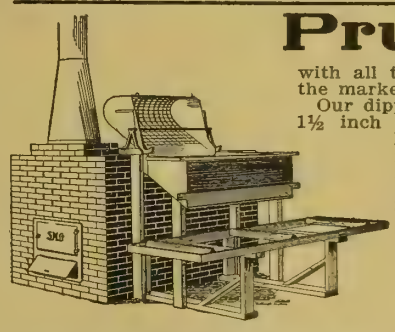

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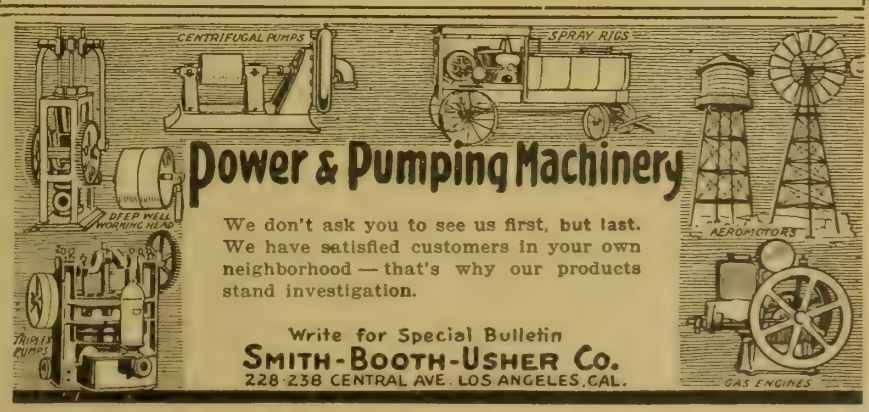

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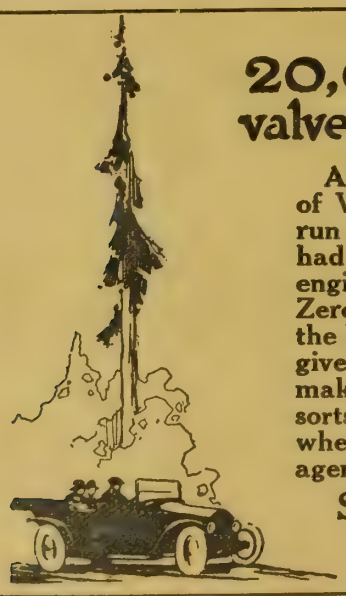

20,000 miles — valves ground but once

A man in the lumbering district of Washington writes us: "I have run twenty thousand miles and only had valves ground once, and the engine has run good. Have used Zerolene all the time. It has given the best of satisfaction." Zerolene gives efficient lubrication in all makes and sizes of cars—under all sorts of conditions. Dealers everywhere and at all service stations or agencies of the

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The Lawn and Flower Garden

BEAUTIFY THE HIGHWAYS.

Written for California Cultivator
By Ernest Braunton.

IF proper requests are universally made and strenuously urged there is no reason why, during the next few years, all California may not be forested in both the cities and the countryside. The need for planting trees along country highways is great, for much of the southern end of California is dry and dusty and borders on desert conditions. If proper trees are planted along all highways, and made to grow, the greenness and shade will add much to the attractiveness of travel through the drier regions. Owing to the fact that some lands are under water and others are dry, the problem of proper trees and methods of planting is greater in the south than in the northern part of the state, necessitating a most careful study of soil, of available moisture, and methods of maintenance.

There is at present a large available fund of information on all these subjects. Trees have been planted and grown on desert areas. We already know of a large number of shade trees that will stand great drouth, having been carefully planted and cared for during their early years. Trees along county highways would naturally be planted at a greater distance apart than on streets, say 60 to 100 feet apart so as not to hide the scenery of mountain and orchard and sea vistas, and yet, looking down the highway, the effect would be about the same as that in a more closely planted city street. Again, the trees should never be planted so close that the road will not have the opportunity of drying out after heavy rains.

We cannot afford to allow these highways to go unbeautified. California is to be the playground of the world. Every dollar invested in making it more beautiful will be returned many times over by the tourists in years to come. It is said that the investment of $300,000,000 in carrying out the Baron Haussmann plans in the city of Paris was the best investment ever made by that city because it has attracted so many tourists who came to see the city beautiful. The cost of foresting California will be a small item compared with that of transforming a great city.

Iris and Gladiolus.

It is sure to come, the more extensive use of iris and gladiolus. The range of color in the iris is greater than in the gladiolus for more fine species grow wild than is the case in gladioli. The latter are garden hybrids, and compared with the best of the wild ones are nothing short of magnificent. Irises are not so much man-made for the reason that nature left less to do. They may be had in every gladiolus color except copper hues, and have the addition of blues and bronzes which we have not yet fixed in gladioli but which will soon come. Both flowers have been called the "poor man's orchid" and both should be extensively planted. They belong to the same plant family.

BREAD-FRUIT TREE—ARTOCARPUS INCISA

Gladiolus Primulinus.

This fine yellow is a wild species found a quarter of a century ago just below Victoria Falls in Central Africa. Crossed with common garden varieties it produces the loveliest tints in copper and sunset hues, the very shades of color the rose growers are striving for, but none have yet caught such coppers, salmons and salmon-pinks as may be found in these hybrid gladiolus. Last year I had about 800 of them flower and they were much admired by all who saw them. A writer in the June number of the Modern Gladiolus Grower states that "it transmits its color to all its seedlings," but such is not the case as I have half-bloods that are white, shell-pink like America and clear scarlet, also just plain red.

The Spanish Broom.

Just now the Spanish broom is in

full bloom and will be for some time as its flowers are in evidence over a greater part of the year than any other shrub we grow. Showers of gold is not too elaborate a term for these wonderful shrubs; but the botanist calls them Spartium junceum, though some nurserymen list them as Genista Hispanica. Whatever name they grow under they are noted for flowering more freely here than in their native Mediterranean region. They will endure as much drouth as any free-blooming shrub that grows and rests from production of bloom only about three months of each year.

Hybridizing Plants.

Every encouragement should be lent to those who will attempt the pleasurable task of hybridizing flowers. But much time and effort is wasted by amateurs who think any plants may be made to cross. No one would attempt to cross tomatoes with watermelons, yet crossing is often attempted with other plants somewhat less related than the two mentioned. Plants may only be crossed with those much like them in botanical affinity and many of these will not cross, yet there are rare cases of plants crossing that are not closely related. But the greatest success attends those efforts only that seek to produce crossses between two roses or two carnations, etc.

Read Garden Literature.

All who love plants should read what garden literature is available for aside from educational value there is a pleasure in reading of that of which we have even a slight knowledge. In his preface to the "Scot's Gard'ner," Lord Roseberry says: "What then I say is this, that we ignoramuses who know very little about it can derive a pure pleasure, not merely from the contemplation of gardens, but from the reading of books about them."

The Bread-fruit Tree.

It seems probable that the bread-fruit tree will grow in the very warmest parts of California though it is doubtful if the fruit would develop to an edible condition. Yet they thrive best in lands where the mango grows, and we have grown mangoes in California that are of some value. The bread-fruit, Artocarpus incisa, is sparingly cultivated in south Florida; eaten cooked as a vegetable rather than a fruit, it is widely used in the tropics.

GLADIOLUS

Notwithstanding the wonderful development which has been brought about in the gladiolus its culture is extremely simple, its tastes being quite similar to those of the potato. A light, sandy loam is the best soil. The corms may be planted at any time. They flower the same season and may be left in the ground. Cutting the flower spikes increases size of bulb, which requires four months to come to maturity. Gladioli are propagated by (1) natural division from the parent corm; (2) seed; (3) small corms growing at base of new corm.

JOHNNY WONDERED.

Johnny was putting some questions to his father on the subject of astronomy, in the course of which he asked if the moon was inhabited.

"Oh, yes," said the parent, "there are people living in the moon."

"Are there many?" queried the boy.

"Yes, lots," was the reply; "far more than in this world."

"Why, then," said the youth, "aren't they crowded a good deal at half moon?"

SCHMEISER WAY

Perhaps the most notable features of a California landscape are the eucalyptus trees. In riding over the great central valleys the horizon is marked on every side by these wonderfully beautiful and valuable trees. We think perhaps about the second item of importance is the Schmeiser derrick. Doubtless because many farmers have found that "The Schmeiser Way Makes the Farm Pay" these derrick towers are everywhere. The photograph on another page shows a couple of these money-savers in action on the world's largest haystack. Mr. Schmeiser says that one of them does the work of 12 men, nor is its use confined to the handling of hay alone, for it has proved valuable in many other lines of farm work. Best information may be had by writing Mr. Schmeiser at Davis, the home town of our University Farm.

Farm Bureaus

Maricopa County, Arizona, Jas. A. Armstrong, Adviser, Phoenix

Liberty, June 7. The demonstration showing the methods of grasshopper control on a commercial scale. The grasshoppers are just hatching in this district. The demonstration will be held upon the ranch of Mr. G. M. Knight. All ranchers who are interested are especially urged to be present.

Southside Farm Improvement Association, Roosevelt district, June 8. The general subject of the meeting will be poultry. It is expected that a representation from Mesa in connection with the Midsummer Fair will be present to secure the support of the ranchers on the Southside. Mr. M. E. Bemis, editor of the Southwestern Stockman-Farmer, has promised to take part in the program. Farm Adviser Armstrong will tell some of the advantages of raising turkeys in the Salt River Valley.

Mesa, June 9. Meeting called for the purpose of securing a proper backing for the Maricopa County Midsummer Fair.

Lehigh Farm Improvement Association. Regular meeting June 10.

Meeting Gilbert Commercial and Country Club, at Gilbert, June 11.

Mesa, June 15. Meeting of the committee in charge of the Midsummer Fair at Mesa.

Wickenburg, June 16. A meeting is being called to organize a local branch of the Farm Improvement Association of Arizona.

Meeting of the Higley Commercial Club, June 19.

Chandler Farmers' Union has its regular meeting June 24. On May 22 it was decided to hold one open meeting each month, to be held on the Tuesday preceding the last Saturday of the month, in order to cooperate with the extension service of the University of Arizona.

Meeting of the committee in charge of the Maricopa County Midsummer Fair at Mesa, June 29.

Sour Clover Seed Finds Market—Sour clover seed is wanted in California in carload lots, according to letters received by Farm Adviser Armstrong. Orchardists are planting this plant in their orange and lemon groves for a green manure crop.

Sour clover seed as it comes on the California market is in two grades—1st, that which is especially grown for seed, and, 2nd, that which is obtained as a by-product from threshing machines and recleaning of wheat and barley. The first of these has a germination test of about 95 per cent and retails to orchard men at 14 to 16 cents. The second grade has a low germination of 25 to 50 per cent and retails for about 4½ cents. The trade prefers the better grade, but there is also a ready market for the poorer grade provided it is properly recleaned.

If you have any of this seed or expect to have any when you thresh, please write to the Farm Adviser, Water Users Building, Phoenix, Arizona, stating the amount you will have, so that he can advise his correspondent if Arizona can supply the demand.

You may expect to get about $1.50 or $2.00 per hundred, f. o. b. cars.

Farm Adviser Will Poison Grasshoppers—How to poison grasshoppers will be demonstrated by Dr. A. W. Morrill, state entomologist, and Farm Adviser James A. Armstrong on the ranch of J. H. Knight, Liberty, Arizona, Monday, June 7. According to Mr. Knight grasshoppers destroyed $1500 worth of alfalfa seed for him last year. They are now hatching in great numbers, but this time a fight will be made, using the methods of control found successful in Kansas and California. The demonstration will include mixing and applying the poison on a commercial scale. All interested ranchers are especially urged to be present, Monday afternoon.

Vineyardists of Sutter County are busy sulphuring their vines to prevent mildew. Some are now making a third application.

The Yuba Ball Tread Tractor cuts the time and cost of getting to market.

It takes up but little more road space than a two-horse team, yet has the power of twelve or of eighteen horses — real live animals with head down and shoulder straining against the collar.

No matter what condition the roads may be in or how steep the grades may be, it never stops to rest. No balking — no shying — no shirking with it. It is easier to control than one horse.

THE YUBA BALL TREAD TRACTOR

Rough rutty roads will not damage the machine nor will the machine damage an asphalt-paved street. Its rugged, powerful construction and the low pressure per square inch on the bearing area of the treads prevent this.

The cost of this form of hauling power as compared with horses is surprisingly low. It helps solve the labor problem, too.

There is a booklet telling more about it.

THE YUBA CONSTRUCTION CO.

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Any Car Owner

can now safely expect to more than equal the 6,760 miles average scored last year on heavy cars in The Automobile Club of America official test of strictly stock Pennsylvania Oilproof

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If you drive a light car, your mileage expectancy can reasonably be placed at *far* beyond this average.

1915 Vacuum Cup Tires are toughened by a new process that is yielding in actual service 50% greater mileages than last year's tires, which rolled up the A. C. A. record — incidentally doubling the life of the guaranteed non-skid Vacuum Cups.

And this economy is further marked by the fact that Vacuum Cup Tires are the lowest priced of any tires having any kind of non-skid device *added to* a tread of regular thickness.

Interesting new prices just issued for Pennsylvania Gray and Puregum Red Inner Tubes—both with unqualified guarantees

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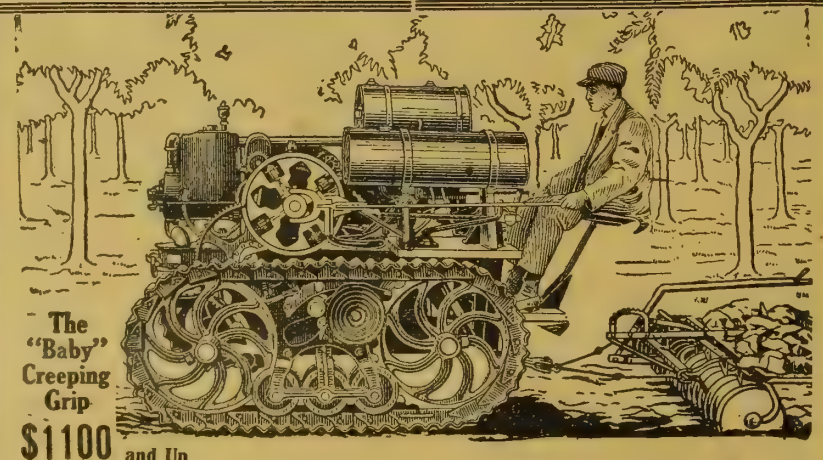

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F. O. B. California Common Points.

Cultivate with a "Baby" Creeping Grip Tractor

Here's the tractor that you have been looking for to handle your ranch work.

This Baby Creeper was designed for the small rancher, particularly the fruit rancher. It delivers 16 Brake and 10 Tractive H. P. and does the work of 6 good horses or mules.

It is low, gets under the trees, turns in its own length, its fuel consumption is very low and it does not require an expert operator. The upkeep on the two tracks on each Baby Creeper will be insured for $25.00 per annum.

Catalogues of this and larger size tractors for the asking.

Bullock Orchard Tractors

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When writing advertisers, mention The Cultivator.

General Agriculture

CORN SMUT

Written for the California Cultivator
By Sacramento Valley Contributor

SMUTTED ears and stalks of Indian corn have been reported as causing sickness and loss among horses turned out to help clean up the roughage left after the corn pickers.

Just how the smut causes the disease does not seem to be known and veterinarians call it fodder or forage disease—for want of a better name.

The remedy suggested is one of prevention and elimination, either to keep the horses and mules away from the stalk fields or to feed them bran mashes frequently to keep the bowels well opened.

Corn smut is caused by spores which live over winter in the ground and sometime during the growing season find their way to the joints or forming ears of the corn plant. After finding a lodgement they multiply rapidly, so that an ear may be entirely replaced by a huge mass of black bunches containing millions of black dust like spores which are seed for another crop of smut. These bunches of smut are frequently larger than a normal ear of corn would be; sometimes a part of the ear develops normally and the balance is smutted.

Treating seed corn with formaldehyde, as grain is treated, does not prevent corn smut because even if there were spores on the kernels there would doubtless be millions more in the soil of the corn field.

The smut travels in the wind, and in districts where corn is grown it seems that practically all of the soil is infected.

There were fields in the Sacramento Valley last year that had lots of smut in the corn, where the land had not been in any crop for several years.

Smut is a worse pest some years than others—for reasons not well known. Corn planted early in June had less than that planted late in the month.

Corn smut prevention is one of the many unsolved problems for our agricultural scientists to work on.

FOREST FIRE PROTECTION EXHIBIT

With the approach of the forest fire season in the West, the fire protection exhibit of the United States forest service at the Panama-Pacific is arousing renewed interest. The display graphically shows in detail the measures being taken by the government to insure the early detection and efficient fighting of forest fires. This is the most important portion of the entire forest service exhibit.

In the center of the space is a large model, measuring 12 x 15 feet, showing a ranger district on a national forest. A lookout house and a lookout tower occupy the two highest peaks. These are connected by telephone with a ranger station which in turn is connected by telephone with various users of the forest at a ranch house, a hotel and a powerhouse. The model shows government roads, trails and bridges, constructed primarily for the purpose of making every part of the forest accessible to fire-fighters. Fire-fighting equipment boxes are placed at strategic points along trails and roads, and a fire line kept clear of inflammable material runs along one of the mountain ridges.

To one side of the large center model a full size fire lookout house, fully equipped for discovering and locating forest fires, is built on an imitation of a great boulder on a mountain top. The house is painted white to serve as a conspicuous target for heliograph messages directed toward it by patrolmen. The building contains binoculars through which a distant forest fire is seen; a fire-finder, by the aid of which the supervisor's office can be informed definitely of the location of a fire: and a special type of telephone in communication with the supervisor's office. There are also on display in the tower a portable telephone and a portable heliograph outfit for use by patrolmen. A pair of stereopticon machines are concealed within the imitation rock on which the house rests and throw pictures and descriptions on screens built into the rock, which tell the entire story of the fire protection work.

On a redwood tree trunk in another part of the exhibit is displayed a weatherproof iron box telephone, such as is placed along patrol routes on the forests. This telephone is connected with the telephone in the lookout and with a supervisor's telephone at the desk of the demonstrator by slack lines attached to tree trunks on swinging insulators, just as the line is installed on a national forest. This manner of construction enables the line to stand the stress of the elements through the winter and prevents the wire being broken when a tree falls.

The latest type of fire-fighting tool box, equipped with shovels, rakes, hoes, axes, canvas waterbags and buckets, canteens, lanterns for fighting fires at night, torches for setting back fires, nesting cooking utensils, and emergency rations, occupies a place near the lookout house.

Beside the desk of the demonstrator, who plays the part of the national forest supervisor, is hung a master fire map of a forest, similar to the one in the lookout house. On this map is shown the location of every trail, bridge, road, telephone line, telephone station, ranger station, fire-fighting toolbox and lookout station. At the locations of the lookout points are protectors oriented to correspond with the protractors at those stations. This map enables the supervisor to locate a fire directly from the reports of the lookouts without any mathematical calculations, and to place to the best possible advantage the force of men available for fire fighting.

Fire warning posters and rules concerning care with fire in the forests are posted upon tree trunks and in other conspicuous places through the exhibit as they are in the forests.

GROWING BEET SEED

The production of first-class beet seed in certain localities of the United States is far beyond the experimental stage; and the fact has been fully established that seed can be produced equalling, if not surpassing, in yield and quality any such product of Europe from which country the American beet sugar industry obtains practically its entire supply.

Immediately after the seed panic of 1911-1912, upon my return from Russia I engaged in cooperation with the Utah-Idaho Sugar Company in the production of pedigreed beet seed raised from imported mother seed. From the standpoints of seed quality and the resulting yield to the beet grower the undertaking has been entirely successful. Our seed has produced very good tonnage and beets high in sugar as recorded by various sugar companies. If it were not for the high cost of production, which is the one serious obstacle to growing seed in competition with Europe, the industry would be conducted on a much larger scale, as the quality of the seed assures a ready sale in the beet growing sections of the country. Since hand labor plays an important part in production the difficulties of successful competition become impressive when it is known that in Europe the average wages for men vary from 50 cents to 20 cents per day, according to localities, being highest in Germany and lowest in Russia, and where women, who are largely employed in the industry, earn from 35 cents to 15

cents per day. In our operations here we pay on an average $2 per day for nine hours' work, and have been called upon to pay as high as $3.50 when weather conditions compelled us to work under pressure.

Where we operate on leased lands we are at a disadvantage of from $8 to $10 per acre rental in excess of the standard of Austria or Russia. These items materially affect the cost of production.

In order to produce pedigreed seed whose inherited qualities are passed on to the next generation without deterioration, it is essential that we use only genuine mother seed. The use of ordinary commercial seed for propagation would result in failure. The cost of mother seed to us is $5 per pound, which is nominal considering the expense incurred in the scientific breeding and selection for its satisfactory production. These involve years of work, a large investment for equipment and the employment of special talent adapted to and highly experienced in this special work. So far it has seemed unwise, because of fear of the lack of stability and permanency in the beet sugar industry itself, to enter into this branch of the commercial seed industry in this country. The beet sugar manufacturers of America naturally have not felt justified in supporting an industry whose product must be purchased at an increased price over the same commodity imported from Europe. Notwithstanding the seed panic of 1911, which forced many American manufacturers to purchase large quantities of seed abroad at exorbitant prices, had it not been for the recent disturbances in Europe little attention would have been directed to our home enterprise.—W. K. Winterhalter in "Facts About Sugar."

INJURIOUS AND BENEFICIAL INSECTS

"Injurious and Beneficial Insects of California," second edition, by E. O. Essig, published by the state horticultural commission.

This is by far the most valuable addition yet made to the economic entomology of California. The first edition of this work was issued as Nos. 1 and 2, Vol. II, of the Monthly Bulletin of the state commission of horticulture. That edition was so soon exhausted that Mr. Essig at once began working on a revision. When he was transferred to the staff of the state University from the state horticultural commission it was with the understanding that he be permitted to finish his work of revision. The work is now being mailed by the horticultural commission, and without question the revised edition will soon be exhausted. The book has over 550 pages and is filled with hundreds of engravings and valuable text on insects, both injurious and beneficial, affecting California agriculture.

The arrangement is systematic, following the classification of insects rather than of host plants so commonly used in recent works of economic entomology. This was done with the desire of making it possible for the reader to acquire a more comprehensive knowledge of the relationships of insects, which forms the basis of all real intelligent methods of control. The host plant index in the front permits one to readily follow out the host plant arrangement if so desired.

The work is intended primarily for fruit growers and farmers and technicalities are avoided wherever not absolutely necessary, but it is hoped that entomologists may find it of some value also.

The index appears to be very complete and gives both the scientific and popular name of various insects.

BETTER CORN

Mr. W. W. Murray of San Diego County writes that he has been breeding up Oregon Evergreen corn for three years and now has a patch which runs uniformly from three to seven ears to the stalk. If our farmers will give more attention to this matter of breeding all of their seed they will produce more with less effort and on a smaller quantity of land.

"What a shame to waste so much land on that pig pen when you might turn it into a beautiful lawn!" exclaimed Mrs. Champa. "Nay," replied Mr. Littleton, "the pen is mighter than the sward!"

GAS ENGINE DONT'S

In order to assist the user in preventing most of the common gasoline engine troubles it might be well first to list a number of things that should not be done.

Don't put gasoline into the tank without straining it through a chamois; there may be water in the gasoline or some sediment that would clog up the carburetor or mixing valve.

Don't handle gasoline by the light of a lantern or other open light. If you have no electric light where the tank is located, never fill it except by daylight.

Don't attempt to run an engine without providing sufficient lubrication.

Don't over-oil the engine. Just enough in the right place is better than a quart.

Don't use common black oil on small bearings. Such oil is not suited to the purpose.

Don't get oil or grease on the wires of the battery circuit; it will ruin the insulation.

Don't hold a spark plug wire more than one-quarter inch away from the engine with the current turned on, when testing. There is danger of ruining the spark coil.

Don't throw away a spark plug unless it is broken. A spark plug does not wear out, and the only attention it requires is usually nothing more than grinding.

Don't screw a spark plug on too tight. It may "bake" fast. Graphite, if available, should be used on the threads.

Don't throw away any batteries in winter until you have tried thawing them out. Often they are only congealed or frozen up.

Don't leave the battery switch closed when the engine is not running.

Don't leave the gasoline turned on when the engine is not running.

Don't attempt to connect more cells of battery in a set than recommended by the maker of the engine. You may overload the spark coil and burn it out.

Don't leave strands of wire sticking out around connections. They may cause a "ground" in the circuit.

Don't attempt to use any method to warm up a carburetor in cold weather that might ignite the gasoline. Cloths that have been wrung out of hot water are the safest means of heating the carburetor if necessary.

Although the gasoline engine is as nearly "foolproof" as it is possible to make such a modern piece of mechanism, nevertheless troubles arise that are often difficult to locate and sometimes equally difficult to remedy.—Successful Farming.

THE ALFALFA WEEVIL.

This insect which has done such frightful damage in neighboring states and which will probably always menace California is now in three states of the country and is spreading. We are making every effort to keep it from the alfalfa fields of our state. So far we believe we have succeeded. Aside from placing a quarantine against the infested districts we have made annually a thorough inspection along the Salt Lake route leading from the areas infested. The inspection for 1915 has just been completed, and we rejoice to state that no trace of the work of this weevil was discovered. Of course this annual search will continue, and should the pest be discovered at any time in the alfalfa fields we shall at once adopt very drastic measures to eradicate it before it is dispersed, after which it would be well-nigh impossible to cope with it.—A. J. Cook, State Commissioner of Horticulture.

$5,450 Per Day Spent To Fortify Goodyear Tires

The other day we cited our experts to certain well-known tires. And we asked, What could Goodyear save by building tires like these?

$1,635,000 a Year

The answer was, "Based on current production, our saving would be $1,635,000 per year." That means $5,450 per day.

But that saving would probably cost our users a million dollars monthly. And the cost to Goodyear soon would be the rulership of Tiredom.

One Must Choose

Here's the choice that confronts us day after day: Shall we skimp Goodyear tires in ways that can't be seen, and increase our profit $1,635,000 a year? Or shall we pay that price to give our users a better tire than others?

Our answer is this:

Goodyear Fortified tires, for many years, have embodied five costly, exclusive features. These are five great protections found in no other tire.

We spend on experts $100,000 yearly to find new betterments to add.

In the past year alone we have added improvements which cost us exceeding $500,000 a year.

Those are the facts; believe them. We never exaggerate, never misrepresent.

Price Reductions

Now note another side.

Despite this ceaseless improvement, Goodyear prices are constantly coming down. Our last big reduction—on February 1st—made three in two years, totaling 45 per cent.

Yet not a feature is missing, not an item is skimped. And this year we are spending a half-million dollars on newly-adopted betterments.

That's one result of our mammoth output, our new equipment and our modern methods.

When we spend such sums to build tires better than rivals, don't you think it worth while to get Goodyears?

Most men do. Goodyear tires are selling now much faster than we can build them. Any dealer will supply you.

THE GOODYEAR TIRE & RUBBER COMPANY, Akron, Ohio
Makers of Goodyear "Tire Saver" Accessories; also Goodyear "Wing" Carriage Tires and other Types

GOODYEAR
AKRON, OHIO
Fortified Tires

Fortified Against
- Rim-Cuts—by our No-Rim-Cut feature.
- Blowouts—by our "On-Air" cure.
- Loose Treads—by many rubber rivets.
- Insecurity—by 126 braided piano wires.
- Punctures and Skidding—by our double-thick All-Weather tread.

Established 1888. Twenty-seventh Year.

The California Cultivator

Rural Californian Combined with the California Cultivator

A Journal of Horticulture and Agriculture

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OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

GROWING MEDICINAL PLANTS

The war in Europe is attracting attention to America's opportunity and to the necessity of producing and manufacturing many things which in the past we have depended upon other countries to supply us. Amongst these may be mentioned medicinal plants. Certain manufacturers are sending out lists of these plants which might well be grown in this country, and we doubt not the department of agriculture will mail information as to their culture. A warning is due, however, and in fact has been given by the department, that this field of agricultural endeavor will bear fullest investigation before it is entered upon. So while our producers may well look into the matter, large planting should be deferred until the market is secured. Most of these products have been grown where labor is cheap. True, those conditions may not return for some years after the close of the war, but if the war ends soon—as we all hope it will—it is to be presumed that the old trade channels will again be opened.

FOREST FIRES

The time for taking care of one of California's greatest heritages has arrived. Perhaps more than any other state California's watersheds are of value and we do not believe any other state has been so careless in caring for them. But during the past few years there has been a change and a most healthy sentiment is being created which looks toward more careful protection of the forests and all growth on the mountainside. Our rainless summers call for exceptional care. The forest service is sending out a series of ten "Don'ts" to campers and others who have occasion to visit the reserves. We simply refer to these:

Don't be careless with matches.

Don't drop cigarettes.

Don't knock out pipe ashes.

Don't build camp fires larger than necessary.

Build fires only on bare soil; never against a log.

Never leave fire until entirely out.

Don't burn brush where there is danger of spreading.

Don't be any more careless in the mountains than at home.

Don't be idle if a fire does occur.

Don't forget.

CONTINUE ROAD IMPROVING

From a circular sent out by the American Automobile Association we note that the New England states are making especially strong efforts to improve automobile highways in order to secure as large a proportion as possible of the summer travel of the Eastern autoists. The campaign is made at this time because of the cessation of travel to Europe necessitating some outlet for the pleasure seekers, and New England wishes to get its share of their spending money.

This is not a hint to California, for California has been acting on this principle for many years and is now reaping the benefits. However, there is still opportunity for greater improvement, and the appropriation of the recent legislature and the proposal to make another large bond issue all tend to more effective work along this lin. There is a limit to our expenditures, within economic bounds, still good roads will yield wonderful returns because of the number of people who are attracted by them. No other section of the world can surpass us in opportunity of putting roads through magnificent scenery. When once it is understood the world over that we have met the requirements of the autoists we will become more than ever the playground of the world.

Incidentally we may add that this all tends to greatly improve all farming lands and bring profit to the farmer. The great factor in production cost is getting produce to market. These costs are reduced every time good roads are extended.

PRACTICAL EDUCATION

For the past three years the graduating members of Prof. J. Eliot Coit's class in citriculture have finished their work in the college of agriculture at Berkeley by a trip through the citrus sections of California. The trip was begun on the western side of the Sacramento valley, following around to the eastern side and on down through the citrus producing section of Tulare County, then on to the extreme southern portion of Southern California's orange and lemon groves. Each year the members of the class have visited the offices of the California Cultivator. The members of the 1915 class are now just finishing their trip, spending this week in Los Angeles and the early part of next week in Ventura County's lemon groves. The class is in charge of Instructor I. J. Condit. They will give, as they have heretofore, to Cultivator readers their impressions, or one lesson rather, which they have learned during this trip.

The members of the class were frank in saying that they had seen some things which made citrus growing look somewhat discouraging to them. Doubtless other classes making similar investigations, whether in the fruit growing industry, general farming or live stock, would have found the same lesson. There is no calling but has its objectionable features, and young men with eyes wide open have seen some of these along with the good ones. We are reminded of a cartoon we recently saw which showed a bunch of graduates, diplomas in hand, marching forth from the portals of education. Strewn on the path before them are occasional roses and many thickly scattered tacks. The World stands at the other end of the path with suspended club, ejaculating, "Well!" There are few of our young people who will make their way along life's pathway without treading on many of the tacks, but these seem to be necessary to bring out the true manhood and womanhood in us all.

SIDE LIGHT ON THE WAR

The financial loss from the present war, its cruelty and loss of life, have been dwelt upon until the world is almost hardened. As one woman has remarked, "What is the loss of a half a million men? No one can appreciate nor understand. To a woman the loss of one life means more than any vast array of figures." Likewise a sidelight on some of the sorrow and discomfort of army life is given in a postcard which we have just seen. This was sent, presumably from the trenches in Belgium, by a boy in his teens to his mother in England. We say "presumably in Belgium," for there is no mark on the card by which the whereabouts of the boy can be known. Its postmark is simply "Field Postoffice." The soldiers are permitted to write nothing whatever upon this card. Their only privilege is to erase such portions of the printed form as they wish. Any other word, even an expression of love, calls for its destruction. But here is the full form of the message which we imagine would cause any mother's heart to yearn for a few words from her boy. The address side of the card also has warning that only the address is to be written:

NOTHING is to be written on this side except the date and signature of the sender. Sentences not required may be erased. If anything else is added the postcard will be destroyed.
I am quite well.
I have been admitted into hospital.
(Sick and am going on well.)
(Wounded and hope to be discharged soon.)
I am being sent down to the base.
I have received your
(letter) dated .....).
(telegram).
(parcel).
Letter follows at first opportunity.
I have received no letter from you
(lately).
(for a long time).
Signature only .....
Date.....
(Postage must be prepaid on any letter or postcard addressed to the sender of this card.)

In this case all the above was erased except "I am quite well," "I have received your letter dated (April 22)," "Letter follows at first opportunity," also signature, "A. E. Atkinson."

Dairymen of Eastern Multnomah County, Oregon, have formed a cow testing association.

Agricultural Notes

The citrus fruit trade of South Africa has greatly increased this past season.

The king of Sweden has signed a new constitution, one feature of which is the granting of the suffrage to men and women over 25.

The sixth annual meeting of the American Farm Management Association will be held in Berkeley, California, August 9 and 10.

The United States department of agriculture has been experimenting with a method of concentrating grape juice by freezing and centrifugalizing.

The Russian government has prohibited until further notice the shipment through the port of Archangel of goods intended for private consignees.

San Diego to Nw York in 11 days and seven hours was the record of E. G. Baker, recently made in an auto from the Panama-California Exposition to our biggest city.

Bermuda grass is regarded as the most valuable pasture grass in the South, but when it occurs in fields of cotton or other cultivated crops it is proving very difficult to control.

Fruit growers of Australia are asking what will become of their next season's crop if the war continues. The only solution seems to be the establishment of canneries and dry yards.

The department of commerce is about to appoint a special agent to investigate markets for American fruit in Latin-American countries. A civil service examination of applicants for this position was held April 1.

Each year thousands of bushels of strawberries go to waste because of low prices or some adverse condition. The department of agriculture has therefore prepared bulletins on the manufacture of berry by-products, which should help in saving this waste.

Comparing imports and exports of the United States during the ten months ending with April, imports have fallen from $1,572,114,692 in 1914 to $1,374,189,749 in 1915, a decrease of $197,924,943, or 12.6 per cent, while exports have risen from $2,045,774,485 to $2,225,548,068 an increase of $179,773,583, or 8.8 per cent.

Everybody knows that birds when they migrate in the fall generally "go South," but knowledge is seldom more specific. A new department bulletin brings out the fact that while some birds go to Florida or the West Indies or Mexico, others, such as the bobolink and ricebird, go as far south as Paraguay and the southern part of Brazil.

The dairy division of the department of agriculture supervises the manufacture of 500,000 to 900,000 pounds of butter each year for the navy. According to specifications prepared by this division, this butter is made from pasteurized sweet cream and packed both in hermetically sealed cans holding five pounds each and in tubs holding 60 pounds each.

The completion of the Celilo canal on the Oregon side of the Columbia river adds Idaho to the list of states having a seaport. "Through the operation of this canal," writes Fred W. Vincent in the Scientific American, "vessels of the river stern-wheel type can now pass from the Pacific ocean to Lewiston, head of navigation on the Snake river, the principal upper tributary of the Columbia, a distance of 480 miles." The canal was formally opened to traffic on May 5.

Agricultural News Notes of the Pacific Coast

Northern California

The Napa County farm bureau will hold a celebration on September 15.

The Sacramento Valley is already marketing its Red Astrachan apples.

An unusually heavy acreage is being planted to beans in the vicinity of Orland, Glenn County.

The Codora Farm bureau in Glenn County is planning a monster farm picnic for the fourth of July.

More than 125 blooded rabbits were exhibited at the Butte County spring exposition at Chico last week.

The strawberry crop of Placer County has been damaged from 50 to 75 per cent by the early rains.

Hop growers fear that even with the small acreage planted this year prices are going to be below normal.

Eleven hundred head of cattle were shipped from Cottonwood, Shasta County, last week. The cattle filled 50 freight cars.

A number of farms and some live stock were destroyed by a river of mud sent out by Mt. Lassen in its recent big eruption.

Orangevale, Sacramento County, reports a good crop of prunes in prospect; oranges, olives and almonds also promise good yields.

No sales of the spring clip of wool are yet reported in Sonoma and Mendocino Counties. The prices offered are around 20 cents.

The second crop of alfalfa has been cut at Orland, Glenn County, and the prospects for good crops of all kinds of fruit are very bright.

The first carload of watermelons received in San Francisco met with rather a cool reception as the melons were too green to be attractive.

Yolo County is making a fight on thistles. Horticultural Commissioner Hecke has been going over the county inspecting the thistle campaign.

The warm weather of the past few days has caused a marvelous growth in the rice fields. The old crop rice is practically sold out and it is thought the new crop will come into practically a clean market and bring good prices.

H. S. Smith, superintendent of the state insectary, has been inspecting apricot orchards of Tehama County in company with County Horticultural Commissioner Weeks. He found but few orchards infected and reports presence of the scale parasite in all of the orchards.

The state reclamation board held a session at Willows the latter part of May to listen to protests of farmers who object to paying assessments on the state constructed levees to control the Sacramento. No agreement was reached and it is thought the farmers will carry their protest to the court.

Much interest is manifested in English walnuts in the Sacramento Valley this season and considerable planting is being done. In spite of a somewhat cold, backward season the crop is developing very satisfactorily. The Guilford farm at Orland reports trees heavily loaded and the crop maturing fully two weeks in advance of last year.

Central California

Orosi, Tulare County, is shipping early tomatoes.

April 30, 1916, has already been named as the next raisin day.

A $3,000,000 good roads bond issue is being talked up for Fresno County.

Porterville expects to clean up its Valencia crop within the next week or two.

Rice is going to be tried out in the Traver district of Tulare County this year.

Packing of apricots started at Sultana, Tulare County, the first day of June.

The Kerman Cured Fruit Association has disposed of its 1914 crop of dried peaches.

Peach growers of the Hanford section of Kings County have formed a marketing association.

Kerman's alfalfa meal mill will open as soon as the second crop hay is dry enough to grind.

Citrus growers of Lindsay are giving whole-hearted support to the fight against gray scale.

Fresno's raisin day made a net profit of almost $2,000, according to report filed by Secretary Hibbard.

Forest rangers report that feed in the high mountains is at least 30 days later than usual owing to prolonged cold weather.

The Kerman Cured Fruit Association called a meeting for June 4 at the Vinland school house to discuss marketing matters.

Several hundred pounds of gooseberries were shipped from Greenfield, Monterey County, recently. Opening prices were very good.

Bee Inspector Nicholson of Stanislaus County reports that foul brood is present in many of the apiaries in the Patterson district.

The Los Angeles Cream Supply Company which recently started operations at Angiola is now shipping 500 gallons of cream a day from that point.

The Wells-Fargo Express Company wants the butter rate raised. The present rate was established in March and the company claims it is losing money.

A prize herd of 92 cows on exhibition at the Panama Pacific exposition by a cream company has been sold to S. H. Owen of Stockton for approximately $100,000.

Representatives of the California Cured Fruit Exchange will meet the Fresno peach marketing commission to talk over methods of disposing of the expected big crop.

Harvesting has begun in the grain fields of the Pixley district of Tulare County. There are about 8,000 acres in the immediate vicinity of Pixley and the crop is heavy.

The Santa Fe has announced that its extra fast green fruit express train will be placed on schedule immediately following the reopening of the tunnels through the Tehachapi.

A cooperative cannery has been organized at Woodlake, Tulare County. President Campbell of the Tulare Growers' Association assisted in the organization of the company.

Southern California

A Brawley rancher lost 120 acres of standing barley by fire.

The first crate of cantaloupes sent from Brawley to New York brought $27.00.

Riverside County is discussing the possibility of securing a county farm adviser.

It is estimated that the Palo Verde Valley in Imperial County has at least 4,000 hogs.

A number of ranchers at Talbert in Orange County are planting lima beans this season.

The Los Alamitos sugar factory is being overhauled and put in shape for the slicing campaign.

A forestry board for Riverside County is proposed by various improvement associations.

Many citrus growers in the Covina Valley are fumigating the second time to catch the black scale.

The San Gabriel Valley Potato Growers' Association will have 3,000 acres represented in its membership.

Officials of the Hemet cannery announce that their plant will be run this year despite rumors to the contrary.

One thousand acres were planted to blackeye beans this season in the district south of Covina, as an intercrop between young Valencia trees.

Heber, Imperial County, expects to market over 20,000 crates of tomatoes. The tomatoes are unusually fine this year, being large and uniform.

There was a big gathering of farm bureau members at Foster Park, Ventura County, Saturday, May 29. Officers were elected for the year.

Report has it that request has been received from the commissary department of the British army for quotations on 300,000 head of cattle for shipment to England.

An orange grower's association is being organized at Garden Grove, Orange County. It is hoped to have a packing house erected and ready for operation by next season.

Riverside City is conducting a strenuous weed clean-up campaign. Letters are first sent out saying "Please do it." If this proves unsuccessful a compulsory clean-up is enforced.

The citrus experiment station at Riverside reports discovery of the origin of apricot and peach rust. The fungus is found during the wintertime on the twigs of trees and can then be sprayed and destroyed.

An orange packing house at Orange, Orange County, was quite seriously damaged by having a loaded car of oranges thrown against it by a freight train. The car was left standing across the switch beside the packing house.

It has been estimated that it takes approximately 17,000 head of fat stock to furnish meat for the people of Pomona Valley each year. Most of this is shipped in, the sheep coming from Idaho and Utah, and the cattle and hogs from Imperial Valley and Arizona.

The Coast

Recent rains in Utah have been received with rejoicing by dry farmers.

The apple crop of the Northwest has been estimated to be 12,300 cars this year.

The Farmers Union convention, held the last week of May at Elmira, Washington, was largely attended.

The management of the Northwest Live Stock Show is asking an appropriation from supervisors of Nez Perces County, Idaho.

The Washington state board of control reports that the penitentiary mill now has on hand only a million and a quarter of grain bags.

Washington grain farmers are facing a shortage in bags. Large orders have been placed in Calcutta but shipping facilities are problematic.

Sheep by the thousands are being sent over the Northern Pacific to the forest reserves in Idaho. The pasture is reported in unusually fine condition.

The Northwest Live Stock Show is assured for Lewiston, Idaho, this fall by the action of county commissioners in voting an appropriation of $2,500 to the fair.

The annual horse show and strawberry day at Milton, Oregon, brought out a big attendance. The horse show was one of the largest ever held in that section of the Inland Empire.

The Salem brewery of Salem, Oregon, is to be turned into a cannery by the Northwest Fruit Product's Company, which took over the plant after the prohibition law was passed in Oregon.

The Polk County Jersey Cattle Club held a sale at Independence, Oregon, May 12, disposing of 120 head of cattle for over $18,000. The highest price paid was $500 for a four-year-old Jersey cow.

The raising of hothouse fruits and vegetables in Utah has assumed such large proportions that it is expected the state will soon be able to dispense with importations of these products from other states.

The new live stock inspection law in Washington goes into effect June 11. It provides for the killing or quarantining of tubercular cows, though owners must kill if they desire to take advantage of the indemnity offer extended by the law.

The Arizona Farm Improvement Association is asking its members to write to Governor Hunt requesting that as vacancies occur on the board of regents of the state university the governor appoint farmers as the agricultural college is one of the most important branches of the university and there are at present no farmer members on the board.

Governor Stewart of Montana has raised the quarantine on live stock importations from Oregon, Washington, Idaho, Wyoming, Utah, Nevada, Colorado, Arizona, California, New Mexico, Texas, North Dakota, South Dakota, Minnesota, Missouri, Nebraska, Oklahoma, Indian Territory and Louisiana, from the dominion of Canada and the republic of Mexico.

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By faulty design and inferior material and construction and omitting a galvanized steel ventilator for the roof.

But if we did, you would not be satisfied with it. A silo to be of any value must be absolutely air and water tight and of such design, material and workmanship that the shrinkage, while standing empty, can be readily taken up and the silo made just as serviceable as when first constructed without its being necessary to re-build it every year, or to use pitch to chink up the cracks, as is necessary in others.

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Live Stock and Dairy

COW HOLDING HER MILK

Written for California Cultivator
By Leroy Anderson

FOR a cow holding her milk we would suggest trying some manipulations of the udder, known as the Hegelund method, a plan worked out by Dr. J. Hegelund of Ladelund Dairy School, Denmark, and described by Prof. Woll in Wisconsin Bulletin No. 96, as follows:

First Manipulation

The right quarters of the udder are pressed against each other (if the udder is very large, only one quarter at a time is taken) with the left hand on the hind quarter and the right hand in front of the fore quarter, the thumbs being placed on the outside of the udder and the fingers in the division between the two halves of the udder. The hands are now pressed toward each other and at the same time lifted toward the body of the cow. This pressing and lifting is repeated three times. The milk collected in the milk cistern is then milked out and the manipulation repeated until no more milk is obtained in this way, when the left quarters are treated in the same manner.

Second Manipulation

The glands are pressed together from the side. The fore quarters are milked each by itself by placing one hand, with fingers spread, on the outside of the quarter and the other hand in the division between the right and left fore quarters; the hands are pressed against each other and the teat then milked. When no more milk is obtained by this manipulation, the hind quarters are milked by placing a hand on the outside of each quarter, likewise with fingers spread and turned upward, but with the thumb just in front of the hind quarter. The hands are lifted and grasp into the gland from behind and from the side, after which they are lowered to draw the milk. The manipulation is repeated until no more milk is obtained.

Third Manipulation

The fore teats are grasped with partly closed hands and lifted with a push toward the body of the cow, both at the same time, by which method the glands are pressed between the hands and the body. The milk is drawn after each three pushes. When the fore teats are emptied the hind teats are milked in the same manner.

On the efficiency of this method with cows that hold up their milk Prof. Woll remarks: "Cows sometimes do not let down all of their milk during a milking, through a congestion of blood in the veins or arteries of the udder, which closes the sphincter muscles at the branching points of the various milk ducts in the udder. The investigations here reported have repeatedly furnished proof that a cow cannot, as a rule, continue to hold up her milk after a few manipulations of the udder have been practiced. When a cow does not give her usual mess of milk and there is no reason to suspect that she is sick, she is very likely holding up a portion of her milk, and in such a case it is especially important to finish up the milking by the manipulation. This will generally give the owner about the usual amount of milk from the cow and will leave the milk secreting glands of the udder in proper condition for the manufacture of milk for the next milking."

CALIFORNIA'S GREATEST JERSEY

The beautiful illustration on the cover of this number shows a California product of which we are all proud. All credit is due to people of means who bring to this state the best blood to be found in Eastern or foreign herds. Even more to be commended is the man who through patient years of work produces a great animal. The greatest record yet made by Jerseys in California is that of Pearl of Venadera, secured through the efforts of Mr. Guy Miller, owner of the Venadera herd. She and her mother are both of Mr. Miller's breeding. A few more Jerseys of this type and a few more breeders of Mr. Miller's type would add wonderfully to the prestige of the Jersey in this state.

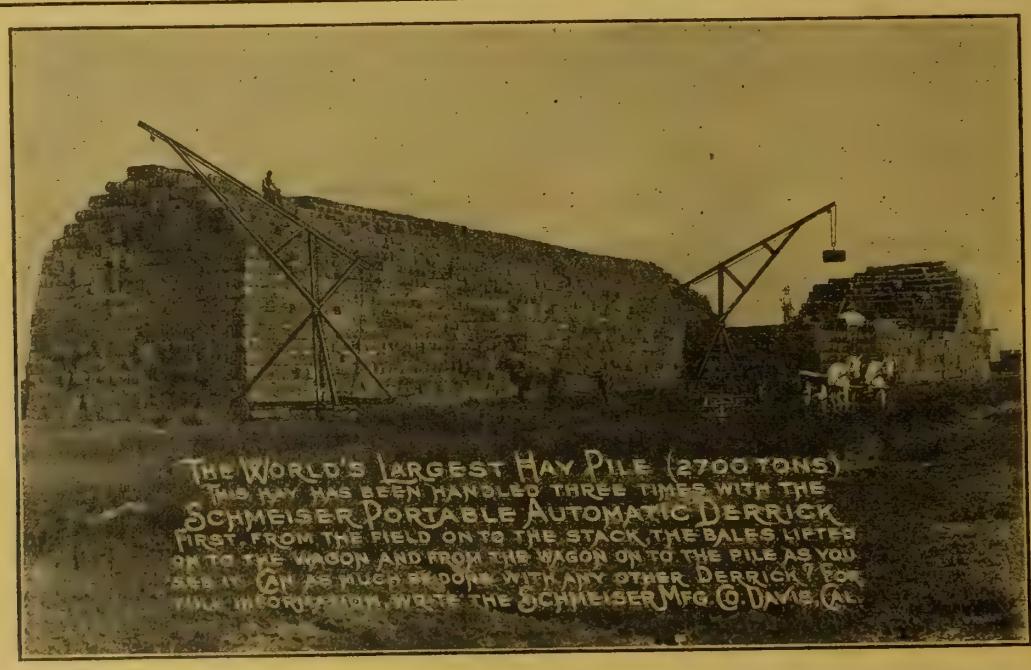
Regarding this cow and her breeding Mr. Miller writes:

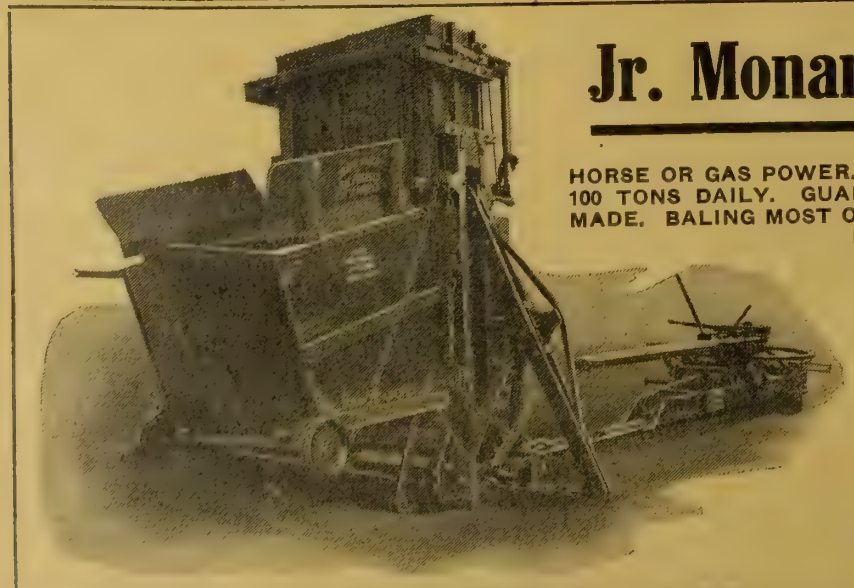
"I herewith enclose photo of Pearl of Venadera (No. 208644 A. J. C. C.) who by reason of her recently finished yearly test claims the title of Queen of California's Jerseys, as she has set a new record for the breed in California.

"For the 365 days ending April 30, 1915, Pearl gave 11723.9 pounds of milk which contained 700.47 pounds butter fat, making 824 pounds of butter 85 per cent fat. She was fed an average of 13 pounds of grain daily, principally rolled barley. Was fed alfalfa hay throughout the test, some first cutting green alfalfa and foxtail daily in March and April and some green kaffir corn daily in August and September. She was milked but twice daily throughout the test, as is the custom in test work in the Venadera Herd.

"Pearl is sired by the well-known Register of Merit sire, Marigold's Exile King, who has qualified for Register of Merit in Venadera herd by reason of 11 of his daughters qualifying for Register of Merit in this herd. Pearl's dam, Nettie Underwood, is also in Register of Merit with a yearly test of 668 pounds butter, and she has three daughters that have good Register of Merit tests.

"Pearl is proving her ability as a breeder as well as a fat producer. Her two daughters in Venadera herd are both in Register of Merit. One of





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them, Jewel of Venadera, who finished her test in January, holds the state record for Jerseys beginning test under three years old. Jewel was but 23 months old at time of starting test and made 520 pounds butter. She is considered a greater heifer than her dam was and promises to be one of the breed's great producers."

TO KEEP HOGS HEALTHY

Give the hogs plenty of fresh water in good, clean troughs. To keep the troughs clean, keep them on clean ground and do not let them set in a mud hole. Coal cinders make a very good fill-in for troughs to rest on and they also make a substantial feeding ground. The growing pigs eat a good many cinders, which aid the digestion, furnishing some of the mineral matter they require. Troughs may be of wood or sheet iron. They should be made with cross guards to keep the hogs from lying down in them. If the hogs lie down in the trough they get dust and mud in the water, which settles to the bottom and makes a slimy mortar that is hard to clean out. There should always be two troughs where hogs are kept in a lot, one for water and the other for slop. Then the troughs should be rinsed with water and any accumulations scraped out before water is put in for the hogs to drink.

Cement troughs are very convenient and are cheaply made, but must be on a large scale and are much harder to handle. They should be made so a man can take a square pointed shovel and clean them out. They are good when a number of hogs are fed together. The troughs should be disinfected twice a week. This should be done with crude carbolic acid and water, as the coal tar disinfectants are distasteful to the hogs, although they are very useful in disinfecting the pens, bedding and lots. They can also be applied to the hogs to kill the lice. In my estimation it is much cheaper to use a half dozen gallon cans of disinfectant per year than to lose one hog.

Another preventive of disease is to use plenty of hydrated lime in the pens and around the lots. There is nothing equal to it on cement and board floors.

Feed plenty of corn to fattening hogs, but sparingly to growing hogs. Feed pigs a combination slop made of middlings, ground corn, some oats and all the rye and wheat you can get. Bran should never be fed without first being scalded. Separator milk is good to use for making slop. Never feed stale slops of any kind. Where a goodly number of cows are kept and the separator milk is fed a fine lot of hogs can be raised.

When the pigs are growing, feed lots of copperas and some salt in the slop. In fattening a drove of hogs I have fed as much as three tablespoons to the barrel of swill. This applies to 150 to 200-pound hogs. Always keep soft coal screenings where the hogs can eat all they want. They will not eat too much.

As to feeding tankage use the money to buy middlings and oil meal instead, and let the packers sell the tankage for fertilizer. Tankage or cracklings from a butcher shop makes very good feed, but should always be given with other feeds and not alone. I think it had better be fed to poultry than to hogs. What I am trying to tell I have learned from experience and not read out of books.

I wish some good fellow would tell me what to feed to cure cholera or keep it away, then I could learn the rest. This one has a cure and that one has a cure. One man says keep the hogs sanitary and give them plenty of pure water to drink; another says to let the hogs run to the chicken coop and clean up the droppings is a sure cure for cholera. Yes, but you had better give strychnine, which is a surer cure, for then you can bury them all at once and not be bothered every morning after breakfast. Another man says to burn the first one that dies and feed it to the rest and they will all be cured, but my neighbor tried it and all the hogs that ate of the burned one died. In my experience the best thing to rid the farm of cholera without giving the serum treatment would be to kill every hog that gets sick at once and burn or bury it at least two and a half feet deep. Throw a half gallon of sulphuric acid and a half bushel of hydrated lime over the carcass before throwing in any dirt. Another serious

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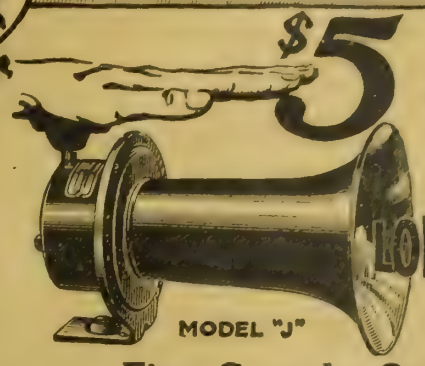

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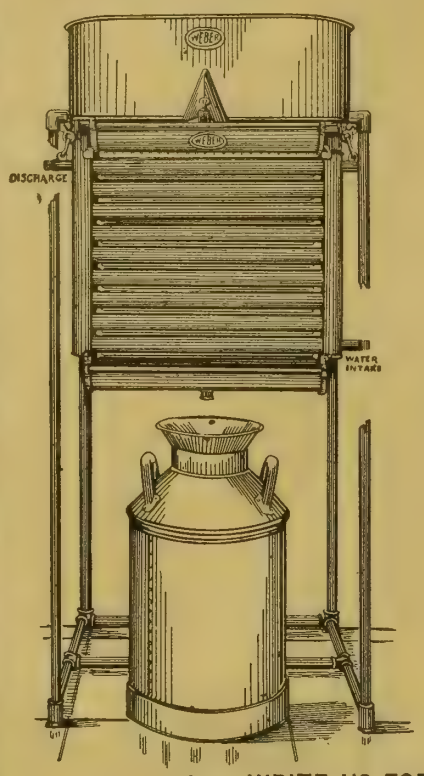

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ailment of hogs is worms, which are easily combated. I have found sulphate of iron or copperas the greatest preventive, while turpentine is good to eradicate worms in pigs. Pigs rarely get wormy unless stunted or neglected.—G. F. Straw in Farmers' Guide.

TUBERCULIN NOT INJURIOUS

The amount of tuberculin used in testing cows for tuberculosis in no way affects the health of the animal. It requires a dose of from 30 to 40 times as much as is used for diagnostic purposes to have any effect upon the animal. It is held by some that tuberculin will arouse the slumbering germs of tuberculosis in animals and thereby cause tuberculosis to develop more rapidly, but there is no data to support this.

The discoverer of tuberculin, Dr. Koch, found that tuberculin has a tendency to heal the tubercular lesions. The object of his experiment was not to determine a diagnostic agent for tuberculosis, but a curative agent. At one time he thought he had found it, for his experiments indicated that tuberculin did for a short time heal the lesions, but it was not permanent. It was during his investigation he discovered that the injection of tuberculin in tubercular animals caused a rise in temperature. Later work indicated that tuberculin had a slight healing effect upon the open lesions and so far as can be proved does not have any effect upon the health of the animal.—Hoard's Dairyman.

PIG EATING SOWS

Answering a question in an Eastern paper as to curing sows of the pig-eating habit, a contributor says: "If one has a sow that eats her litter or any swine that eat chickens, feed them some vinegar in a little slop and see if it doesn't cure them. If I had a sow that had eaten one litter I would watch her and give her some vinegar shortly before farrowing time. I never have any trouble when I have them running out, but have had them eat chickens and gave them vinegar. After that the chickens would be swarming around them drinking their slop and would have no bother. And so if you have any trouble along this line try the vinegar and if it fails let me know. It will be the first time in my experience."

Constipation causes the cow to have fever. There is also a marked decrease in the milk flow, and often this is the first symptom that the farmer notices. The farmer or attendant should keep his eyes open and so feed as to maintain a normal state of health. The genuine live stock man will know his individuals so well that he can tell at once if a single animal gets off feed. The best treatment is to remove the cause which gives rise to it. The main cause is usually from feeding too long on nothing but dry, bulky foods. Flaxseed or linseed is a good laxative. If constipation has lasted long, repeated small doses of purgatives are better than a single large dose.

Pigs should be weaned when they are about eight weeks of age, and if they have been properly cared for will weigh at this time about 40 pounds. If they are fall pigs they will necessarily be kept in yards, since frosted alfalfa is not a desirable food for them. Skim milk, barley, alalfa leaves, mangel wurtzels and sugar beets will, however, furnish the necessary elements for rapid growth. Skim milk is very essential just after weaning. Spring pigs may be put on pasture when weaned, and an acre will furnish green food for 25 to 30 pigs.

In selecting sows for breeding remember that a young sow should not be permitted to produce more than one litter the first year, but since the period of gestation is 112 days there is no reason why two litters per year should not be secured after that time. Care should be taken, however, so that the pigs will not be born during the very hottest or very coldest season.

The California market is an especially good one for fat lambs, ewes and wethers. It is a mistake to send lambs or sheep to this market unless they are fat, and if not in this condition when off the range it will be found a most profitable practice to market the alfalfa and grain through the sheep.

SILAGE

Answering a question as to the use of silage in California when labor at time of cutting of silage is so high-priced, Hoard's Dairyman says:

"If crops of ten to 15 tons of forage can be secured from an acre of corn, it is our opinion that it would be advisable to build a silo. Alfalfa is a splendid feed and good results are had when it forms the major part of the ration. For best results in milk production, however, its high protein content should be balanced with some feed high in carbohydrates, such as corn, corn silage, or barley. Then too it is doubtful whether it is even wise to restrict the feed of cows to one kind for long periods of time. It not only may affect production, but in some cases at least we know it affects the health of the animal.

"It may be said that dairymen who have large producing cows, that is, cows averaging better than 20 pounds of milk daily, find that silage is an important factor in the ration, even though alfalfa can be cheaply provided."

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Caked Udder

Have a cow which dropped her calf about the middle of May. Her udder is very large and hard. Acting upon the advice of friends I began milking her before the dropping of the calf. The hardness and inflammation continued and I allowed the calf to run with her, as I could not be at home to milk more than twice daily. The calf must have bruised the udder and the inflammation still continued. I called a veterinarian, but he seemed unable to relieve her and I later called another. He gave treatment, rubbing in warm water with remedies and packed in antiphlogistine. He also gave internally Epsom salts and other medicine. The cow is now in generally good condition, with good appetite, but still has harness in udder.—Subscriber, Los Angeles.

Your veterinarian did right, but from your description it was a bad case and will require some time for complete recovery. You had better get the following medicines for the cow and continue to rub the udder and milk it out carefully at least three times a day: Epsom salts, three pounds; common salt, two pounds, and nux vomica, four ounces. Mix and give a handful in the feed once a day. Also get four ounces of tincture of aconite and give a teaspoon morning and evening. Be careful that she is not overfed and give green feed that will keep the bowels open. If you want the calf to help in the milking then you must first milk out most of the milk, leaving some in the quarters that are swollen and let the calf do the rest.

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Poultry for Profit

JUNE IN THE CHICKEN YARD.

Written for the California Cultivator
By Jean A. Koethen.

JUNE is one of the hardest months for the poultry keeper. Incubators and brooders are ready to be cleaned and put away. The wearisome but fascinating labor of incubating the chicks and starting them on the road to a vigorous and profitable maturity is over, and now comes the steady grind of keeping them going on that road.

When the first warm days come we Californians, whatever our work, find it a little hard to overcome the tendency to let go. The spring rush is over and with it has gone the elasticity of nerve and muscle that is so easy to keep while chilly spring winds are blowing. Now is the time when little chicks will be neglected, sturdy young pullets left to raise themselves, and the enemies of the flock permitted to get in their deadliest work. If "unceasing vigilance" is the poultry-keeper's motto in January it is doubly so in June.

The most difficult task in June is the keeping down of the "mighty" mite. I make no exceptions. Better let your chicks go half fed and your hen do without green feed or the nitrogenous materials needed for egg making than to let the insidious, deadly red mite get into their sleeping quarters. When I see a chick look droopy I do not, as I once did, begin to doctor. I go after the mites. April, May and June are the breeding time for these pests, and they are more active and harder to fight then than later in the summer. Coops used for new broods this month should be of new wood and those used for the older chicks by no means old. Once a week is none too often to go over roosts, coops and brooder boxes with kerosene and crude carbolic acid, one part carbolic to three or four of kerosene, and it is a good plan to wash the sleeping boxes of the younger chicks daily with the garden hose. I have often been amazed to see how hard it is to kill these pests when once they take possession of a coop. Water will not do it. Kerosene alone doesn't faze them. Fire only drives them to the outside. Crude carbolic acid or some other carbolic preparation, such as Carbolineum, will keep them out, but once they are in, cresol disinfectant, which is stronger yet, is the best thing for getting rid of them.

Commercial cresol may be bought from the druggist for about 30 cents a pound. Shave a ten-cent cake of laundry soap into a pint of soft water, steep till a paste is formed, stir in a pound of cresol, and when the paste is dissolved add a gallon of kerosene. The mixture is best applied to the walls and roof of the house and to nest boxes, coops, etc., with a brush.

The March pullets have been by this time separated from the cockerels, and the latter should be marketed this month. It is hardly practicable on the farm to use fattening crates, but the cockerels should be confined and fed as much moist mash as they will eat with a relish. A good fattening ration consists of two parts (by weight) corn meal, one part shorts, one part ground oats, eight parts buttermilk or sour skim milk. Another, which is a little less forcing, consists of 15 pounds each of bran, barley meal, shorts, corn meal, six pounds meat scrap, two pounds powdered charcoal.

The pullets should be on range if there is any range to be had. They need the development which comes from constant exercise and the variety of ration which free range always supplies. There is nothing better than good alfalfa range for these pullets which are to be the fall money-makers. The dry mash which is fed to the laying hens with a good feed of grain at night and a smaller one in the morning, with the alfalfa for green food and bugs and worms as appetizers, will keep these active young birds developing and bring their egg organs to a healthy maturity at the right time. Laying hens may do very well in confinement, but pullets need the exercise that they get only on range.

The April chicks are ready to roost and may easily be transferred from the brood coops to regular roosting houses. When I began to raise chickens I was much puzzled by the various and contradictory directions given for changing chicks from brooder to cold brooder and from cold brooder to roosting house. Now I have worked out a little system of my own which is very simple and no trouble whatever. The chicks with hens are left with the hens till the latter begin to lay, which is three or four weeks. Then they remain in the coops where they have been brooded, sleeping, if the weather is cold, in boxes of straw (the ordinary "lug" box does very well for this) or, if it is warm, on the floor of the coop till they are ready to roost, which is about two months of age. Then I transfer them to the roosting coops but let them have the lug boxes to sleep in under the roosts till they have learned to roost. Brooder chicks are taken from the fireless brooders at the age at which a hen-mothered chick would leave the hen, and treated in the same way.

May chicks are in June somewhere in this transitional stage between mother and roosting coop and need the most careful watching of all, for it is these chicks that the mites seem to find first and that are mostly killed by these pests. Their coops and boxes should be cleaned every day and the straw on which they sleep powdered often with good strong louse powder. They need a liberal ration, too, for growth is rapid at this age, and time is money these June days. If there is sour milk for them and good alfalfa range they are fortunate indeed. The poultryman's paradise of which I dream is a big alfalfa ranch where cows and chickens eat and range side by side. The family get the cream and the skim milk quickly turns the chicks into the finest of "milk-fed" broilers and high producing pullets. Sour milk and alfalfa almost make a balanced ration by themselves and reduce the cost of production to a minimum. I wonder why more farmers do not work this alfalfa-milk-chicken scheme.

Now is a good time to cull the hens and get the unproductive ones off to market. The hens that have raised broods are laying well but in a flock of non-sitters there are sure to be some that are letting up in their laying or that have shown in other ways that

(Continued on Page 671)

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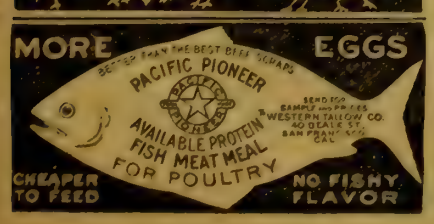

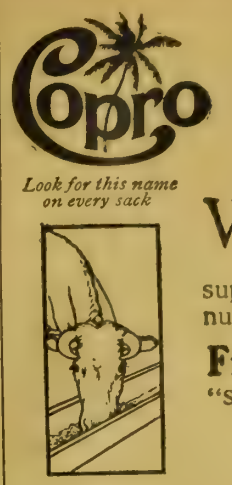

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TREES

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Lease Expires Next Spring—Must sell. Have left about 2,000 Eureka lemons, three-quarters inch and up, buds selected from trees producing heavy crops of fancy fruits. 2,500 Valencia Late five-eighths inch up, 2,000 Marsh Seedless grapefruit five-eighths inch up. These are stocky and especially adapted for desert planting. Will sell with loose roots or balled. Prices as follows for loose roots: Eureka lemon, three-quarters up, $16.00 per hundred; Valencia Late, five-eighths up, $15.00 per hundred; Marsh seedless grapefruit, five-eighths up, $12.50 per hundred. All information cheerfully given. E. J. Van der Sluis, Glendora, Cal.

For Sale or Trade—Finest two-year-old Washington navel and Valencia trees in the country. Tops especially grown 3 to 5 limbs. Budded by myself from good old bearing trees, no sucker buds. Will sort to any size if preferred. Price, 20 cents loose roots; 25 cents balled f. o. b. Glendora. Also fine sour seed stock, $500 per 1000. All inquiry cheerfully answered. Will trade for anything I can use. B. C. Dodson, Glendora, Calif.

AVOCADO TREES

Investigate the wonderful Avocado industry. A ranch planted now will make you independent in a few years. Write for further information and literature. Vigorous field-grown budding trees of standard frost-resistant variety, from four to seven feet high, $1.50 to $2.00. W. A. Spinks, Duarte, California.

For Least Work, largest and quickest profit plant now LUTHER BURBANK AND MEDITERRANEAN SPINELESS CACTUS. Our citrus trees are not the lowest priced, but the cheapest, best. ROBINSON CITRUS NURSERIES, R. F. D. 35-A, San Dimas, Cal. Covine phone 902.

Prices Reduced—Ganter and Harman Avocados, 4 to 7 ft., extra fine field grown trees with large, even heads; on rented ground and must be sold. Our prices will surprise you. Citrus also reduced. Magnolia Nursery, Whittier, Cal.

Eureka Lemons, Late Valencia, Washington Navels—⅝ up. Thrifty, clean stock 20c open root, 25c balled. Quality considered, you can not beat it. Call or write Wilbur K. Howard, Loraine avenue and Santa Fe crossing, Glendora, Cal.

For Acacias, Avocados, Budded Loquats, Citrus trees, Evergreens, Feijoas, Palms, Roses and all kinds of trees, shrubs, vines, etc. Write for our new catalogue. Robertson Nurseries, Fullerton, Cal.

For Sale—Navel, Valencia and lemon trees, three-quarters inch and up, 20c loose root, 25c balled. Budded Avocados, 4 to 7 feet high. Address Box 54, Glendora, Cal.

Very Fine Sweet and Sour Orange Seed-Bed Stock — PRICE REASONABLE. MIGHT TRADE FOR GOOD AUTO OR TEAM. ORANGE COVE NURSERIES, OROSI, CAL.

For Sale—Eureka Walnut Trees, budded on Native Black Walnuts. Choice stock. Order immediately. Don't delay. Wm. Holve, Fullerton, Cal.

For Sale—Avocado and citrus nursery. Cheapest proposition in the country. Write for particulars. Martin Fesler, Covina, Cal.

100,000 Citrus Trees—Choice Seedlings and Buds. Wanted, a budder. Butler's Morning Side Nursery, Lamanda Park, Cal.

For Sale—Field-grown budded avocados, Harman, Ganter, Taft; 2 feet to 7 feet high, $1.00 to $3.00. Home Phone 444. A. B. Rogers, Glendora, Cal.

You should plant my olive trees. They are SELECTED from good bearing trees. Bishop's Nursery, Highland, Cal.

Nurserymen—Pot grown conifers, palms, shrubs and ferns for lining out or potting. Ballou's Nursery, Pasadena, Cal.

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OREGON ORCHARDS

Ten acres or 40 acres 5-year-old Oregon apple orchard for sale. A No. 1 condition. Get our free booklet describing these orchards. We may consider some exchanges if you have good property to exchange for Oregon lands.

Dudley Moulton, 1202 First National Bank Bldg., San Francisco, Cal.

For Sale, Lease or Exchange—A nine acre fruit ranch two miles east of Center Street, Phoenix, Ariz. House of four rooms, stable, chicken corral, good well of water, woven wire fence, half trees in bearing, peaches, plums, apricots, grapes and other fruits. Address, Geo. M. Smith, Bide-A-Wee, Phoenix, Ariz.

For Sale—40 acres loam, 10 in alfalfa, suitable for any kind of fruit or vegetables, can be irrigated from canal, an irrigating well which develops 65 inches of water. Small house and barn, 1¾ miles from Orosi; three depots within 3½ miles, $7000. Terms: will sell half. Melvin T. Crew, R. 2, Bx. 85, Orosi, Tulare Co., Calif.

Free—"True Blue" 1915 Booklet. Tells the "how," "why" and "where" of overlooked State and Government Land bargains. Write CALIFORNIA STATE LAND INFORMATION BUREAU, SACRAMENTO.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

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For Santa Clara Valley properties, improved or unimproved in vicinity of Palo Alto and Stanford University, call on or correspond with BYXBEE & SLOCUM, 101 Lytton Ave., Palo Alto, Cal.

I have some cash buyers for salable farms and ranches, owners only, write C. C. Buckingham, Houston, Texas.

For Sale—Magnificent 372 acre ranch. If interested, see it quick. Write owner, Box 2, Arroyo Grande, California.

MISCELLANEOUS

Free for Six Months—My special offer to introduce my magazine "INVESTING FOR PROFIT." It is worth $10 a copy to anyone who has been getting poorer while the rich, richer. It demonstrates the REAL earning power of money, and shows how anyone, no matter how poor, CAN acquire riches. INVESTING FOR PROFIT is the only progressive financial journal published. It shows how $100 grows to $2200. Write NOW and I'll send it six months free. H. L. Barber, 430, 28 W. Jackson Blvd., Chicago.

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Dairy Ranch, 6 miles west Napa. To lease, 1400 acres. Well watered. cross fenced. F. L. Morehouse, Napa.

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Bosworth's Imperial Red New Zealand Hares sold at hard times prices. NOTHING BETTER. Geo. M. Bosworth, Geyserville, Cal.

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PHEASANTS

Chinese Ringneck Pheasant Eggs $2.50 for 15. Powars Pheasantry, 935 S. 10th St., San Jose, Cal.

POULTRY

Just Out—The Cultivator Poultry Book. "Poultry for Profit," by Jean A. Koethen. Published by the Cultivator Publishing Co. Highly endorsed by experts. Over 200 pages, 50 illustrations. Contains simple methods of avoiding and overcoming difficulties. A guide to poultry success under Western conditions—it tells what to do, why to do it, and how to do it. Nicely bound in cloth. Price $1.00 postpaid, or with Cultivator one year, $1.75. Send orders to Cultivator Publishing Co., 115-117 North Broadway, Los Angeles, Cal.

Roofden Ranch Chicks are good chicks. The kind that satisfy you in quality and price. Special for June—Our best White Leghorns from the best breeding stock, heavy laying strain, $8 hundred, $70 thousand. Brown Leghorns, quick growers, everlasting layers, $9 hundred. Our R. I. Reds and Black Minorcas at $11 hundred are some bargain. Write for delivered prices; safe arrival guaranteed—and for our interesting circulars. Roofden Poultry Ranch, R. 10, Campbell, Calif.

Baby Chicks—Rhode Island Reds and White Leghorns. My guarantee safe arrival, full count, strong, vigorous; fine bred chicks, Leghorns, $9.00 per 100. Will lay in five months. Reds, $11.00 per 100. Will lay in six months. J. W. Lyon, Gardena, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately . National Poultry Co., 607 E. Third St., Los Angeles, Cal.

Baby Chicks—Electric Hatched. White and Brown Leghorns, R. I. Reds, Barred Rocks, Black Minorcas and Anconas. Special prices for June and July. The ORLAND HATCHERY, ORLAND, GLENN CO., CALIF.

Petaluma Hatchery—The one that's different. We challenge the hen, or anybody else. Don't compare prices, compare quality. Circular free. L. W. Clark, Petaluma, Cal.

Single Comb White Leghorn Pullets—Two months old, also yearling hens and breeding cockerels at reasonable prices. Model Poultry Farm, Corning, Cal.

Barred Plymouth Rocks—"The kind that Lay and Win." Choice stock for sale. Catalog free. C. H. Vodden, Los Gatos, Cal.

At Your Service 365 Days in the Year—First-class chix; eggs for hatching, eight breeds. Hawkeye Hatchery, Turlock, Cal.

For Sale—Barred Rock Cockerels, also Barred Rock, R. I. Red, Anconas, Buff and White Orpington chix. Enoch Crews, Santa Cruz, Cal.

Barred Plymouth Cockerels and baby chicks, from my prize winning stock. None better. K. L. Kirby, Oakdale Poultry Farm, Watsonville, R. D. 2.

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USED RANCH MACHINERY, PUMPS, WINDMILLS, TANKS, ENGINES, HAY MACHINERY, PUMPING PLANTS. SPECIAL SNAP, PRACTICALLY NEW

38 H.P. White Middleton engine complete with $65 friction clutch, $75 belt, 5 two-step B. J. Centrifugal pump with frame, shafting, pipe, fittings, pulleys, gates, 50,000 gal. redwood tank, 30-ft. stand. Take entire plant for $1200, engine alone cost $1500, or will separate.

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8-ft. mills, $19.50; 10-ft., $27.50; 12-ft., $45. NEW 1000-gal. tanks, $19.50; 2000, $29.50; 3000 used redwood and stand, $30; 30,000 redwood like new, $125; many others 50 gallon up. H. P. BALER, $90; SOUTHWICK power baler, $350, cost over $700; WHITMAN power baler, $200. Steam tractor with complete baling outfit, $600. Mowers, Rakes, Sprayer, harrows, potato, beet machinery, Fan Mill, Corn Sheller, small ranch tools.

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Eighty H. Boiler, Smith Valle Steam engine 14x18 and Compressor 12x18, $1000, cost $6000. Absolutely cheapest serviceable material can be produced for. Pioneers in our line. DEMMITT CO., UPSTAIRS, 120 N. Main, Los Angeles, Yard, 816 Yale. Buy Tools of All Kinds.

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WANTED

Wanted—Cows, calves and weaned pigs or cash in exchange for spineless cactus or citrus trees. LUTHER BURBANK AND MEDITERRANEAN SPINELESS CACTUS PLANTATIONS, SAN DIMAS, CAL. Covina phone 902.

Wanted to hear from owner of Farm or Fruit Ranch for sale. O. O. Mattson, Minneapolis, Minn.

Agents wanted to sell W. R. P. Legume Bacteria. Western Rock Products Co., Balboa Bldg., San Francisco.

Wanted Good Farm, or unimproved land from owner. H. L. Downing, 105 Palace Bldg., Minneapolis, Minn.

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For Sale—My blue ribbon strain standard bred, Fawn Runner ducks, winners wherever exhibited at leading shows. Record layers. 36 ducks and 2 drakes. Lura E. Anderson, R. D., Bx. 107, Inglewood, Cal.

Selected Indian Runner and Mammoth Pekin Duck eggs. Write for special prices. Black Bros., 455 Lucas, Los Angeles.

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Billiken Herd—Pure bred, registered. O. I. C. Swine. The Big White kind. Sows now farrowing. Three herd boars used; new blood lines. Weaned pigs will be ready soon for shipment. Cholera immune; first class in every way. Make your reservations now for singles, pairs and trios. Write for my new circular. C. B. Cunningham, Mills, Sacramento County, Cal.

Hogs—Forty head of BIG TYPE POLAND CHINA boars of any age. Sired by IOWA WONDER, who is a son of A WONDER, the greatest hog living or dead. No females to sell at present. On account of large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

For Sale—Registered Tamworth swine—boars, sows and gilts of this famous bacon hog. This breed commands a premium on the market. Our original sows from the University Farm at Davis. Sweetwater Fruit Company, Bonita, San Diego County, Cal.

Grape Wild Farm Thoroughbreds—Guernsey Bulls of A. R. Breeding. BERKSHIRE HOGS. Finest herd in the state. All ages for sale. A. B. Humphrey, proprietor. Mayhews, Sacramento Co., California.

For Sale—Registered. Berkshires:. 25 choice pigs of best breeding from the best strains in America. For prices and description address H. L. Murphy. Perkins, Sacramento Co., Cal.

Registered O. I. C. Swine—Litter of swine, the finest I ever bred. Farrowed Feb. 23, 1915. Bred right, fed right. Won't last long on market. Price, Twenty Dollars each. G. H. DuBois, San Martin, Cal.

Exchange—Have a $900 equity in a $1700 rented 5-room plastered house on corner lot in City of Santa Ana. Will trade for Holstein cows or heifers. Owner, 416 Stimson Bldg., Los Angeles.

Blatchford's Pig Meal weans pigs easily and safely; no trouble; no milk. Write for free folder, "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

For Sale—At all times, Jacks and Stallions, driving and saddle horses. Price and stock guaranteed. Phillips and Kingsbury, 2318 G Street, Sacramento.

Cholera Immune—Registered Berkshires of all ages, both sexes, from large-boned pigs. Riccomi Bros., Mountain View, Cal.

Berkshires—Pedigreed Boars ready for service. Bred sows, weanling pigs, both grade and thoroughbred, finest stock. C. H. Thompson, Novato, Cal.

Duroc Jersey Swine—Registered boars, no gilts for sale. Guarantee satisfaction. Prices reasonable. H. P. Eakle, R. F. D. 3, Woodland, Cal.

Poland Chinas—Young stock; either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

Glenview Poland China—Stock for sale. Chas R. Hanna, R. F. D. No. 3, Riverside, Cal.

Pedigreed Duroc Jersey Boars or sow pigs—Extra fine. John Kincaid, Box 151, East Bakersfield, Cal.

For Sale—Thoroughbred Duroc Jersey Boars and Gilts, strong and vigorous stock. Fred Hart, Exeter, Cal.

Magnificent ⅞ Toggenburg Buck, 2 years. Proven Granddam six quart doe. Bargain. Mrs. J. Lenert, Chino, Cal.

N. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale.

SEEDS AND PLANTS

Spineless Cactus — Plant now. Tremendous yield of our plants makes possible these prices: Per 100, $10; per 1000, $75. Special collection of 20 fruiting and forage varieties, only $3. Parent stock purchased direct from Luther Burbank. El Dorado Cactus Nursery, Cupertino, Cal.

Recleaned—Inspected. Sudan Grass Seed $16.00 per hundred, F. O. B. Los Angeles. Order now. BURBANK SPINELESS CACTUS and GIANT WINTER RHUBARB at special prices. Black Bros., 455 Lucas, Los Angeles.

Burbank Spineless Cactus—Hardiest varieties, "Melrose" and "Special." Strong, matured slabs. $8.50 per 100; $50 per 1,000. Labranza Ranch, Athlone, Merced Co., Cal.

Soudan Grass Seed—First class guaranteed seed, free from Johnson grass; now 20c per pound or $15.00 per hundred, f. o. b. Santa Ana. C. E. Lewis, R. 5, Box 52, Santa Ana, Cal.

For Sale—Yellow sweet potato plants, $1.50 per thousand F. O. B. Santa Ana, Cal. S. D. Teel, R. D. No. 3, Box No. 8, Santa Ana, Cal.

Attention Dairymen—Plant Sorghum for green feed or ensilage. Seed for sale in lots to suit. A. L. Sayre, Madera, Cal.

Genuine Burbank Spineless Cactus—Strong mature slabs, $6 per 100—$50 per 1,000. Thos. Cathers, Morgan Hill, Cal.

W. R. P.

The supplying of bacteria to the various members of the leguminous family greatly increases the possibility of big crops. Nitrogen is the most expensive element required in creating soil fertility. If millions of minute forms of life can be made to gather this nitrogen for us from the atmosphere it adds wonderfully to the economy of plant production. Still more, in some soils where there seems to be absolute dearth of this nitrifying bacteria success may be had by the introduction of cultures. The production of these cultures has become a factor in farming operations. Attention is called to the advertisement of the Western Rock Products Company, Balboa building, San Francisco, which concern is making a campaign for better soil conditions in California. It sells guaranteed legume bacteria and urges that all alfalfa and other seed should be inoculated with this culture. A postcard to the concern will bring a fund of information in a little 12-page circular just being sent out.

Mary had a little lamb,
With French peas on the side;
But when the waiter brought the check
Poor Mary nearly died.

Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and addres. Unsigned communications receive no attention.

Pears Not Fruiting

I have three varieties of pears, fine healthy trees, which do not bear. They are Seckel, Winter Bartlett and Kieffer. The Seckel and Winter Bartlett do not blossom. The Kieffer blossoms heavily but does not set.

Would like to know if these varieties are not sure bearers in this section and what one can do if anything to make them bear. Trees are six years old and good healthy specimens. Any information or advice concerning same will be appreciated.—Subscriber, Lankershim.

Your experience coincides with the results we obtained with the three above named varieties at the Pomona experiment station. Occasionally we would have a crop of Seckel, but never of Kieffer or Winter Bartlett. We had over 50 varieties growing in the orchard and bees were abundant, so we conclude that cross pollination had no practical effect on those varieties. We would advise grafting over the Winter Bartlett and Kieffer should they fail to bear during the next couple of years. I think Seckel will come out with enough fruit to justify you in keeping it. Beurre Clargeau, Beurre Hardy and Easter Beurre proved prolific with us and were of good quality.—J. W. M.

Cherries in Southern California

Mr. Rechnitzer of Escondido writes that he has English Morello cherry four years old that is bearing well, having borne since the first year after planting. The above is in answer to the subscriber at National City who wished information as to a variety which would bear in the South.

Electricity from Wind Power

The Kansas agricultural college, or rather its department of electrical engineering in charge of Prof. Reid, is investigating as to the use of wind power in generating electricity. Prof. Reid wishes information as to whether this matter has been tested out in California. We know of no such effort in this state and will appreciate information from our readers. Has wind power ever been used in generating electricity for home use?

Disinfecting Incubators

Would you kindly print directions for sterilizing or fumigating incubators to be closed for the summer.—Subscriber, Pasadena.

For disinfecting incubators and brooders I know of nothing better than creolin which may be bought at any drug store. Pour into a basin of water enough creolin to give the water a milky look, and wash thoroughly, being especially careful to reach every crack and crevice of the brooders. If you suspect the presence of mites in the brooders you might fumigate them with sulphur candles or with powdered sulphur. I think directions for use come with the sulphur candles. If you use the powdered sulphur just put two or three burning coals in an old can or basin and sprinkle on the sulphur. Place in the brooder, close tightly, and leave half a day. You must see that there is a good smoke and enough sulphur to burn for some time.—J. A. K.

Not True to Breed

I have been breeding Black Minorcas for three years. Have followed a kind of line breeding and have no other breed. Why should I get a baby chick from them like a Brown Leghorn?—Subscriber, Encanto.

I. K. Felch tells of receiving a partridge-colored game hen from a friend and mating her to a game of his own breeding. The hen and her daughters bred true to color for three years and then began to throw occasional nearly black chicks. He investigated and found that 20 years before a black hen had been mated into his friend's flock to deepen the color. The cross lay dormant for 20 years and then reappeared and continued to reappear for ten years more. If you could go back 30 years into the ancestry of your Minorcas you would very likely find somewhere a Brown Leghorn cross which now shows itself in this chick. An occasional "throwing back" like this does not, of course, affect the purity of your stock so long as the birds are not used as breeders.—J. A. K.

Blister Mite

An inquirer wishes information regarding control of blister mite which is affecting his pear leaves. Essig's new "Injurious and Beneficial Insects of California" gives the following:

"The control of this mite is becoming quite an important factor in the raising of pears, especially in the Sierra foothills in Placer, Nevada and El Dorado Counties. Many of the sulphur preparations, as pure flowers of sulphur, flowers of sulphur and hydrated lime, lime-sulphur and atomic or milled sulphur have been used. The commercial lime-sulphur (1-13) has given very good results. Atomic sulphur has not been thoroughly tried out, but judging from its efficiency in controlling other mites it it also suitable for this one. The most important consideration is the time of application, which should be made in February, just as the buds are opening. At this time the hibernating adults are moving to the young leaves to lay eggs, and a spraying at that time will kill nearly all of them."

One should not use the commercial lime-sulphur at this time of year of the February strength recommended by Mr. Essig.

Probably Rheumatism

During the cold weather of the latter part of April and the first of May a New Zealand rabbit became stiff in its legs and entire body; the jaws were locked and it could not eat. Was this rheumatism and would drafty hutches and cold weather bring it on?—Subscriber, Los Angeles.

Your solution is probably right, as cold, damp hutches and drafts are fatal to these animals in cold weather. It might be the animal so affected was poisoned by some weed, grain or feed, as this cause would often have the same effect on them as you describe. Rabbits are very much subject to rheumatism when left exposed to the elements, as above described.—R. V. M.

MARRIAGE A LA MODE.

"When is their marriage to be solemnized?"

"As soon as it's financed."

Tear out this advertisement and mail to us with your name, address and name of car and we will mail a present, absolutely

Free

To All auto owners

AUSTIN BRYANT and CARTER
1660 Compton Ave., Los Angeles, Cal.

Prince Albert tobacco is the real joy smoke!

Here is another just-elected member of the Prince Albert "old-time jimmy-pipers club." This is John O'Reilly, of East Providence, R. I., who has just passed the century mark. Mr. O'Reilly is one of those grand old men who has come to this ripe age with the joys of his friendly jimmy pipe fresh in his mind each morning. He has always been a liberal smoker.

Just as soon as you smoke some Prince Albert tobacco in a pipe or cigarette, *just that soon* you'll understand how different it is in flavor, in aroma and in genuine goodness. No other tobacco can be like Prince Albert. *The patented process fixes that* — and removes the bite and parch!

You come on and get pipe or cigarette makin's happy. *Know yourself* what it's like to smoke *all* the tobacco you want, and smoke as *long* as you want without even tingling your tongue!

PRINCE ALBERT

the national joy smoke

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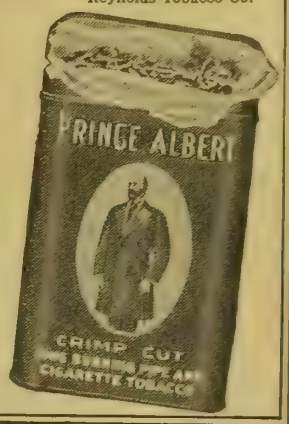
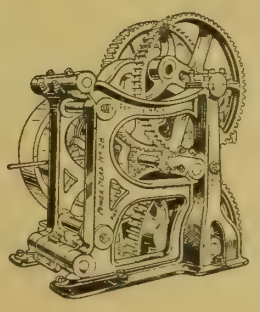
just makes it possible for *every* man to renew his love for his friendly old pipe, or to get a *new* idea how good a hand-rolled cigarette can be. You've no idea of the satisfaction, content and restfulness *that's yours* if you'll get chummy with P. A. Lose no time getting acquainted with this real and true man-tobacco.



Buy Prince Albert everywhere tobacco is sold. Toppy red bags (handy for cigarette smokers), 5c; tidy red tins, 10c; handsome pound and half-pound tin humidors—and—that classy pound crystal-glass humidor with the sponge-moistener top that keeps P. A. fit as a fiddle!

R. J. REYNOLDS TOBACCO CO., Winston-Salem, N. C.

Pomona Deep Well Pumps



—built and sold in California for over 12 years. Hundreds of buyers will tell you they are always reliable and economical.

For deep lifts, as well as shallow lifts combined with high heads above surface and through long pipe lines. No auxiliary pump needed for forcing water above the surface.

Write for catalog Number 103 with valuable information on irrigation.

Pomona Mfg. Co., Pomona, Cal.

Los Angeles Office, 930 Investment Bldg., Eighth and Broadway

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In large or small quantities, 40 species to select from. Write for free pamphlet, "Eucalyptus Culture." It tells you how to sow the seed, raise the plants and plant out in the field. Also describes all the leading kinds, gives their uses, etc.

Trial packets 15c each, 4 for 50c. Write for prices in quantity.

THEODORE PAYNE
345 S. Main St., Los Angeles, Cal.

Bee Keepers Supplies

We keep a full line of supplies and are prepared to serve beekeepers promptly.

Write for Catalogue C
A. I. ROOT CO,
58 Sutter St. San Francisco

SACKS

TREE, WOOD, POTATO, COAL, BARLEY, BEAN, FLOUR, SUGAR, ALFALFA

Write for prices stating quantity wanted. LOS ANGELES SACK CO., Chris Haag, Prop., 348 Aliso St. Phones Main 1285—F-7288, Los Angeles, Cal.

Advertisements in California Cultivator are Guaranteed
See Announcement at Head of Editorial Page

Ideal Gopher Trap

Only Trap guaranteed to catch large or small gopher. Being round with thin edges gopher walks into trap before detecting anything in runway. Positive grip, jaws always hold. 100% efficient—catches gopher every time. Easiest to set. Far safer and surer than poisons or gas. Farmers say it's worth dozen other makes. Price 50c. If your dealer can't supply you, will be sent postpaid on receipt of 60c; two traps for $1.10; six for $3.00. Money back if not satisfied.

E. J. CHUBBUCK CO., Dept. A,
731 Market St., San Francisco, Cal.

SECOND HAND **PIPE**
AND CASING

All our pipe and casing has newly cut threads with new couplings attached and dipped in asphaltum. Guaranteed good as new. Prompt delivery on carloads or less. Small orders receive same attention as large ones. All sizes of pipe, also fittings and valves.
WEISSBAUM PIPE WORKS
169 Eleventh Street, San Francisco

Now Ready

"VACATION 1915"

The Guide to
Summer Outing Places
Tributary to the
Northwestern Pacific Railroad

Make your vacation plans beforehand by consulting its pages. Profuse illustration and reliable descriptive text afford an instructive and reliable guide to this inviting VACATIONLAND, lying in Marin, Sonoma, Mendocino, Lake and Humboldt counties. It contains a complete list of Hotels, Town and Rural Homes and Camp Resorts.

Copies of "VACATION" may be had free at 874 Market street (Flood building), Sausalito Ferry Ticket office, or on application to J. J. GEARY, G. P. & F. A., 808 Phelan building, San Francisco, Cal.

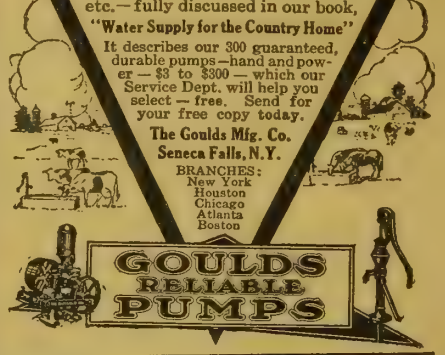
Cornstarch Will Help To Solve That Cooking Problem

Many Housekeepers Find It Valuable Aid in Planning Bill of Fare

One of the problems constantly confronting the housewife is the assuring of a pleasing variety to the bill of fare. One of the best aids that we know of in this connection is a thorough knowledge of the many uses of that delicious food product—Cornstarch. While all cooks necessarily are more or less familiar with it, a complete knowledge of the possibilities of cornstarch would prove a revelation to most of them.

For instance, in making pancakes, the use of one-third cornstarch instead of all flour, will produce most pleasing results. When eggs are scarce, and several are required, a teaspoonful of cornstarch may be used very satisfactorily in place of one egg. All kinds of crusts, steamed puddings and dumplings are much better when part cornstarch is used instead of flour. When short of cream, cornstarch, with milk and egg, makes a good substitute.

Cornstarch is the basis of dozens of toothsome puddings and desserts; but the results naturally will not be satisfactory if an inferior quality is used. Those who obtain the best results with cornstarch recipes most unqualifiedly recommend the famous Kingsford's brand, which can be obtained at all modern grocers. Insist upon Kingsford's and ask for the Kingsford's cook book containing hundreds of cornstarch recipes.



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Absolutely non-pulsating. Minimum power required. Write for our free pump booklets.
LUITWIELER PUMPING ENGINE CO.
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Simmonds Mach. Co. 117 New Montgomery

When writing advertisers, mention the Cultivator.

The Great Home Builder

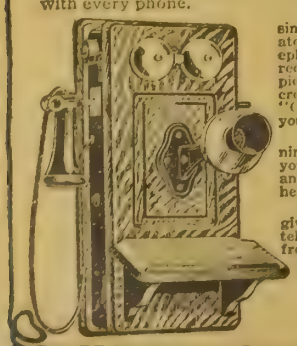
WHAT after all is more worth while than bringing comfort and safety into the home? Think what the telephone has done to tie the country house to the town and the town to the city. Don't be isolated. Get into touch with the voice of the big outside world. Know the prices that rule on farm products. Know about the party at your neighbor's house. Bring to your whole family the safety that comes with the knowledge that in the time of illness or fire the whole community is within call.

Kellogg Telephones

have won their way into homes all over America because of the quality of service they give. Did you know there is a big difference in telephones? There is. Kellogg phones have to undergo an inspection more rigid than other makes. They pass through 37 distinct tests before they leave the factory. That means dollars and cents to you.

As a matter of fact, it is not uncommon for the repairs to cheaper telephones to cost in a few years more than the first cost. Kellogg instruments go on year after year carrying the most delicate sounds perfectly without repairs.

Kellogg Transmitter is guaranteed for five years. A Kellogg lightning protector goes with every phone.



Every part of the instrument is strong, simple and durable. Big, powerful generator that will ring efficiently with 40 telephones on the line. Unbreakable receiver and transmitter mouthpiece. Long life batteries. Secret service push button to ring "Central" without ringing your neighbors.

Let us help you in planning your line. We can tell you how to avoid mistakes and save money. Our expert help costs you nothing.

Literature and bulletins giving the latest ideas about telephone construction sent free.

Kellogg Switchboard & Supply Co.
Mission & Third Sts.
San Francisco, Cal.

Send for Bulletin No. 24

The Household Department

THE BOY FROM TOWN.

Last night a boy came here from town
To stay a week or so,
Because his maw is all run down
And needs a rest, you know.
His name is Cecil, and he's eight,
And he can't skin the cat—
His maw she calls him "Pet;" I'd hate
To have a name like that.

He wears a collar and a tie
And can't hang by his toes;
I guess that I would nearly die
If I had on his clo's;
He can't ride bareback and today,
When we slid on the straw,
He ast if rooosters help to lay
The eggs I pick fer maw.

When our old gander hissed he run
As though he thought he'd bite,
And he ain't even shot a gun
Or had a home-made kite;
He never milked a cow, and he
Can't even dive or swim—
I'd hate to think that he was me;
I'm glad that I ain't him.

He thinks it's lots of fun to pump
And see the water spurt,
He won't climb in the barn and jump,
For fear of gettin' hurt.
His clo's are offle nice and fine,
His hair's all over curls;
His hands ain't half as big as mine;
He ought to play with girls.

A little while ago when we
Were foolin' in the shed
He suddenly got mad at me,
Because I bumped his head.
There's lots of things that he can't do;
He thinks that sheep'll bite,
And he's afraid of ganders, too;
But he can fight all right.—S. E. Kiser.

THE CAT AND THE DOOR BELL.

AMORE perfect example of worthless feline felicity than Ginger never lived; and yet he lives, and no one suggests that he might better make room for a cat with fewer toes upon his feet and a greater disposition to lay them upon the rats and mice that occasionally show themselves on the place. Topsy, the little black mother of all the other cats upon the farm, is worth many times her weight in steel traps, and the enthusiasm that she annually shows for "better babies," and more of them, makes her rank as almost an expert in eugenics. Big brother Mutt lets few days pass by in which he does not bring to the house some trophy of the chase, and he treads the path as proudly when he has robbed the cradle of an infant mouse as when he carries a rat with tail nearly as long as his own and a body that makes its captor hold his head high to keep it from the ground. He couldn't be spared, but Ginger, with black feet that look as though they were encased in padded boxing gloves, was never known to eat any game that was not brought to him or to display a useful trait of character in any line. When small he was so full of kinks that Ginger seemed the only name appropriate for him, but in his adulthood he faces life with sublime confidence in three square meals a day, ready provided. Behind that confident, optimistic smile of his lie some brains, however, and these have probably been the means of prolonging his life and may do so indefinitely. If he hadn't them how could he have learned that the way to gain entrance to the house was to ring the door bell and wait for some one to open the door? Our sitting-room door is armed with an old-fashioned gong that is struck by pulling down an outside lever. This lever has a porcelain knob on the end, and requires some force to operate it. When about half-grown, Ginger learned in some unknown way that if he would reach up and hook both fore feet over that white knob and then pull down until he heard a loud bang some one would open the door. No one ever made any effort to teach him this, unless it might have been Mutt who stands up and pounds the door knob with one paw when he wants to come in, but, in some way, he certainly learned it and he put his knowledge to good use. Through the summer a screen door kept him away from the bell, and it was thought that he would probably forget his skill as a bellringer. The other night, however, the screen door was fastened back, and it being somewhat cold Ginger evidently wanted to come in and warm his 28 toes. About midnight a loud ring at the door awakened the man of the house and brought him to his feet. Upon opening the door in strutted Ginger with his everlasting smile and confident purr. He promptly went out again at the back door, however, and the man returned to bed. Nothing again disturbed the family's sleep until about five o'clock in the morning when the door bell rang. Nobody was fooled this time and nobody went to the door; again the bell rang, and again and again, until it was struck six times in succession. Maybe there was a neighbor at the door and, if not, such persistence certainly called for recognition. The door was opened, and in gurgled His Inky Blackness and padded his way to the sofa where he knew that a soft blanket lay folded.—Rural New Yorker.

IDEAS FOR THE COOK

Written for the California Cultivator
By Isabel Cottle

Breakfast

Fried Fruit Mush, Maple Syrup
Cheese Omelet
Dates and Oatmeal Cookies Coffee

Lunch or Supper

Baked New Potatoes
Fried Ham with Cream Gravy
Asparagus Cucumber Salad
Gingerbread Tea or Milk

Dinner

Broiled Lamb Chops Baked Noodles
Peas with Parsley and Butter Sauce
Spiced Gooseberries Rolls
Brown Sugar Pudding Coffee

Date and Oatmeal Cookies

Two cups oatmeal, one cup lard, two cups brown sugar. Add one-half cup hot water and the oatmeal, into which has been sifted one teaspoon soda. Add flour to make a very soft dough, roll very thin, cut out with small cutter and bake in moderate oven. Put two cookies together with the following filling: One pint stoned dates, two tablespoons granulated sugar and a little hot water. Do not cook but work into smooth paste with a spoon. For a change one cup of chopped nuts or raisins may be added to the cooky recipe and the filling omitted, or sugar may be sprinkled over the dough and rolled in before cutting out.

"Cinnamon" Gingerbread

One cup New Orleans molasses. Into a teacup put two level teaspoons soda and fill cup slowly with hot water. Add to molasses with half cup sugar, two tablespoons butter, half teaspoon vinegar, cinnamon, two cups flour and lastly one egg. Add raisins if desired.

Brown Sugar Pudding

Two cups of light brown sugar; two cups of boiling water, two heaping tablespoons of cornstarch, one-half cup of walnut meats broken into small pieces. Bring sugar and water to a boil. Thicken with cornstarch which has first been dissolved in a little cold water. Cook in a double boiler until it is thick. Just before taking from the fire add the nut meats. Serve cold with whipped cream.

Spiced Gooseberries

Stem berries, wash thoroughly and allow to drain and become crisp. Make a syrup as follows: To one part fruit

Housekeepers Using Syrup More Than Ever Before

A Better Knowledge of Its Diversified Uses Responsible for Increased Demand

Syrup plays such an important part in the preparation and serving of our food that a thorough knowledge of its uses is essential to every efficient housekeeper.

Nothing pleases the youngsters better than a thick slice of bread thickly spread with a rich syrup—while the grown-ups enjoy their griddle cakes and waffles best when served with this same delicious dressing.

Syrup is really indispensable in the preparation of a great variety of cakes, cookies, muffins, icings, pies, puddings, sauces, candies and many other delicacies too numerous to mention.

One cannot hope to obtain the best results, however, if an inferior brand of syrup is used. Culinary experts everywhere unhesitatingly recommend Karo Syrup for every household use—and it is safe to be guided by their experience. Karo is as clear and sweet as honey, richer in consistency. It can be obtained at all modern grocers. Order some today, and ask for the little Karo cook book, containing hundreds of valuable recipes for making all the toothsome delicacies referred to above. Try out each of these recipes, and you will always keep Karo in the house thereafter.

The Stephenson PATENT COOLER

NO ICE REQUIRED

Perfect Ventilation. Absolutely Sanitary.

Awarded first prize wherever exhibited. If not for sale at your dealer's, write for particulars and prices.

L. ANDERSON CO., Mfrs.,
Martinez, Cal.

Ants Numerous This Warm Weather

Much Suffering Can Be Prevented By This Simple Method of Relief

The warm summer weather is very pleasant in many ways, but it always brings forth one intolerable nuisance—ants. This pest has proved the despair of many a housewife, who has tried various methods of getting rid of them—only to have them return again.

Women everywhere, therefore, will rejoice to learn that certain and lasting relief from this plague is now at their disposal. A Los Angeles baker, himself a great sufferer from ants, has prepared a paste which will not only drive the ants out of your place, but will keep them out thereafter. Ants cannot exist where this paste is used—its effect appears almost supernatural.

This remedy is put up for general use under the name of Kellogg's Ant Paste and can be obtained at all up-to-date druggists. Try a package today, and you will have no more trouble with ants.

JAMES R. TOWNSEND

Solicitor of American and Foreign **Patents** Copyrights Trademarks and Labels registered. Suite 711 San Fernando Bldg. Los Angeles. Phones:- Home A4619; Sunset Main 347

use one-half as much sugar, one-eighth as much vinegar and one-half as much water as vinegar. For each pint of vinegar allow one ounce of stick cinnamon, two scant teaspoons each of cloves and mace. Boil about 20 minutes and skim. Add the fruit and cook until a little of the liquid tried on a cold plate shows indications of jelling slightly. Fill hot sterilized jars, seal and turn upside down until cold. Test to see that none are leaking, label, wrap in paper and store in a cool place. (As the strength of vinegar and spices varies to a considerable extent it may be necessary to add more of these, or possibly additional sugar may be needed.)

HOUSEHOLD QUERIES

Rose Beads.

Please give a good recipe for making rose beads; what kind of roses are best for this use?—Subscriber, Van Nuys.

Put the rose petals through the food chopper at least 15 times then spread out on a rusty tin for three days, each day running through the food chopper once, or kneading well with the fingers. If they dry out a great deal, moisten with a little water. Form into beads the desired size, measuring in a small thimble or the bowl of a spoon to insure uniformity, and stick on a hat pin to dry. When thoroughly dry dip in olive oil, place in a flannel cloth and rub briskly to give the desired polish. They shrink considerably during the drying process. Any variety is used.

To Clean Enamelled Wood Work

Will you tell me the best way to clean white enamelled wood work in a kitchen?—Subscriber, Van Nuys.

We believe a good mild soap with plenty of hot water would be the best method of cleaning white enamelled woodwork.

Curing Rose Petals.

Please give method of curing rose petals.—Subscriber.

We know of no particular directions other than to gather the petals and spread out in the sun to dry, turning frequently that they may cure evenly. Bring in the house at night to prevent their absorbing dew. When sufficiently dry place them for a very short time in a hot oven to destroy eggs of insects which may have been deposited in them and use as desired.

We will be glad to receive any further suggestions from subscribers.

SUMMER LAUNDRY WORK

Written for the California Cultivator
By M. A. H.

To prevent mildew do not put anything away damp, and if any spots of mildew are found on the clothes cover the spots with salt and then squeeze lemon juice over the salt and place in the sun. Sometimes the juice of a perfectly ripe tomato will remove the spots.

Muslins of a doubtful color may be washed in rice water, without soap, rinsing them out in clear rice water to keep the starched quality.

Gum arabic water should be used in the starch for both white and colored muslins. This is prepared by pouring a pint of boiling water over two ounces of fine white gum arabic and allowing it to stand over night. In the morning pour it carefully from the dregs into a bottle and use a tablespoon of this gum arabic water in starch made in the usual way. The best way to stiffen all white laces and all crocheted articles is to put them through thin gum arabic water as this gives them just the right degree of stiffness.

Brown linen may be kept fresh and new looking by washing through starch to which a cup of strained coffee has been added. No soap should be used and the garment should be hung over the line without rinsing. When about half dry iron on the right side with hot irons. Use a tape measure when ironing linen skirts so as to have them the same length all around. Iron crosswise to make it short and lengthwise to make it long, as a linen skirt may be stretched several inches either way while damp.

(Continued on Page 671)

Gas Stove Convenience with Kerosene

Hot in *Your* Kitchen?

No need of it if you cook with a good oil stove. The heat is concentrated on the cooking—not radiated throughout the room.

New Perfection Oil Cook-Stove

For Best Results Use Pearl Oil

Abundant heat—always ready at the touch of a match—like gas. Can be turned out the minute you finish cooking. Cooks anything your wood or coal range does—and there's no heavy hods to lug—no dirt or ashes. No odor. Does not taint the food. Ask your dealer. See Exhibit, Palace of Manufactures, Panama-Pacific Exposition.

STANDARD OIL COMPANY
(California)
Los Angeles

The Largest Returns for Your Money

proved by actual experience, are produced by NITRATE OF SODA; because Nitrate is always needed in our soils.

Send five cents for postage on free books, and state what crops you are growing.

NITRATE AGENCIES COMPANY

W. S. SPARR, Agent 321 Stimson Bldg., Los Angeles, Cal.

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, June 9, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade 3 to 4 cents above following quotations:
Creamery Extras 24
Firsts 22
Country 21
Ladle 20

CHEESE

Prices to trade, 1 and 2 cents higher:
California Fresh .... 13@13½
Cheddar .... 19@20
Domestic Swiss 20
Eastern Daisy .... 18½@19
Oregon Triplets .... 15½@16
Longhorn .... 19½@20
Imported Swiss .... 30@32
Tillamook .... 16½@17

EGGS AND POULTRY

Prices to trade, 3 cents higher than following quotations:
Fresh Ranch, case counts 21
Candled .... 23@25
Petaluma—Santa Rosa 23
Northern Case Counts 22
Other Outside Stock 19

Prices to producers:
Hens, lb. .... 13@17
Roosters, old .... 6@7
Broilers, lb. 15
Fryers 20
Roasters, lb. .... 19@20
Turkeys .... 15@19
Ducks 15
Geese 14
Squabs, doz. 2.00

LIVE STOCK

The following quotations are f. o. b. Los Angeles on all stock:
Hogs, 175 to 200 lbs., per cwt. 8.75
Prime Steers .... 7¼@7½
Heifers .... 6¼@6½
Calves, lb. .... 8½@9
Sheep—
Ewes, head 4.50
Wethers 5.00
Lambs, head .... 4.75@5.00

POTATOES

Wholesale selling prices:
Idaho Russet 2.40
Idaho Rurals 1.65
New Early Rose, lug .... 45@55
New Early Rose, cwt. .... 1.40@1.75
Wisconsin Burbanks 1.75
Lompocs .... 2.60@3.00

ONIONS

Wholesale selling price:
Australian Brown, cwt. 1.00
Bermudas—
Imperial Valley, crate .... 75@80
Crystal Wax, crate 1.00
Garlic 15

VEGETABLES

Wholesale selling price:
Asparagus, green, lb. .... 6@9
Artichokes, Northern, doz. .... 25@75
Beets, doz. 30
Beans—
Wax .... 3@4
Limas .... 7@8
Green .... 4@5
Kentucky Wonders 10
Cabbage, sack .... 80@90
Carrots, doz. .... 30@35
Cauliflower, doz. 1.50
Celery, doz. .... 50@55
Chicory .... 35@40
Chives, doz. 1.00
Corn, lug .... 90@1.00
Cucumbers, box .... 35@45
Egg Plant, lb. .... 10@12
Escarole, doz. .... 35@40
Horseradish, lb. .... 12@15
Leeks, doz. .... 35@40
Lettuce, crate .... 50@75
Mint, doz. .... 35@40
Okra, lb. .... 8@10
Onions, Green, bunch .... 15@20
Oyster Plant, doz. .... 35@40
Parsnips, doz. .... 35@40
Parsley, doz. 15
Peas—
Small .... 3@4
Telephone .... 4@5
Peppers, lb. .... 15@18
Pumpkins, lb. .... 1¼@1½
Radishes, doz. 15
Rhubarb—
Crimson Winter, box .... 65@75
Strawberry .... 90@1.00
Spinach, doz. .... 15@18
Squash—
Summer, lug .... 35@40
Tomatoes, crate .... 90@1.00
Turnips 30

FRESH FRUIT

Wholesale selling price:
Apples—
New Spring Crop, lug 1.25
Pippins 2.50
Rome Beauties 2.75
Pearmains 2.50
Apricots, lug .... 1.50@1.65
Avocados, doz. .... 4.00@5.00
Bananas .... 4@4½
Berries—
Strawberries, basket .... 3@6
Blackberries, basket .... 2½@3½
Raspberries .... 4@5
Loganberries, basket .... 4@5
Gooseberries, lb. 8
Cantaloupes—
Pony .... 1.10@1.25
Standard .... 1.50@1.75
Cherries—
Red .... 6@8
White .... 6@9
Cherimoyas, lb. .... 20@25
Currants, crate .... 1.50@1.65
Figs, box .... 1.00@1.20
Calimyrnas, box .... 1.75@2.00
Loquats, lb. .... 7@9
Pears, Winter Nelis, lug 1.50
Peaches, lug .... 1.10@1.25
Pineapples, lb. .... 6@7
Watermelons, lb. .... 2@3

CITRUS FRUIT

Wholesale selling price:
Lemons .... 1.50@2.50
Grapefruit, Seedless .... 1.50@2.75
Navels .... 2.00@2.50
Tangerines, lug 90
Limes, basket 1.00

DRIED FRUITS

Wholesale prices to retailers are:
Evaporated Apples, Fancy, lb.
Boxes .... 7¼@11
Apricots .... 8½@11
Nectarines 12½
Peaches .... 5@6¾
Pears .... 10@11
Prunes .... 5½@12½
Plums 10

HONEY

Wholesale selling price:
Comb, Fancy, Water White 14
White 12
Light Amber 12½
Extr. Water White 7
White 6½
Light Amber 5½
Beeswax 32

NUTS

Prices named by California Walnut Growers' Association are:
No. 1 .... 16½
Budded Walnuts 20
Jumbos 19
No. 2 12
Culls 9

Prices fixed by California Almond Growers' Exchange, f. o. b. California.
Almonds—
Nonpareil .... 21@22
I X L .... 19@19½
N P U .... 17½@18½
Drake's Thinshell .... 18@18½
Pecans 17
Peanuts—
California, Raw 6
Japan 7½
Eastern 7½
Rice Corn .... 5.00@5.25

RICE

Wholesale selling price:
California .... 4.75@5.00
Broken .... 3.75@4.00

BEANS

Wholesale selling price:
Producer's price not far from one dollar under these quotations:
Limas .... 5.50@5.75
Bayous .... 6.00@7.00
Lady Washington .... 5.50@5.75
Pinks .... 4.65@4.75
Black Eyes .... 6.75@7.00
Lentils .... 13.00@14.00
Small White .... 5.50@5.75
Garbanzos .... 8.35@8.50

HAY

The new crop of grain hay is arriving, much of it is exceptionally fine stock. Prices started at approximately old crop prices and at present are being well maintained, but the prediction is that with a large crop to come slightly lower prices may obtain within a few weeks.

Prices to producer f. o. b. Los Angeles: Following prices are on new hay.
Barley Hay .... 9.00@12.00
Wheat Hay .... 8.00@11.00
Tame Oat .... 9.00@13.00
Alfalfa .... 8.00@11.60
Volunteer .... 5.00@7.00
Straw .... 5.00@6.00

GRAIN

Wholesale selling prices f. o. b. Los Angeles:
Corn, Yellow 2.20
Corn, White 2.30
Wheat .... 2.35@2.40
Oats, White 2.00
Oats, Hulled 2.35
Egyptian Corn 2.20
Barley Seed 1.40
Barley, Hulled 1.75
Milo 1.85
Sunflower Seed 7.00

FEED STUFF

Wholesale selling prices f. o. b. Los Angeles:
Bran, Heavy 1.90
Alfalfa Meal 1.15
Alfalfa Molasses. per cwt. 1.20
Beef Scraps 3.00
Beet Pulp 1.25
Cracked Corn, cwt. 2.25
Cracked Wheat, cwt. 2.50
Cotton Seed Meal 1.80
Bone Meal 1.95
Meat Meal 3.00
Bone, Green 1.65
Charcoal 1.90
Oil Cake Meal 2.60
Fish Meal .... 3.15@3.25
Rolled Oats 2.05
Middlings 2.20
Rolled Barley 1.35
Feed Meal 2.30
Scratch Feed .... 2.20@2.40
Clam Shell .... 60@70
Oyster Shell .... 1.15@1.25

San Francisco Market

SAN FRANCISCO, June 8, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade, 4 cents above following quotations:
Extras 24
Firsts 23

CHEESE

Wholesaler to retailer.
Oregon Y. Am. 14½
Young America 12½
California Flats .... 8@11
Cheddar 20
Oregon Twins 13½

EGGS AND POULTRY

Prices to trade 3 cents higher than following quotations:
Extras 22
Select Pullets 19

Price to producer:
Hens, lb. .... 15@17
Fryers .... 24@26
Broilers .... 18@20
Roosters, Young .... 25@26
Old .... 10@11
Squabs .... 1.75@2.25
Ducks .... 14@17
Geese .... 2.50@3.00
Belgian Hares, lb. .... 7@8
Dressed .... 10@12½
Turkeys, live .... 16@18

LIVE STOCK

San Francisco prices. gross weight:
Steers .... 4@6½
Cows and Heifers .... 3@6
Calves, lb., live weight .... 6@9
Hogs .... 5@8¼
Wethers .... 6½@7
Ewes .... 6@6½
Milk Lambs, lb. .... 8@8½
Shorn stock ¾@1c less

POTATOES

Wholesale selling price:
Idaho .... 1.50@1.75
Idaho Russet .... 1.50@1.75
Burbanks .... 1.25@1.50
New Delta .... 85@1.25
Oregons .... 2.00@2.25
Shimas .... 1.00@1.40
New Potatoes, cwt. .... 1.25@1.75

ONIONS

Wholesale selling price:
Onions, cwt. .... 65@85
Bermudas .... 65@75
Australian Browns .... 2.50@3.50
Oregon .... 90@1.00
Garlic, new .... 5@7

VEGETABLES

Wholesale selling price:
Asparagus, box .... 1.00@1.25
Beans—
Lima .... 3@5
String .... 1@3
Wax .... 2@3
Brussels Sprouts, lb. .... 3@5
Celery, crate .... 50@1.25
Corn, Imperial Valley, doz. .... 10@25
Cucumbers, Southern, box .... 25@35
Egg Plant, lb. .... 7@10

WEATHER CONDITIONS

For Week Ending June 5, 1915

Report from the various California stations of the United States Weather Bureau by George H. Wilson, director, San Francisco.

	Rainfall Data: Past Week	Rainfall Data: Seasonal to Date	Rainfall Data: Normal to Date	Temperature Data —Past Week—: Maximum	Temperature Data —Past Week—: Minimum
Eureka	.01	42.65	45.24	62	46
Red Bluff	.00	34.72	24.67	96	58
Sacramento	.00	17.16	19.99	88	52
San Francisco	.00	27.41	22.15	83	50
San Jose	.00	22.72	16.74	86	48
Fresno	.00	10.89	9.64	92	56
Independence	.00	3.47	9.50	92	..
San Luis Obispo	.00	28.13	20.47	82	44
Los Angeles	.00	17.03	15.57	74	56
San Diego	.00	14.43	10.01	70	58

Lettuce—
Local, small crate .... 75@90
Large, crate .... 1.00@1.25
Okra, crate .... 75@1.25
Peas, sack .... 1.00@1.60
Peppers—
Bell, lb. .... 10@15
Chili, Mexican .... 10@12½
Rhubarb—
San Jose .... 60@85
Alameda .... 40@70
Squash, Summer, crate .... 20@40
Tomatoes—
Imperial Valley, crate .... 75@1.25
Merced .... 75@1.00

FRESH FRUIT

Wholesale selling price:
Apples—
Newton Pippins .... 1.50@1.75
Other varieties .... 40@75
Apricots, box .... 75@1.00
Bananas, Hawaiian, bunch .... 1.50@1.75
Blackberries, crate .... 75@1.25
Cantaloupes—
Ponies .... 1.75@2.50
Standard .... 2.00@3.50
Cherries—
Blacks, lb. .... 1@6
White, lb. .... 2@3
Royal Ann .... 4@6
Currants, chest .... 4.50@6.00
Figs, box, single layer .... 75@1.25
Gooseberries, lb. .... 3@6
Loganberries, chest .... 3.00@4.00
Loquats, crate .... 75@1.25
Peaches, crate .... 1.25@1.50
Pineapples, doz. .... 1.50@2.50
Plums—
Clyman .... 1.00@1.25
Cherry .... 40@50
Raspberries, chest .... 7.00@10.00
Strawberries—
Longworths, chest .... 4.00@5.00
Other Varieties, chest .... 3.00@4.50
Watermelons, lb. .... 2@3
Grapefruit, Seedless, new crop .... 1.75@2.75

CITRUS FRUIT

Wholesale selling price:
Grapefriut, Seedless, new crop .... 2.25@2.75
Lemons .... 1.50@3.50
Lemonettes .... 1.00@1.75
Navels .... 1.75@2.75
Limes, Mexican, case .... 4.00@5.00
Tangerines, halves .... 75@1.75
Valencias .... 1.75@2.75

DRIED FRUITS

Wholesale Prices are:

Prunes—Bulk basis, 1914 crop almost cleaned up; 30-40s, 5¾c; all other sizes, 5c; 1915 crop, Santa Claras, 30-40s, 4¼c; 40-50s, 3½c; all other sizes, 3¼c. Outside sections ¼c lower.

Other Fruits—

50-lb. boxes—	Stan.	Ch.	Ex. Ch.	Fcy.
Evaporated apples	....	5¼c	5¾c	6½c
Apricots	6 c	7¼c	7¾c	9 c
Peaches	3 c	3¼c	3½c	4¼c
Pears	7 c	8 c	9 c	10 c

RAISINS

California Associated Raisin Company's f. o. b prices. 1914 crop, guaranteed against decline to August 1. Seeded fancy, 16-oz., 7½c; 12-oz., 5⅞c; bulk, 6c; choice, 16-oz., 6⅞c; 12-oz., 5⅞c; bulk, 5¾c; two-thirds fancy, one-third choice, 16-oz., 5c; per case, 48 pkgs., $3.40. Loose Muscatels, 3-crown, 50-lb. cases, per lb., 6c; 3-crown, 50-lb. cases, per lb., 5⅞c; 2-crown, 50-lb. cases, per lb., 5½c ;1-crown, 50-lb. cases, per lb., 5½c. Seedless Thompsons, 50-lb. cases, 6½c; 16-oz. pkgs., 7⅝c; 12-oz. pkgs., 6½c. Sultanas, 50-lb. cases, 6c; 16-oz. pkgs., 6¾c; 12-oz. pkgs., 5½c. Layers, bulk layers, 50-lb. boxes, $2.75; 6-crown, 20-lb. boxes, $2.75; 5-crown, 20-lb. boxes, $2.25; 4-crown, 20-lb. boxes, $1.60; 3-crown, 20-lb. boxes, $1.30; 5-lb. boxes, add 50c; 10-lb. boxes, 25c. Cartons, No. 1 clusters, 20 to case, $1.70; No. 2 clusters, 12 to case, $2.10; No. 5 clusters, 4 to case, $2.25.

NUTS

Local stocks of all nuts practically cleaned up.

ALMONDS—Prices fixed by Almond Growers' Exchange to the trade, f. o. b. California:
Nonpareil .... 11@13
I X L .... 11@13
Ne Plus Ultra .... 11@13
Drakes 10

Wholesale selling price:
Peanuts—
Unpolished .... 3½@4½
Polished .... 4@5½
Shelled, China .... 5½@6
Italian Chestnuts .... 6½@7

BEANS

Wholesale selling price:
Limas .... 4.70@4.80
Pink .... 4.00@4.10
Black Eyes .... 6.00@6.25
Cranberry .... 4.80@4.90
Small White .... 4.70@4.80
Garbanzos .... 6.50@6.75
Large White .... 4.70@4.80
Bayou .... 4.65@4.75
Manchurian Speckled Bayous .... 3.60@3.80
Manchurian Butters .... 4.50@4.75
Red Mexican .... 5.30@5.40
Red Kidney .... 5.90@6.00
Horse Beans .... 3.50@4.00

HONEY

Wholesale selling price:
Comb, Water White 18
Light Amber .... 10@12
Amber .... 7@10
Extracted White .... 6@7
Light Amber .... 3½@4½
Dark Amber 2
Beeswax .... 25@28

HOPS

1914

Wholesale selling price:

Sacramento Valley	8@10
Sonoma-Mendocino	11@12½
Oregon Clusters	11@12½

HAY

Under date of June 5, Scott, Magner & Miller say:

Receipts of hay during the week ending today have amounted to 3660 tons. Prices have been fairly well maintained, and on choice grades better prices have been realized.

During the past week we have had splendid haying weather and the mowing machines are actively engaged in cutting the crop throughout most of our hay districts. The warm north winds of the last few days have also had a certain effect in certain localities where the wind has prevailed in a marked degree.

Many of the farmers have been undecided as to whether to make grain or to cut for hay. It is the natural tendency on the part of the farmer who has always made hay to continue to do so, particularly in view of many of the facts connected with the present hay situation. It is thought that most of the old crop on hand will be disposed of. If the surplus can be taken off this market it will leave a clean road for the marketing of the new crop. There is some inquiry for alfalfa, and same can be readily sold if of fairly good type. There is nothing new to report in connection with straw.

Fancy Wheat Hay (lt. bales)	13.00@14.00
No. 1 Wheat or Wheat and Oat	11.00@12.00
No. 2 Wheat or Wheat and Oat	8.00@9.00
Choice Tame Oat	12.00@12.50
Other Tame Oat	7.50@10.00
Barley	5.00@8.00
Wild Oat	6.00@8.00
Alfalfa	6.00@9.00
Stock Hay	4.50@5.00
Straw, per bale	40@45

GRAIN

Alfalfa Seed	16½
Wheat, Cal. Club	1.85@1.87½
Corn, Egyptian White	1.80@1.85
Corn, Eastern Yellow	1.77@1.78½
Barley Feed	1.05@1.12½
Oats, Red, Feed	1.35@1.40
Oats, White Feed	1.40@1.50
Millet	2½@3¼
Flaxseed	5@5½
Rye	2.00@2.25
Sunflower	5@5½

FEED STUFF

Wholesale prices.

Alfalfa Meal, car lots	13.50@14.50
Bran, ton	27.00@30.00
Feed Cornmeal	40.00@41.00
Cracked Corn	40.00@41.00
Rolled Barley, ton	23.50@24.50
Rolled Oats, ton	37.00@37.50
Middlings	33.00@35.00
Shorts	30.00@31.00
Oilcake Meal	38.00@39.50
Cocoanut Oilcake Meal	24.00@25.00

Citrus Fruit Market

LOS ANGELES, June 9, 1915.

Practically all navels have been sold, as have the seedlings, sweets, and all varieties excepting Valencias. Of these there are perhaps 7,500 carloads yet to go forward. The fruit is fine and every indication is for good sales. The only feature which is not favorable is the fact that the peach crop generally over the East is immense.

"The situation as to lemons is not rosy." Another says, "Lemons never faced a more serious situation than at this moment." There are on dock and afloat over 300,000 boxes of foreigns. 100,000 of these must be sold during the next week. California has 200,000 carloads in storage. To make the situation still worse the weather man is turning loose cold, drizzling rain. In some cities during last week the highest temperature marked was 60 degrees. Two weeks of hot weather would clear the situation and until that comes lemons must be content with very low prices.

Shipments

Shipments of oranges to date from Southern California since November 1, 1914: 26,445 carloads, lemons 4,105, total 30,550. To same date last season: oranges 28,729, lemons 1,751, total 30,480. From Tulare County: oranges 5,618, lemons 197, total 5,815. To same date last season: oranges 5,662, lemons 30, total 5,692. From northern counties: oranges 630, lemons 2. To same date last season: oranges 404, lemons 5.

NEW YORK, June 7.—Twenty-two cars navels, sixteen Valencias, one Jaffas, one St. Michaels, one seedlings, eleven mixed cars, and six cars lemons sold. Market higher on navels; Valencias and lemons steady. Cloudy.

NAVELS—	Avge.
Orchard, National O. Co	3.10
Standard, National O. Co	2.70
Cal. Beauty	2.60
Minnehaha, C. M. Brown	2.05
Old Mission, fy., Chapman	3.05
Blue Star	2.65
Mission Bells, A. B. Chapman	3.30
Mission Memories, A. B. Chapman	3.15
Royal	2.70
Valley	2.45
SWEETS—	
Pinnacle	$2.85
Camel	2.45
SEEDLINGS—	
Pala Bells	$2.30
Pearl	2.25
ST. MICHAELS—	
Camel	$2.65
Pala Bells	2.85
Pearl	2.60
JAFFAS—	
A One	$2.10
ST. MICHAELS—HALVES—	
Homer	$1.45
Camel	1.30
Golden Orange	1.45

CINCINNATI, June 7.—Eight cars sold. Market is weak.

LEMONS—	Avge.
Panama, J. F. Co	1.75
Flower City, J. F. Co	1.35
SEEDLINGS—	
Heap Good	$2.10
Don Quixote	1.90
BUDDED—	
Parrot	$2.00
VALENCIAS—	
Carnival	$2.80
El Pavo	2.30
NAVELS—	
Sultana	$2.25

PITTSBURGH, June 7.—Market doing better on oranges, steady on lemons.

NAVELS—	Avge.
Orchard, National O. Co	$3.05
Victory	1.70
Del Oro	1.70
VALENCIAS—	
Rialto Boy	$2.05
Rooster	3.25
S. S. Brand	2.65
LEMONS—	
Circus	$2.05
Del Oro	1.75
Oriole	1.50

BOSTON, June 7.—Thirty-four cars sold. Market is strong on good quality oranges, unchanged on lemons.

NAVELS—	Avge.
Volunteer, S. A. Ex	$2.50
Morning Star, S. B. Ex	1.80
Canna, S. B. Ex	2.75
VALENCIAS—	
Blue Banner	$3.40
Green Banner	3.05
Royalty	2.70
SWEETS—	
Emperor	$2.25
Poppy	2.15
Redlands Pride	1.75

PHILADELPHIA, June 7.—Nine cars sold. Market strong on oranges, unchanged on lemons.

VALENCIAS—	Avge.
Charter Oak, S. D. Ex	$3.70
Alphabetical, Or. Ex	3.05
NAVELS—	
Golden Orange	$2.80
Prairie Chicken	2.20
Allendale	2.40
LEMONS—	
Royal Purple, Q. C. Ex	$2.10
True Blue	1.75
Linwood, Q. C. Ex	2.20
Limoneira	1.90

KANSAS CITY, June 7.—Fair and cool. Strong on oranges, lower on lemons.

NAVELS—	Avge.
Revenue, ones	$2.01
Revenue, twos	1.55
LEMONS—	
Captive	$2.71

ST. LOUIS, June 7.—Eight cars sold. Market is easier.

VALENCIAS—	Avge.
Titus Ranch, San Marino G.	$2.75
Pronto	2.50
SEEDLINGS—	
Caledonia	$2.75
NAVELS—	
Rivera	$2.60
Orange	2.50
LEMONS—	
Arab, S. D. Ex	$2.00
Pup	1.85
El Modena, Or. Ex	1.70
OIC	1.60
Luster, Or. Ex	1.60

CLEVELAND, June 7.—Ten cars sold. Market is weak on oranges, unchanged on lemons.

NAVELS—	Avge.
Symbol, Stewart Ft. Co	$2.10
Tricolor, Upland Foothill G.	1.75
Pony, S. B. Ex	2.10
SEEDLINGS—	
Altura	2.50
Viking	2.30
Viking	2.40
SWEETS—	
Tango	$2.15
Viking	1.65
Morning Star	1.55
VALENCIAS—	
Dan Patch	$3.15
BLOODS—	
Tiger	$2.40
Floral	2.00
LEMONS—	
Cycle, F. C. Ex	$2.35
Radiant, Or. Ex	2.70
Luster	2.65

SUMMER LAUNDRY WORK

(Continued from Page 669)

Fine white waists and dresses come out beautifully white by putting them to soak in warm suds made with borax soap chips and soft water and very sheer materials only need to be squeezed through the suds to remove all soil in the fabric. Make a strong lather in warm water with the soap chips then put in the garments and let them soak for an hour before rubbing out. There is nothing better than the suds made with borax soap chips for washing all kinds of table linen and the pretty crocheted articles used so much now and for white counterpanes and the embroidered pillow slips and covers. Some housekeepers dissolve enough of the chips in hot water to make a thick solution and keep in a glass jar closely covered and then it is ready to use and a very little of the solution stirred in hot water will make a nice lather. To make white garments a good color, rinse them through water slightly blued, then through a deeper shade, and rub well so that every part will get its share of blue.

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Water Right

Water company owns pipe line across ranch, having paid for right-of-way, they say, when laid a number of years ago. Ranch has changed owners a number of times and is finally sold to E, who has owned same for three years. A number of years ago a pipe line was laid connecting with water company's line to water part of ranch. Now, much to E's surprise, who bought the ranch supposing his pipe line rights were secured with ranch, the water company informs him that he has no right to use the line. Have any rights been gained by undenied use for the eight or ten years? E's irrigation system is spoiled without access to water company's line on the dates his water is sent to him.—Subscriber.

When E purchased the ranch he acquired all the appurtenances thereto and it has a number of times been held that the right to water in pipes used for delivering it to the land and the pipes themselves constitute an appurtenance to the real property. The right in water which has been diverted into ditches and other artificial conduits for the purpose of conducting it to the land for irrigation has been uniformly classed as real property in this state. It is quite apparent, however, that the entire facts in this case are not presented in the above question and it is probable that this answer would not be a proper one to make if the entire facts were given.

Return of Shipping Cases

Please give me an epitome of the law regarding the return of crates, coops, cases, etc., used in shipping produce to commission merchants.—Subscriber, Salada.

An answer to the above question would be the work of a textbook and it is impossible for this department to do more than answer specific questions.

Community Property

Does property accumulated after second marriage (no children by second marriage) all go to children by first wife or is it divided between children and second wife?—Subscriber.

As has been here frequently stated before, property accumulated subsequent to marriage is community property. Upon the death of the wife it goes to the husband without administration; upon the death of the husband it goes one-half to the wife and the other one-half is subject to the disposition of the husband by will, so that in the above case upon the death of the husband he could will only one-half of the property to the children by his first marriage.

Community Property

A woman at the time of marriage had about $700 in money and about $650 worth of stock, and the husband had about $250 in money and about $350 worth of stock and implements. The money was invested and now amounts to about $4,000 in property and $7,000 in money, all in husband's name. Is wife entitled to any less because the husband holds it in his name? If a joint deed was made out, including a clause for ownership in the survivor, what would then be the wife's share of the $7,000?—Subscriber.

For the purpose of ascertaining the community property, the husband and wife or their respective heirs are each entitled to prove what moneys, which were the separate property of either, were put into the common fund, but such moneys or property cannot be considered as separate property if they cannot be traced or segregated from the mass of community property; in other words, in the above case, property standing in the name of the husband, the burden of proof would be upon the wife or her heirs to show what proportion of the property was the result of the initial investment of the wife's separate property, together with the increase thereon. Upon such proof, even though property may stand in the name of the husband, the proportion found to be the separate property could be set aside, but in a case such as the above it is doubtful if the wife would be enabled to make a sufficiently clear case. An arrangement can be made by deed providing for ownership in the survivor, but the best method would be reciprocal wills.

JUNE IN THE CHICKEN YARD

(Continued from Page 665)

they are not worth keeping. The old hens and the overfat hens, the hens that seem to be lacking in vigor and the hens that have not made a good record should all go in June before prices drop. This year we need to cull more closely than ever because of the high prices of feed. "Let not one worthless hen escape" is a good motto for a bad year. Let us cull remorselessly, not only the hens but the pullets. Pullets that are obviously culls, that are off in color or weight or that have been slow in development, should go to market with the cockerels. Sometimes a pullet is a pullet, but this year only the best is worth while The only way to beat the high feed prices is to have more paying hens.

JUST OUT

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By J. Eliot Coit

Professor of Citriculture in the University of California, and Citriculturist to the University of California Agricultural Experiment Station. Formerly Superintendent in charge Citrus Experiment Station, Riverside, California.

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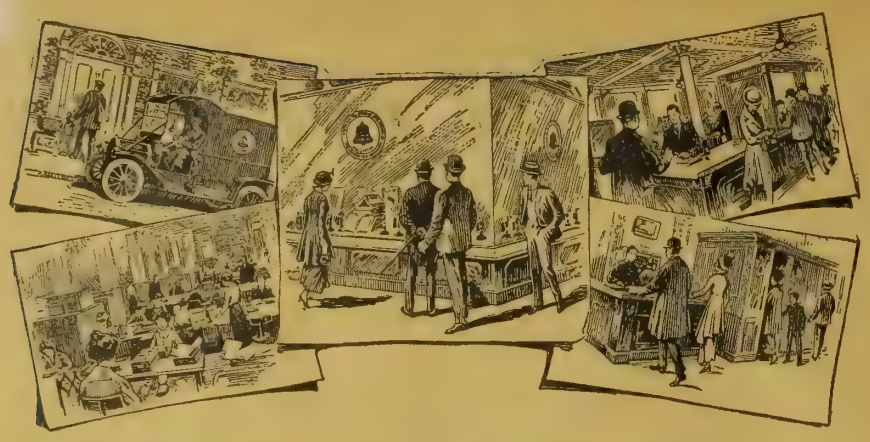

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All of us are doing business with business men so constantly that we accept the benefits of this intercourse without question, as we accept the air we breathe. Most of us have little to do with government, yet we recognize the difference between business methods and government methods.

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Little Stories of Success

No. 8.

R. F. Schmeiser of Winters, who bought a 75-h. p. Caterpillar back in 1913, wrote us recently: "I am farming 1500 acres and I have used nothing but my Caterpillar to do the farm work with since I have had it; and besides my own work, I have done work on the outside which amounted to over $10,000 for the year 1914. This outside work consisted of plowing, harrowing and harvesting for my neighbors, and hauling rock and sand for the State Highway."

Mr. Schmeiser has some interesting figures on work done with his Caterpillar—harvesting 3100 acres in 60 days—hauling in one week 1596½ tons of rock and sand for an average distance of 2½ miles—plowing 260 acres in 4 days, pulling 6 three-gang 10" plows. All this with an upkeep cost of less than $200 since he bought this machine.

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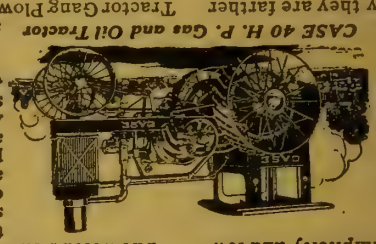

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Uses any petroleum fuel. Ahead of any competing type.

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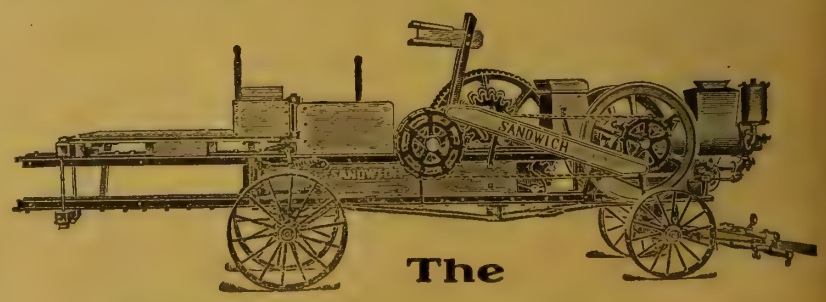

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JUN 23 1915

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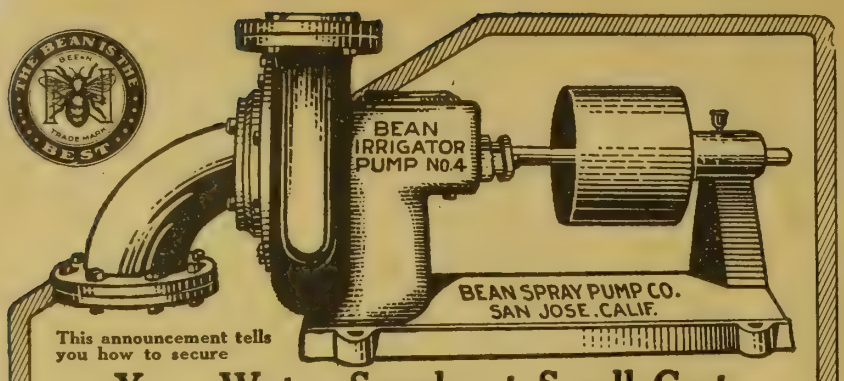
Rural Californian combined with California Cultivator

An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES June 17, 1915 SAN FRANCISCO

A California Cornfield

Corn as Grown at Hemet, Riverside County. See Article on Page 682



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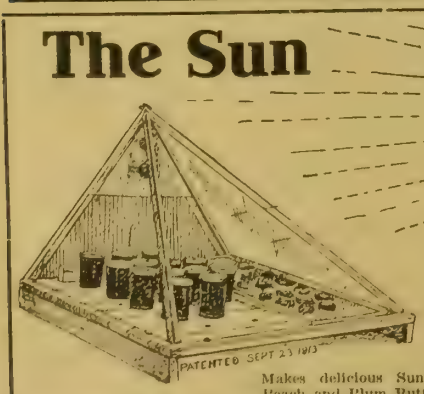

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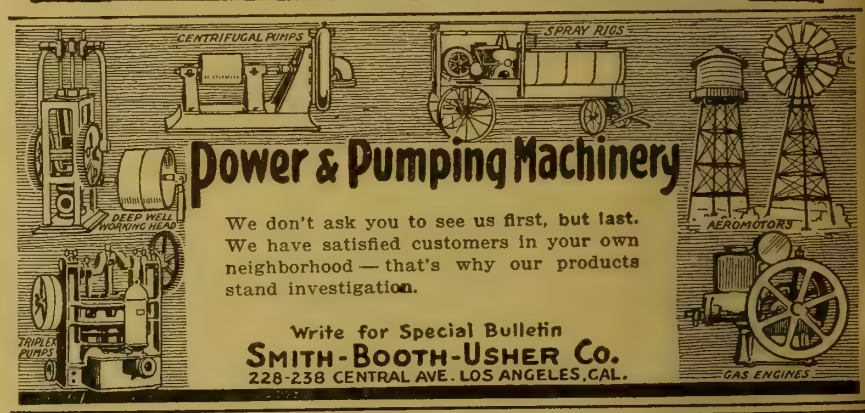

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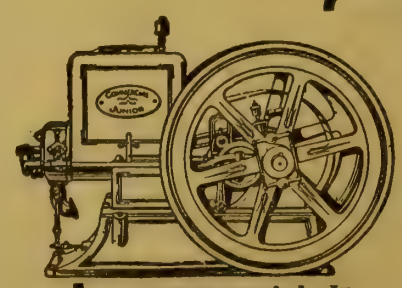

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California Cultivator

Rural Californian combined with California Cultivator

Vol. XLIV No. 24 LOS ANGELES: THURSDAY, JUNE 17, 1915 One Dollar Yearly

The Weather Bureau Working for the Farmer

A Few Items of Interest Regarding the U. S. Weather Bureau and Its Work in California. It is Believed that the Recent Visit of Chief Marvin Will Result in Better Service for California

WE recently referred to the visit of chief of the weather bureau of the federal department of agriculture, Dr. Charles F. Marvin, calling special attention to the fact that in Southern California is a little strip of the citrus belt where information furnished by the weather bureau probably saves more property than in any similar agricultural area in the world. Our readers may be interested in knowing of some of the activities of the bureau. For instance, take one particular local office, that at Los Angeles. In this office there are an even dozen divisions of work. In these are included frost forecasts, rainfall forecasts and general information of interest to the citrus field. This field calls for special study because its requirements are so different from most other lines of work taken up by the bureau. Then there are intensive investigations and data supplied in the field of general agriculture. Floods and conservation are studied, marine shipping is given storm warnings and information as to winds, etc., railroads likewise are given much data. There is school instruction, testimony given in courts, and, perhaps newest of all, is the special division work for the benefit of the moving picture industry, which is becoming a great factor in California.

But regarding the work of this great bureau in California we may summarize:

There are 11 regular stations maintained for the collection of data, with 32 commissioned employees, 23 special meteorological stations, with 23 paid employees; 380 cooperative meteorological stations, 55 mountain snowfall stations with 42 paid and 13 cooperative employees, 42 river and rainfall stations with 42 paid employees.

There are 81 stations distributing daily forecasts and special warnings, 67 distributing special warnings only (frost, cold wave, rain), 15 stations distributing daily forecast cards, 944 forecast cards being distributed daily.

DR. CHARLES F. MARVIN, CHIEF OF THE U. S. WEATHER BUREAU

Of storm warning display stations there are six regular weather bureau stations, three paid and 18 cooperative display stations.

Daily weather maps are issued at five regular stations in California, with an aggregate output of 1578 copies daily.

Another feature of the work which will be of special value for the next few months is the fire wind forecasts, issued whenever the conditions indicate the occurrence of high and hot winds in the forest districts. These are given to the district forester at San Francisco for distribution to the forest rangers.

Regular weather bureau stations in California are located at Eureka, Fresno, Los Angeles, Mount Tamalpais (branch of San Francisco station), Point Reyes Light (branch of San Francisco station), Red Bluff, Sacramento, San Diego, San Francisco, San Jose, San Luis Obispo.

The work in this state costs the bureau in excess of $70,000. Perhaps the greatest item of expense connected with the entire bureau is that of telegraphing, which costs in excess of $275,000 annually for wires. One feature which may be of interest is that at eight o'clock, morning and evening, Washington time, circuits are formed in various sections of the country in which wires of the Western Union are absolutely at the service of the bureau. This brings every section of the United States in touch with the central office at Washington, it in turn giving information to every division which aids in issuing weather forecasts.

During Dr. Marvin's visit to California he was shown through various agricultural districts and was given an idea of the magnitude of the citrus industry especially. We believe his visit to the Coast will mean greatly increased efficiency of the bureau in its work for agriculture.

AT DEVIL'S GATE IN THE ARROYO SECO

Captain Leeds tracing on map and showing to Dr. Marvin the opportunity for a great reservoir or inland lake above Los Angeles and Pasadena. The picture below shows Dr. Carpenter, local forecaster at Los Angeles, taking photograph of Devil's Gate Bridge.

Potash Production in Southern California

By James T. Armstrong, F. C. S., Etc., from an Address Delivered Before the Southern California Academy of Sciences

THE methods and possibilities connected with the utilization of the different forms of giant sea-weed, commonly known as kelp, have been so largely talked and written about that it might be thought by some people, what more is there to say upon the subject? The prospects of the utilization of sea-weed being so favorable, it is worth investigating the conditions of the industry, for it is our experience that many improvements could be effected.

Michael Faraday, the great scientist, once said that he always believed a fact, but cross-examined an assertion. We have been careful in stating only actual facts, which have been proved to be such by results obtained in practice in the industry.

There is no doubt that the European war has been the direct result of bringing this matter before the notice of investors and others, but although the returns in the manufacture of potash from kelp are remunerative, we would warn those with only a superficial knowledge of it to be careful as to how they invest capital in this industry.

It is stated that boots are being made from sea-weed in Japan and silk in France, and there is no doubt a fabulous amount of gold and silver contained in the 300,000,000 cubic miles of ocean, yet we advise investors not to take much notice of this (although it may or it may not be true), but it is a fact that in the United States we are neglecting a very valuable asset by not making use of the large quantities of profitable sea-weed near our doors.

Whilst we would caution the investing public of the boots and silk part of the business, we must not lose sight of the fact that in Scotland, Ireland, France, Norway, Japan and South Australia there is much money made in this product. The Japanese employ over 600,000 persons in the industry, and China consumes $600,000 worth of gelatinous articles made from sea-weed each year, whilst this country imports more than $15,000,000 worth of products that can be obtained here from kelp.

There have been formed in this country in the past three years several companies with the avowed purpose of manufacturing potash from kelp, and among other reasons for the industry not having been established on a large scale is that those undertaking it have not had the necessary scientific knowledge and practical experience.

In the last 25 years the increase in the sale of iodine has been as much as 57 per cent, and all indications point to a continued growth in the demand. Only a small portion of this product is now being obtained from kelp and the amount can profitably be largely increased.

The manufacture of the different products from sea-weed is still in its infancy, and those that are first in the field will of course reap the benefit. The use of everything pertaining to kelp is daily on the increase. In one district of Scotland (so the Blue Book of the board of agriculture says) "from 1905 there was a marked improvement, and during the four years, 1907 to 1911, the average amounts per annum paid to the workers had risen and had become more than two and one-half times as great as during the ten years from 1884 to 1893." The industry is increasing and during the present year a record quantity of kelp has been manufactured.

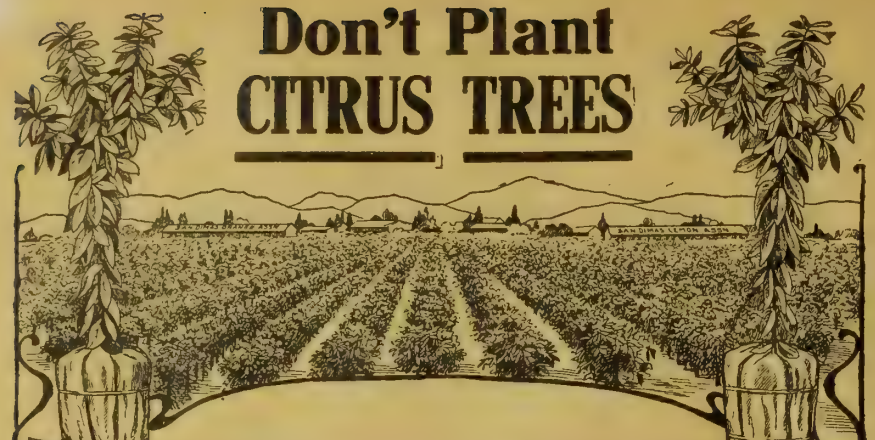
The development of the industry in other countries is given at some length by Mr. Armstrong. Also extended reference is made to requirements of various crops. Regarding further supply for this country:

* * *

It is difficult to emphasize enough what a great role nature plays in the storing up in kelp of just those ingred-

(Continued on Page 678)

Don't Plant CITRUS TREES



until you can meet the five essential requirements of success. Here they are: **Sufficient Water Supply; Quality Trees; Safe Thermal Conditions; Good Care; Good Soil.**

These five things are fundamental and he who ignores any one of the five invites failure.

Good fruiting trees are good revenue producers, and if you have the requisite water, location and soil—true citrus land—you cannot afford to miss the opportunity to

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Place your order **NOW** for Spring delivery. You will perhaps never have another chance to buy **QUALITY TREES** at so reasonable a price. Even the so-called **CHEAP TREES** which might better be called **EXPENSIVE TREES** by the man who expects to receive an adequate return on his investment, are quoted the same or very little less.

We were founded twenty-five years ago, and have been improving the grade ever since. Buy **TEAGUE QUALITY TREES**, embodying vigor and symmetry of root, body and top—and in the selection of buds, which will not only be true-to-name in the general acceptance of the term, but true to the best type of the varieties to which they belong as well.

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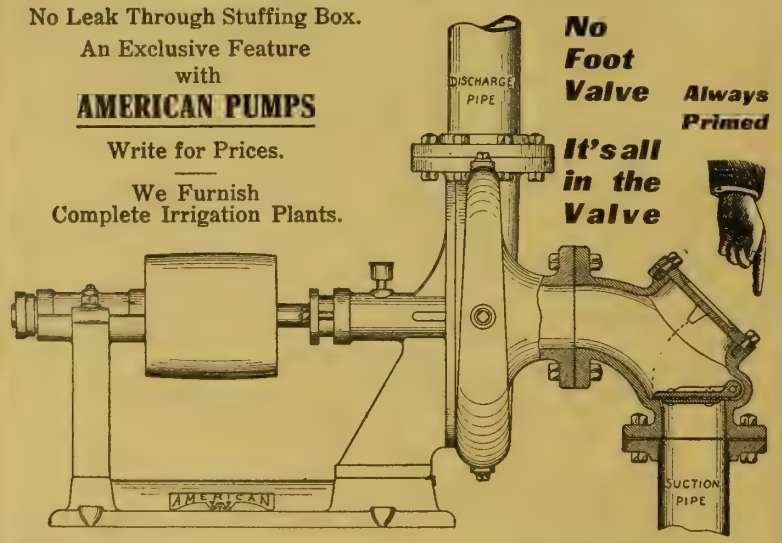

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5000 Eureka Lemon Trees

A June Special

These 5000 splendid 2-year-old trees are practically the last of our 40,000 stock for this season, and are splendid, clean, large trees, 1 inch and up, grown in our nurseries from especially selected buds.

Your Big Opportunity ——— Write Us Today

McMILLAN-GRAFFEN NURSERIES, Spadra, Cal.

Advertisements in California Cultivator are Guaranteed
See Announcement at Head of Editorial Page

Citrus and Tropical Fruits

THE OLIVE INDUSTRY

FROM the thesis of Mr. A. L. Chaffin, of the University of California, class of 1915, written at the time of securing his degree, we make short quotations showing his estimates of costs, and hopes for the future of the olive industry in California. At this moment the olive grower is hoping that the next year's market will be vastly superior to last year's, which left most growers with the red ink on the ledger altogether too prominent. However, Mr. Chafin is most hopeful.

* * *

The total acreage of bearing orchards in the state is about 15,806, yielding about 27,500 tons of fruit. Olive growers claim that a yield of from one and a half to two tons per acre is a very good average. Also circular No. 121 of the agricultural experiment station of the University of California gives one and one-half tons yield per acre as a reasonable estimate. Olive packers state that about 40 per cent of the fruit produced in 1914 was made into pickles and that the total production was estimated at about 27,500 tons. Nearly half of the pickles are consumed in California. Then if we can educate the other people in the United States to consume as many in proportion as do the people of California there will be a demand for over 120,000 tons of ripe olives yearly in the United States 20 years hence. If the prices go down the consumption will increase, so it does not seem probable that the olive producer will have trouble in finding a market.

The producer has an opportunity to build up a large demand for olives in Canada, for Canada cannot grow olives, and the industry has made but a feeble start in Australia. There seems to be no reason why California cannot produce olives as cheaply as Australia for labor is as scarce and wages as high there as here. Many other new industries are being built up in Australia which are more promising than the olive and this industry is receiving but little attention.

Cost of Production

It has been estimated that, exclusive of fertilization, the care of a bearing orchard, in which is included plowing, cultivating, harrowing, irrigating, slight pruning, etc., would cost from $35 to $40 per acre. Fertilizing should be considered an added investment. The amount spent would depend of course on what one thinks the orchard will show in return. This would probably vary from $10 to $50 per acre, depending upon the soil. It must be remembered that olives for pickling must be of large size, the larger the higher prices they bring. The olives are graded at the packing house, the large ones used for pickles, while the small ones are crushed for oil and only bring $40 to $50 per ton. One can readily see that it does not pay to grow olives unless they are of a variety and size suitable for pickling, and this is why it is necessary to irrigate, prune, fertilize, etc.

Cost of caring for an orchard, $40.00 per acre.

Cost of harvesting 1½ tons of fruit, $30.00 per acre.

Cost of fertilizing, $25.00 per acre.

Totat cost, $95.00 per acre.

After making a study of the olive industry of the world everything seems to be in favor of a promising industry. European countries can produce oil and green pickles more cheaply than can we, but in the production of ripe olives for pickles we seem to have the advantage. Although Europe produces such enormous quantities yet the home demand for olives under normal conditions is almost as great as in America, and these countries do not have much trouble in marketing their first class products. European countries produce inferior olives on a whole to those produced in California, and it is a question whether they can produce a grade of pickles that will sell in American markets and compete with California products. At the present time they do not seem to be able to compete. However, we must always keep in mind that there is a possibility of foreign competition in pickled olives the same as in oil, so we should try to produce more and better olives per acre than Europe and put up a product of such high quality that it will bring the best prices. The demand for pickled olives is almost sure to increase as fast as the production in the United States, and it seems that the olive business has the brightest future of any agricultural industry in the state.

Some Things the Grower Should Bear in Mind

A word of caution to the grower and prospective planter of olives. If one intends to plant olives, first study the climatic conditions, i. e., early autumn frosts, dry, hot wind when the fruit is ripening. Be sure the climate is warm enough to ripen the olives at the proper season. Study the soil conditions. Is it deep, fertile, well drained, and does it contain sufficient lime and potash? Is irrigation water obtainable? If not, but few olives of pickling sizes can be produced.

Still another point the present grower and prospective planter should remember, that is the consumption of olives must increase with the increased production. In order to bring this about the producer must build up his market. This is a big problem in itself, but by cooperation among the growers, setting aside a certain sum yearly for advertising and teaching the Eastern people to eat ripe, pickled olives, the growers can build up a great market. Outside of California perhaps less than one per cent of the people in the United States have ever tasted a ripe pickled olive. Let every grower remember it is to his individual interest to aid in educating the people to consume ripe pickled olives. The producer is not only helping to build up a great industry in California and improve his own interests, but he is also teaching the people to use a delicious fruit which is easily digested, rich in oil and altogether healthful.

MAKING LIME-SULPHUR CONCENTRATE

Investigations for the purpose of encouraging orchardists in the preparation of lime-sulphur concentrates for their own use or in the neighborhood have led to the wide use of this spray material, says the United States Department of Agriculture Bulletin No. 197, "Home-made Lime-Sulphur Concentrate." It is of relatively little importance, except for economy in storage space, how dense or heavy a concentrated solution is made, because it can be readily diluted in conformity with the purpose for which it is to be used. To do this a Baume hydrometer is used, the stem of which has a graduated scale. When the hydrometer is introduced into the concentrated lime-sulphur it sinks to varying depths according to the density of the liquid. In the experiments conducted it was found the Baume hydrometer should register 33 to 34 degrees in the highly concentrated solution, as later here described. A great variation in density, from 25 to 31 degrees, of the ordinary home-made product was recorded in the experiments, where the usual 50-100-50 formula was used. The amount of sediment left from the lime and sulphur varied widely, 35 to 50 per cent.

Making on Small Scale

One of the home-made cooking plants used in the experiments consisted of a twelve-horsepower boiler from which steam was conducted into two fifty-gallon barrels. No coils were used in the bottoms of the barrels, the steam being emitted through the open end of a straight pipe extending with-

in a few inches of the bottom of the barrel. Small batches of the 50-100-50 formula, amounting to 25 gallons of the finished product, were cooked at a time. About 20 gallons of water were put into the barrel, the steam turned on and the water brought to the boiling point. The lime was then put in and after it had begun to slake the sulphur was added. The mixture was stirred thoroughly throughout the time of cooking, which lasted an hour. It was allowed to settle about 12 hours and then the clear solution was siphoned off. The sludge or sediment was put into a cider press and the clear solution pressed out, using ten-ounce canvas cloth for filter. In these experiments commercial ground sulphur and a good grade of lime was used.

The 50-100-50 formula, meaning 50 pounds of lime, 100 pounds of sulphur and water to make 50 gallons of the concentrated solution, has generally been recommended for the preparation of home-boiled concentrated lime-sulphur solution. A good grade of fresh limestone, containing not less than 90 per cent calcium oxide, is necessary for the best results. Hydrated lime is sometimes used, but it is necessary to obtain a good grade and at least 20 per cent more of this form of lime, as it contains a high percentage of moisture.

Highly Concentrated Solution

A highly concentrated solution may be made by using the lime and sulphur at the ratio of one to two, but with reduced quantities of water. The formula used in some of the commercial lime-sulphur manufacturing plants is 80 pounds of fresh stone-lime, 160 pounds of commercial ground sulphur and water to make 50 gallons of the finished product. Solutions prepared by this formula should test on an average 33 to 34 degrees Baume, as explained above, and there is about 50 per cent in volume of sludge after allowing the solution to settle for 24 hours. There is only about five per cent to ten per cent in volume of insoluble materials.

Commercial ground sulphur may be purchased in carlots for about $1.50 per 100 pounds, and lime at about 60 cents per barrel, making the cost of the highly concentrated solution, estimating labor and fuel at 70 cents, about $3.30 per barrel of 50 gallons. This does not include wear on outfit and cost of containers for storing.

At the prices of the ingredients mentioned above, the high test concentrate would cost about 98 cents more per barrel than the low test concentrate made by the 50-100-50 formula.

IRON AND ALUMINUM PHOSPHATES

Written for the California Cultivator
By Gordon Surr

Iron and aluminum phosphates have long been generally regarded as relatively insoluble and the following, therefore, will doubtless be news to many. The paragraphs quoted are from the report of the director, Dr. H. L. Russell of the Wisconsin agricultural experiment station, published in June, 1914:

"Mr. Truog of the soils department has continued his studies on the availability of different phosphates for some of the most important agricultural crops. In his experiments ten different kinds of plants were grown under green house conditions with the sole source of phosphorus as acid phosphate, rock phosphate, precipitated calcium phosphate, aluminum phosphate, iron phosphate (both ferric and ferrous forms), magnesium phosphate or manganese phosphate. These plants showed striking differences in their ability to secure and use phosphorus from these various sources.

"Contrary to the general belief that aluminum and iron phosphates are relatively unavailable to plants, nine of the ten plants tested made better growth on aluminum phosphate than on calcium phosphate, and six better growth on iron (ferric) phosphate.

"Although various chemical solvents have long been employed in an attempt to measure the availability of phosphate fertilizers, the wide differences in the power of individual species to utilize phosphorus in various forms show the inadequacy of chemical solvents in measuring the availability of different phosphates."

In the light of increasing knowledge many ideas formerly held must be discarded, and all engaged directly or indirectly in agricultural pursuits should realize the utmost importance of keeping their minds, so to speak, open, instead of firmly clinging to notions as baseless as the fabric of a vision.

INDEPENDENTS ORGANIZING.

Dr. J. W. Hunter Emery, chairman of the recent meeting of orange growers at Porterville at which time a movement was started to organize all the growers into a cooperative selling organization, has announced the appointment of the following committee who will explain the proposed plan to their neighbors; Dr. S. A. Barber, C. E. Perkins, C. E. Lewis, Burt Cole and Wm. Shry. Dr. Emery is ex-officio member of the committee.

In discussing the matter this morning Dr. Emery said that the proposed plan had been explained to several orange growers and not a single one had objected to it. Instead all the reports so far have been quite favorable.

It is worthy of note that a movement similar to the one here is now under way in Southern California.—Visalia Delta.

USE OF WATER.

"Use of Water in Irrigation," by Samuel Fortier, Chief of Irrigation Investigations, United States department of agriculture, published by McGraw-Hill Book Company, New York, at $2.00.

"It is well to recognize at the outset that irrigation is a many-sided subject. The heavy drafts which it makes on scanty water supplies and the close relationship which it bears to other uses of water call for wise legislation and efficient control on the part of state governments in the granting and protection of water rights and the equitable distribution of water supplies. These comprise the legal and administrative features of irrigation. Again, enormous quantities of water have to be annually stored in the mountains, pumped from wells, diverted from torrential streams, conveyed around hills and across valleys and finally delivered to farmers. The accomplishment of so great a task calls for high ability and broad experience on the part of engineers in designing and constructing the needed works, and these constitute the engineering side of irrigation. Then there is the agricultural side of irrigation which transcends all others in importance in that it deals with the production of profitable crops. All other phases of irrigation are but means to an end."

The above is from the first paragraph of the preface. The book has 266 pages, six chapters touching upon the irrigated farm, necessary equipment and structures, methods of preparing land and applying water, waste, measurement, delivery and duty of water and the irrigation of staple crops. It is an excellent addition to an irrigator's library.

A BOTHERED ECONOMIST.

"Are you worried about the cotton crop?"

"Not just at this minute," answered Colonel Stillwell. "With prohibition assured and spring lamb too dear for me to eat it, the overproduction of mint is giving me all the worry I can attend to."—Washington Star.

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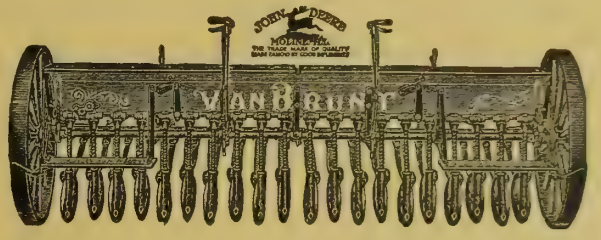

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BUDDING FRUIT TREES.

THE most important reason for which budding and grafting are practiced is perhaps the fact that most of our fruits do not come true to type from seed, and will not grow readily from cuttings. Also many trees have poor root systems and are not adapted to the existing soil and climatic conditions. This can sometimes be remedied by grafting onto other stock which is of more hardy character. For example plum trees on peach roots grow better in sandy soil than when on plum roots, and the peach does better in heavy soil when growing on plum roots.

Budding is the operation of removing a bud from one plant and placing it upon another in such a manner that it will continue to grow. No amount of skill will make it grow unless the two plants are more or less closely related. The stone fruits: peach, plum, cherry, and apricot, may be successfully budded upon each other. This is also true of the pome fruits: apple, pear and quince, or any other similar group of plants. A stone fruit cannot be successfully budded upon a pome fruit, or a pome fruit upon a stone fruit. An apple bud on apple stock is more apt to grow than if placed on either pear or quince stock, and the corresponding relation holds true with all other groups of plants. The more closely related the plants, the more successful will be the operation.

The operation can be performed in either the spring or late summer. If one desires to bud in the spring the twigs from which the buds are to be taken should be cut in early winter and stored in moist sand in a cool place until growth has started in the trees. They should be of good healthy growth and from one-fourth to one-half of an inch in diameter. The tree is in proper condition for spring budding as soon as the buds have started growth and the bark slips readily.

Summer budding is performed only after the new buds and branches have become well developed. Only those buds near the base of the shoot, which have formed in the early part of the season, and which are more fully matured are used. At the station the best results from fall budding have obtained from August 1 to August 15. Buds set at this time may grow several inches before cold weather. A few buds of many that were set on August 5, 1910 on pear stock made a growth from four to eight inches, that same season.

For spring work buds which have formed the preceding summer, and for fall work buds which have formed earlier in the same growing season, should be used. They will also grow best when placed upon the corresponding season's growth, although they may be placed upon older wood. If an old tree is to be budded it should be heavily pruned in the winter. The following spring a number of new growths will start from the trunk and branches. Of these the desirable ones can be budded that fall, or can with most plants be left until the following spring. Spring budding can be practiced on the apple and trees of similar character which do not bear fruit buds on the current season's growth. In the stone fruits, however, fruit buds are borne on the current growth, that is fruit buds form in the fall on the wood which formed in the summer months. For this reason budding on fruits of this character is always better in the fall.

A sharp thin-bladed knife of good metal should be used. Special knives with a curved cutting edge at the end can be obtained from the seedmen or supply houses. In seedlings the bud should be placed about six inches from the surface to remove it somewhat from the excessive heat near the surface caused by the reflection of the sun's rays. It is often set on the north side of the tree as this side is least exposed to the sunlight and drying. The wound to receive the bud is made by two incisions in the form of a T. The first cut is made with the grain of the wood, about 1½ inches in length. The second one is made across the grain of the wood at the top of the first one with a rocking motion of the knife. The corners of the bark are then loosened with the blade of the knife and the stock is ready for the bud. The bud is cut from the twig with a shield-shaped piece of bark about an inch in length and one-fourth of an inch in width. Hold the twig with the base from you and starting about half an inch below the bud cut towards you. The cut will be from one-sixteenth to one-eighth of an inch at its deepest point, which is directly beneath the bud. A portion of the wood is removed with the bud. Now insert the bud, pushing it well down into the cut. No portion of the piece to which the bud is attached should be left projecting beyond the cleft, and the lips of the bark should fit snugly around the bud itself. Buds always occur just above a leaf. If, however, the leaf is cut off with the knife, leaving a portion of the leaf stalk, the stub will serve as a handle to the bud and aid materially in placing it. Be sure that the bud points up as it may not grow if not placed correctly.

The bud should now be wrapped firmly in place. No wax is needed. A piece of raffia about 12 inches in length is the best material for wrapping. This protects the bud as well as holds it firmly in place. Do not wrap over the bud itself but above and below it. If raffia is not available, any soft cord or cloth may be used. In from two to three weeks the bud should have united and the tying material should then be removed as if left longer it will constrict the stem and perhaps strangle the bud. If the operation has been successful the branch should be cut off half an inch or so above the bud to force the growth to the bud.

On large trees budding is seldom practiced for commercial purposes. Such short lived and early bearing trees as the peach are generally replaced if undesirable. Trees on which top-working is advantageous are as a rule grafted instead of budded.—E. H. Divelbiss, New Mexico College of Agriculture.

TREES IN COLD STORAGE.

At Chico there is maintained what is known as the United States Plant Introduction Gardens. A part of the work of this institution is to send trees to Eastern points for planting. Cold storage is a necessity in this connection for the reason that the natural growth must be retarded until the earth in the colder Eastern climate is ready to receive the trees. It has been found that a temperature of about 35 degrees is best maintained to keep the growth dormant. It is stated that about 50,000 trees and other kinds of plant growth have been shipped this season and that a much larger quantity is expected to be put out next season.—Cold of Calcium, New York.

POTASH PRODUCTION

(Continued from Page 675)

ients which are an absolute necessity to the needs of man and which otherwise we could only obtain by concentrating vast amounts of sea water which would be entirely unprofitable.

The giant kelp of the Pacific Coast does naturally absorb and store within its cells from the sea water the minute traces of the salts we have already named.

Nature, so certain and prolific in its chemical laboratory, provides so for the needs of men that, instead of having to evaporate millions of tons of water to obtain those chemical prod-

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ucts, she does the work for us by storing in these plants in a concentrated form what can, when they are gathered, be economically recovered by simple and perfect processes. It is astonishing that up to the present moment these valuable products, which nature has so prolifically accumulated for us, have not been more fully exploited.

While nature has been so prolific it must be understood that many technical difficulties have had to be overcome before arriving at the present satisfactory stage of the industry. One of these difficulties arises from the fact that large and bulky amounts of kelp have to be handled. This is on account of its high content of water (85 per cent) which has to be disposed of.

Many devices have been tried for drying kelp, but all of these have been failures, because the potash salts, whenever it reaches a certain stage of dryness, effloresces in a nearly chemically pure condition, and, when handled, between 30 and 40 per cent of these salts is lost. Therefore the drying has to be done in a special manner artifically and this part of the process is of utmost importance.

An average chemical analysis of the giant kelp of the Pacific Coast is interesting and is as follows: Potassium chloride, 3.8885 per cent; potassium sulphate, 0.504 per cent; iodine, 0.280 per cent; other salts, 1.344 per cent.

* * *

Summarizing his findings, Mr. Armstrong concludes:

Kelp has been used in foreign countries for over 200 years for the production of iodine and other materials.

Kelp has been used for fertilizing purposes in England and Scotland many years and is now more than ever extensively used.

Scotland uses today 200,000 tons of kelp annually with good profit.

Japan employs over 600,000 people in the kelp industry.

China consumes about $600,000 of gelatinous substances derived from kelp every year.

The kelp on the Pacific Coast contains five times as much potash as the kelp on the Atlantic and three times as much as the Scottish kelp.

Practically all the potash used in the United States is imported from German mines.

This amounts to about 6,000 tons daily or over 2,000,000 tons per year.

The kelp groves of the Pacific Coast of the United States and Mexico can furnish over 6,000,000 tons of potash per year, which is three times the amount now used and therefore sufficient even for exportation.

The kelp supply is inexhaustible on account of being regenerative, which is not the case with the mines and quarries.

The market for potash is unlimited, not only in the United States, but also in South American states, especially Argentine.

It is impossible at the present time to import potash from foreign countries.

All difficulties in manufacturing potash and potash fertilizer from kelp on a commercial scale have been overcome.

There is a supply of kelp amounting to 270,000 tons and equal to 26,000 tons of potash with a value of $2,500,000 per year in the vicinity of Los Angeles alone.

The question of using kelp as a source of potash is considered one of national importance.

This new industry should be fostered and in every respect supported and protected. Both farmers and industries would then be greatly benefited.

By careful cutting of the plants two crops can be gathered each year, thus doubling the annual output of all products.

The iodine, algin and other by-products recoverable simultaneously with the potash, ammonia and phosphate salts form revenue producers of no small moment; the returns from the first two items more than meeting the entire cost of operation.

There is a ready and profitable market for every pound of fertilizer material produced, and a fair market for all by-products.

A water freight rate to all markets is obtainable.

The operation of a plant by means of the new process now introduced should prove a most profitable investment.

The entire operation involved is of the simplest nature possible to a manufacturer who understands the business scientifically, the degree of risk from loss being nil, while the margin of profit is great.

In conclusion, the necessity of giving this industry every protection and encouragement is shown by the following facts:

There is practically no potash upon the market and neither is there likely to be any for a considerable time, very small parcels have changed hands from time to time at prices 150 per cent and more higher than the pre-war level.

The "American Fertilizer" says, on April 17, 1915, in comparing prices now and before the war: "Kainite is reported at $24.34 against $7.00 in July, 1914; 90 per cent sulphate of potash $114.37 against $48.67 in July, 1914, 80 per cent muriate of potash $109.51 against $145.02 in July, 1914. These figures are ex-ship."

And again the "Chemical Trade Journal" says: "The recent imposition of a veto on the export trade, combined with a scarcity of rolling stock in the inland market, has produced chaos in the industry, as the turnover of the syndicate, which in December, 1914, had again risen so far as to reach the level of the deliveries in the corresponding month of 1913, amounted to the value of only $6,500,000 in January and February as contrasted with $11,750,000 in the equivalent months in 1914. A statement to this effect has just been made by the syndicate which at the same time announces that the cost of production has experienced an exceptional increase and many times it is able to effect delivery only at a large loss. It is added that the syndicate has not yet received any reply to the request addressed to the federal council asking permission to raise the inland prices of potash."

The United States faces in the present demoralization of its potash supplies a larger economic problem than in general is realized. Most persons know that our fertilizer, powder, glass and other industries are much embarrassed by the failure of getting potash for which they have long relied on Germany. There is no relief that we can see after studying the question very thoroughly (except to a very small extent) unless we produce potash from the storehouse of kelp, and the time when we should not be dependent on a foreign country for this increasing important product has arrived, for in reality kelp is a huge raw material supply for the potash of the world, and we should give it every attention because potash is a necessity almost as vital to mankind as wheat.

We talk of the "world a market for the American farmer," but can this be the case we ask without potash?

"The great and enduring lesson of beauty"—that is the most important achievement of the Panama-Pacific International Exposition, and it will result in vast improvement of the cities and towns of California. So declares Professor Eugene Neuhausy. He predicts that the exposition will be far-reaching in its demonstration of the "actual commercial value of artistic assets." He declares the exposition really a city-planning exposition of the first order, and urges application of the great principles displayed there, in the development of every city and town in California.

Extra precautions are being taken by the United States government to prohibit the importation of any cotton, cotton seed or lint which may be contaminated with the dreaded pink boll worm. Fumigation of cotton with hydrocyanic acid gas at the port of entry will probably be required.

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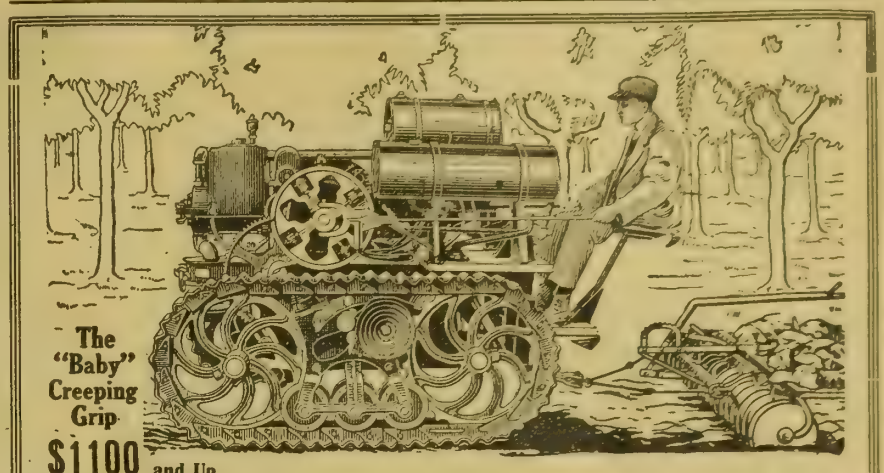

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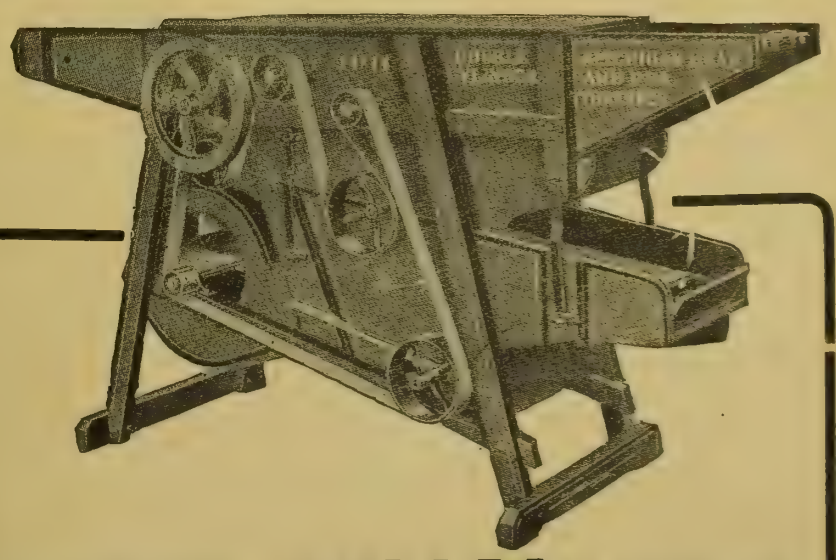

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Small Fruits Vegetables

PRINCIPLES OF FERTILIZATION OF VEGETABLES

By L. L. Van Slyke

IN the growing of vegetables or any other crops, the use of fertilizers is not the whole thing. This fact needs to be emphasized at the start, so that it may be kept constantly in mind, even if nothing else is. The belief has been, and still is, too common that the supply of plantfood is the chief or only thing to be considered in the successful growing of vegetables, as well as many other crops. This misleading thought permeates agricultural literature, as is evident from the view so constantly expressed that soil fertility and abundance of plantfood mean the same thing. They do not. Plantfood is only one element of soil fertility and of the successful growth of crops, though, perhaps, we are justified in regarding it often as the most important one, if we can properly say that any one condition of successful crop growth is more important than any other.

The power of any plant to make use of its food to the fullest advantage is influenced by several conditions, a full discussion of which would involve a study of soil fertility, plant nutrition and methods of crop management, furnishing material enough for an encyclopedia, but too much for a brief address.

Now, the use of fertilizers is effective or ineffective in promoting crop growth according to whether certain other conditions are present or not; and, as preliminary to our discussion of the special subject before us, let us briefly state in outline the fundamental conditions that are essential to the most efficient utilization of plantfoods.

First, good seed, referring to variety, vigor or vitality, freedom from presence of other seeds and freedom from disease.

Second, sunshine to furnish warmth and light.

Third, adaptation of crops and varieties to special conditions of soil and climates.

Fourth, sufficient water supply, properly distributed, whether by rain or irrigation.

Fifth, suitable physicial structure of soil, making conditions favorable for the growth of plants, brought about, according to special circumstances, by underdrainage, thorough tillage of proper character and at suitable times, proper rotation of crops, periodical incorporation of organic matter, maintaining supply of calcium carbonate in soil.

Sixth, the presence of beneficial micro-organisms in soil and conditions favorable to their growth, secured when necessary by means of inoculation through treatment with farm manure, use of soil, or special preparation, according to particular circumstances.

Seventh, absence of substances poisonous to plants, including acid compounds.

Assuming that these conditions are satisfactorily adjusted, then crops are able to make efficient use of the plantfood that is within reach of the feeding rootlets. Conditions that are unfavorable in any one respect may easily make it impossible for a crop to utilize the plantfood that lies right at hand ready for use, whether that plantfood occurs naturally in the soil or has been applied in the form of fertilizers. We can see, therefore, that, from a practical point of view, all other conditions are preparatory, and in a sense subordinate, to the one final purpose of enabling the crop to obtain and use its food. When climatic and structural soil conditions are suitable for promoting crop growth, then the primary problem of crop production is crop feeding.

Without going further into detail regarding these preliminary considerations, and assuming that those conditions are present which enable plants to use plantfood efficiently, we will take up our special subject.

Quality, Quantity and Earliness

In the growing of vegetables, two factors are, or should be, kept in mind; quality and quantity. In the case of many crops a third factor may become predominant and that is earliness.

We understand readily enough what is meant by quantity and by earliness, but it may be well to stop a moment to discuss just what we mean by quality in vegetables. The word is used to cover a variety of characteristics which affect, and often determine, the marketable value of a product. These special characteristics are entirely different in different kinds of vegetables. We mention as chief among the important qualities of vegetables the following: Flavor, texture, form, size, color, shipping, and keeping quality. I presume others may suggest themselves to you. As I shall point out later, these qualities may be influenced more or less by the proper use of fertilizers. But first, let us take up these different qualities for a closer consideration.

The one chief edible quality which all vegetables must possess in common is that they be palatable or agreeable to taste and appetizing. Flavor and texture enter largely into the matter of palatability, while all the qualities mentioned above may influence the appetizing property. Often a good test of the high quality of some vegetables is the ability to make one's mouth water at sight or smell, though we must confess that in some cases such a test may be very misleading.

Under flavor we would place taste and smell or a combination of these. The fundamental kinds of taste in vegetables are sweet, sour and bitter. Sweetness as a desirable quality should be prominent in sweet corn, peas, melons, squashes, pumpkins, beets, turnips, etc. It is a desirable quality, though less pronounced, in asparagus, celery, parsnips, carrots, potatoes, etc. We look for acidity in rhubarb, tomatoes, etc. In plants used for salads and greens, a suggestion of bitterness is usually desired. For flavor as shown by the combined senses of taste and smell, we have as pronounced representatives onions, horseradish, cabbage, turnips, cauliflower, Brussels sprouts, celery, etc., in most of which the characteristic flavors are due to the presence of certain sulphur compounds. The next edible quality of importance in most vegetables is what we call texture, which is dependent on tenderness, succulence and crispness, a quality of such obvious fundamental value that we do not need to dwell on it.

Regarding form, size and color in vegetables, these are qualities that appeal to the eye but are of no less marketable value than the edible qualities, provided that the latter are not sacrificed to the former. The notions and whims of consumers are numberless regarding these points and may be well or ill founded. But to discuss these details further would lead us too far from the main purpose of this paper. In regard to shipping and keeping quality we will speak later.

Before dropping this part of our discussion, we must touch briefly upon some of those qualities that are undesirable. We have overdeveloped flavor, as in the case of excessive pungency in some onions, or the strong disagreeable flavor of some celery, unpleasant bitterness in lettuce, over-acidity in tomatoes, entire absence of sweetness in peas, corn, beets, turnips, etc. Then we may have undesirable texture as illustrated in the coarse, tough, fibrous character in case of beets, celery, radishes, lettuce, asparagus, corn, etc.

Generally speaking, the ideal qual-

(Continued on Page 695)

Panama-Pacific Exposition Night Illumination. View from Main Entrance. The Jewel City is Wonderfully Beautiful at Night.

VISITING THE EXPOSITION

WITH expensive service and a 50-cent admission fee one is inclined to feel that every moment must count when at the exposition, and at first entrance, with the wonderful array of buildings, exhibits and even the freak features on the Zone, one may become bewildered. A quiet look over the entire exposition followed by a bit of thinking will help to start one right and secure more for the money than can be secured by merely rushing from one building to another.

For the agriculturist or for any of us perhaps the first day may be given to a general view of the exposition, walking from one end of the grounds to the other and back again and getting a general idea of the location of the various buildings. Then settle down to study the particular feature in which you have greatest interest. If the interest centers in fruit growing then visit the Palace of Horticulture and don't forget the view across the gardens at its side. Nor are all the horticultural exhibits in the Horticultural Building, for in agriculture, especially in the exhibits made by the United States department of agriculture, there is much to see. The agricultural and horticultural palaces are but a short distance apart, with Education lying between. We do not suppose there is a building or a palace on the grounds which does not contain something to engage and hold the attention of the farmer. For instance, notice the advertisements on this page. Everyone of the firms represented has an exhibit on the grounds. It will be noted that many of these exhibits are in the Palace of Machinery, which is the world's greatest building. It covers nine acres and is one of the most prominent buildings as one enters. Some of our advertisers give explicitly the number of the aisle and where to find their exhibits. Look them up.

More particularly, make yourself known to the attendants. For instance, referring again to the Agricultural Palace the editor of the Cultivator was looking through the wonderfully interesting exhibits of apples in the glass cases in the Palace of Agriculture and finding a number of points upon which he wished information he went at once to the attendant in charge. The work in hand was immediately dropped and every point regarding which information was desired was fully explained. More, it was done in a way which showed a desire to serve, and the exhibit was left with the feeling that a new friend had been found.

In asking regarding exhibits there need be no fear of being importuned to make purchases. It is against the rules of the management to permit soliciting in any way. It is simply a great educational exposition. Make the most of it.

When your valise is packed tear out this page of the Cultivator and put with your guide book so as to secure information regarding where to find the exhibits which are of real value to the farmer.

It will be noted that in the Palace of Machinery the Western Gas Engine people, the Krogh Manufacturing Company, the American Well Works of Aurora, the Luitweiler Pumping Company and the Layne and Bowler Corporation may be found, while in the Palace of Agriculture is the Holt caterpillar and the Arthur F. Steiner milking machine. In the Palace of Horticulture the Bean Spray Pump Company, recently burned out, is making a magnificent exhibit. The California Corrugated Culvert Company is making its exhibit in the mines and Metallurgy Building, while the Redwood Manufacturing Company has an exhibit well worth going to see down near the Dairy Building. It speaks for itself as soon as you get near the live stock exhibits.

COMING EVENTS

Friday the 18th is Oregon's day at the exposition. The remainder of this week and the early part of next week will be given over to Greek plays. Sunday the 20th is Epworth League Day, also Elks' Day. Others observing this day are the International Rotary Club, American Historical Association and Pittsburg. The 22nd is Cleveland Day. The Suckers have entire possession on the 24th, which is Illinois Day, also Utah and Cincinnati Day. Fri-

(Continued on Page 695)

THE BEAN IS THE BEST

Exhibit and Demonstration of

Power Sprayers Gas Engines Centrifugal Pumps

in operation

Palace of Horticulture

Abjoining Cuban Gardens, which are under the Big Glass Dome.

Bean Spray Pump Co.
San Jose, Cal.

1915

Layne & Bowler
Pump Exhibit

in the Palace of Machinery. Every prospective pump user should see this exhibit. All styles in actual operation.

Write for Catalog No 30

Layne & Bowler Corp.
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Milking Machines

Foot power and Electric Power. See our exhibit in block 1, Palace of Agriculture. P. P. I. E.

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Luitwieler Pump

Be sure and see the famous Luitwieler non-pulsating pumping system at the fairs. Write for free pumping booklets.

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Many Types of
IRRIGATION GATES
Made from Rust Resisting
ARMCO IRON
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SEE OUR SILOS AT THE EXPOSITION

Two of our famous

Remco Redwood Silos

are located on the main road leading to the Stock Exhibit, on the east side of the Dairy Building.

Our representative is always on hand and will take pleasure in explaining the many advantages which these silos have, and also profitable silo operation in general.

See our big tank and pipe exhibit in Machinery Hall, where REMCO wood stave pipe and REMCO tanks are operating under actual conditions.

REDWOOD MANUFACTURERS COMPANY, Hobart Bldg., San Francisco

The California Hydraulic Engineering & Supply Co.
Representing
The American Well Works of Aurora, Ill.

Invite You to Inspect the Splendid Exhibit of

IRRIGATION PUMPS
MACHINERY PALACE P. P. I. E.
When in San Francisco Call at Our Office and Display Room
70 Fremont Street
We Will Furnish You FREE ESTIMATES

Deep Well Turbine Pumps
and All Other Types in Operation
SEE THEM AT EXHIBIT OF
Krogh Manufacturing CO.
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Reg. U.S. Pat. Off.
TRACTOR

Be sure to see our display of Caterpillar Tractors and Combined Harvesters. All moving parts in action. Housings cut to show interior workings. Attractive rest rooms for visitors.

HOLT
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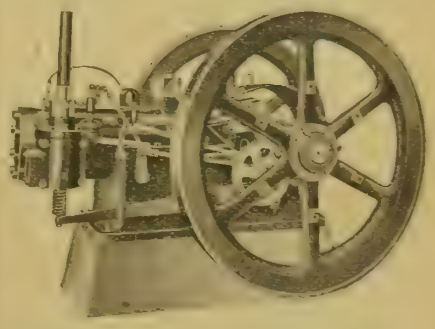
—all of sections 7 and 45, facing main entrance from the water side.
You can't miss it.
The Holt Mfg. Co.
(Incorporated)
HOLT
COMBINED HARVESTER



Western Gas Engine Corporation
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900 No. Main St., Los Angeles, Cal.
The Gold Medal Engine
MORE Power for LESS Money

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Belt or Direct Driven

The opinions of the leading water engineers and experienced irrigators is certainly worth noting if you are intending to buy a pump. They invariably consider the Layne & Bowler Pump by far the best for all kinds of work when rigid pumping requirements must be met. Write for Catalog No. 30. Exhibit at San Francisco Exposition.

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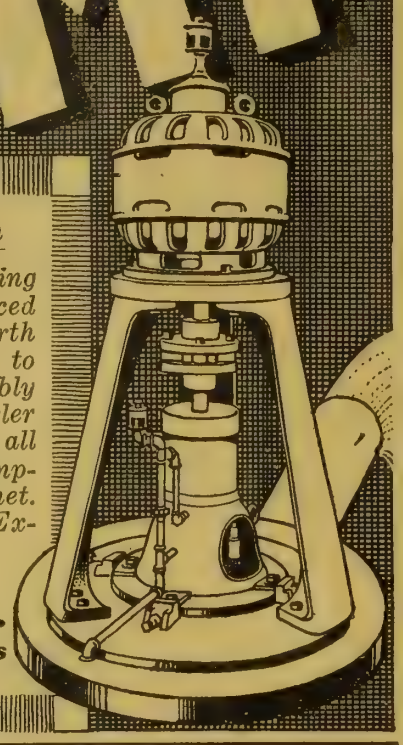
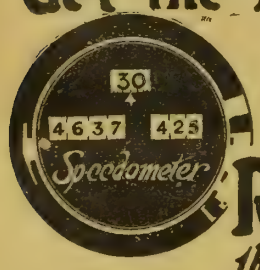


Get the miles you pay for



Mixed gasoline means less kick and less mileage. The heavier vapor, being too "slow," burns without exploding.

Red Crown

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gives you the miles you pay for. It is a straight refinery gasoline—not a mixture. It atomizes easily—explodes quickly, completely.

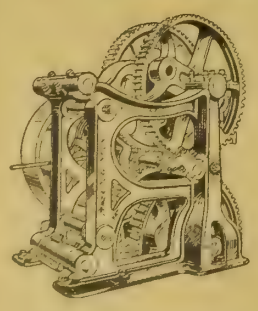
Ask for Red Crown—and get it.

STANDARD OIL COMPANY

(California)

Los Angeles

Pomona Deep Well Pumps



—built and sold in California for over 12 years. Hundreds of buyers will tell you they are always reliable and economical.

For deep lifts, as well as shallow lifts combined with high heads above surface and through long pipe lines. No auxiliary pump needed for forcing water above the surface.

Write for Catalog Number 103 with valuable information on irrigation.

Pomona Mfg. Co., Pomona, Cal.

Los Angeles Office, 930 Investment Bldg., Eighth and Broadway

Prune Dippers

with all the latest improvements, best and cheapest on the market.

Our dipper consists of tank made of No. 14 steel with 1½ inch pipe coil. Basket weights, levers and frame. Furnace front and irons, grate bars, tie rods, 10 ft. 9 in. galv. iron smokestack. Price f. o. b. $60.00

Hopper and Spreader 15.00

30-in. Green Grader, 3 grades, suitable for above 85.00

Large power dipper and grader, capacity 75 tons per day:

24-in. Hand or Power Dry Graders:

3 grade $55.00

4 grade 60.00

5 grade 65.00

Field cars, wood or steel frame 6.00

Transfer cars 8.50

Turn tables 8.50

8-lb. steel rails, 7cts. per foot.

Smith Mfg. Company

200-224-226 The Alameda **San Jose, Cal.**

General Agriculture

CALIFORNIA CORN.

IN the matter of production of corn California is one of the leading states of the Union when considered from the yield per acre. In total acreage, however, we are willing to accept a place near the foot of the line. There are a few who insist on continued corn production, and when we see the results secured we wonder why more do not grow corn in this state. Certainly prices are long. A crop grown in Hemet last year is shown on cover page of this issue. It was grown by Mr. S. C. Miller, who writes:

"I drilled three-fourths of one acre to corn, which had previously been set to apricots in February. The trees had been set 24 feet each way so I drilled five rows of corn between each two rows, leaving a space of about four and one-half feet on each side of the trees.

I planted a corn called the Hickory King and watered and cultivated twice each month. This corn grew to be 14 feet tall and many of the stalks had three well developed ears.

On the fourth of July, 1914 we gathered our first roasting ears and later gathered and sold over 300 dozen ears at 20 and 25 cents per dozen.

The photo which was taken on July 17 shows about one-half the patch in the shock.

Corn can be successfully raised with plenty of water in the Hemet Valley. I have demonstrated that two crops can be raised on the same ground in one year.

For the first crop I would plant as early as the 15th of March, planting in deep furrows made with a single shovel plow. It should be cultivated once a week and irrigated every ten days, especially in the latter part of the season. My second crop was planted on the 25th of July and matured a good yield.

(See Photo on Cover)

CUTWORM CONTROL

Cutworms are the naked, greenish or dusky larvae of a number of species of dusky-winged moths that fly at night for the most part. In the spring of 1914 there was a great number of one species of moth of this group prevalent generally over New Mexico.

The usual life history is as follows: The eggs laid by the moths in late summer hatch into small caterpillars, or "cutworms," which lie concealed just beneath the surface of the ground near tender parts of plants. They feed mostly at night. Later cold weather and lack of food necessitate hibernation in the soil or under rubbish, weed piles, etc. In the spring, feeding is resumed again. The damage is more noticeable at that time for the cutworms are fair sized, hungry, and vegetation is scarce. After a time the caterpillars reach their full size, go into the soil to pupate, and later emerge as moths to lay more eggs for later generations. Alfalfa fields harbor enormous numbers of these cutworms.

Control.

Many moths may be caught at night by placing a light above a tub of water. This will not reduced the number of cutworms much as the females do not fly far before laying the eggs. It will reduce the nuisance of having the moths in such numbers about the house. Water standing six or eight hours on an irrigated field should kill many of the cutworms in the soil. A reliable remedy is the poisoned bait made as follows: Mix one pound of Paris green with 25 pounds of dry bran. Add two or three quarts of molasses to five or six gallons of water and stir the mixture thoroughly into the poisoned bran. Let this stand for several hours before using. In infested fields scatter broadcast, in the evening, pieces of this bait the size of two or three fingers together. In gardens, strew the pieces along the bases of the plants being attacked. In this dry climate the application may have to be repeated to give best results.—D. E. Merrill, Entomologist, New Mexico College of Agriculture.

BEET SUGAR VS. CANE SUGAR

The view is frequently held by housewives that it is impossible to make jelly with beet sugar and that cane sugar is necessary for this purpose. The very general extent of this idea is indicated by the action of at least one of the large mail order houses of the country in appealing to the popular prejudice by advertising that it sells only cane sugar.

That such a view is incorrect is evident from the fact that beet sugar and cane sugar are the same identical substance, known to the chemist as sucrose, one being extracted from the sugar beet, the other from the sugar cane. Any difference between beet and cane sugars would thus, of necessity, be due to the different character of impurities contaminating the sucrose from the two sources. However, properly refined granulated sugar, whether derived from the beet or the cane, is one of the purest substances sold on the market, containing at most not more than one or two tenths of one per cent of impurities. It is thus evident that the obection to the use of beet sugar is due rather to misinformation and prejudice than to any inferiority of the sugar.

In this connection it is of interest to note that practically the whole of the sugar used on the European continent is beet sugar. Certainly Europe has not fallen behind the United States in the quality of the jellies and other confections produced—R. M. Isham, Colorado Agricultural College, Fort Collins.

MEDICINAL PLANTS

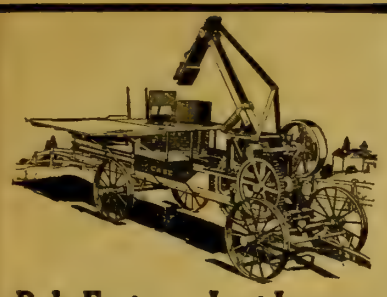
The National Association of Manufacturers of Medical Products is issuing lists of medicinal plants which the association hopes may be produced in this country. Generally, these plants are those which have heretofore been grown in other countries and the raw product shipped to this country for manufacture. It is possible that some of these plants may be produced profitably in this country. Those who may wish to investigate may write to the secretary, C. M. Woodruff, 475 East Grand Boulevard, Detroit.

The department's circular, which gives warning regarding necessity of securing a thorough knowledge of this feature of agriculture, says: "On the other hand, the number of drug plants which may be grown in the United States is large. Many native medicinal plants which are found in their wild state in a few sections have been successfully cultivated in situations far beyond their natural range. In suitable soil and under favorable weather conditions many plants have done well under cultivation in numerous places in the Central and Eastern states and if the difference in climatic conditions is not too great will probably be suitable in other regions: Anise, belladonna, burdock, caraway, catnip, camomile, conium, coriander, digitalis, dill, echinacea, elecampane, fennel, henbane, horehound, pennyroyal, sage, stammonium, tansy, thyme.

The farmers' cooperative creamery is especially valuable for building up a town as well as the surrounding community because it brings heavy deposits to the bank at frequent intervals as well as a check to each patron once a month. This supplies ready cash for the living expenses of the farmer, which in turn makes it possible for the merchants to conduct a cash business.

SOMETIMES HAPPENS.

After a girl gives her hand in marriage she may discover that she put her foot in it.



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Users generally admit that a CASE Baler takes hay faster than they can feed it—and with minimum power. Only 6 to 10 Brake h.p. required to operate. Two Sizes—14 x 18 inches (3½ to 5 tons) and 17 x 22 inches (4 to 6 tons per hour). No other presses are so well made and strong. They outlast the next best by years. Built as carefully as the largest and most expensive CASE Tractors. But their mechanical perfection costs you nothing extra.

CASE
Baling Presses

Simplest to handle. Safest to work with. Can't be choked or jammed. No chance for accident. Operate with 2 less men than others—with CASE Hay Fork attachment.

Case Sweep Power Baler is ideal for home use. 3 men and 2 horses bale up to 2½ tons per hour. Think of that. Start when the hay is ready. Don't wait for the machine crew.

Mail a postcard for new Baling Press Catalog and prices.

J. I. Case Threshing Machine Co., Inc.
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"The Roofing that Covers California"

Pioneer Roofing is sun-proof, rain-proof, warp-proof and heat-proof. It is specified by the leading architects and builders as being THE BEST. It covers the largest buildings at the Panama-Pacific Exposition, as well as thousands of buildings of all sizes and descriptions all over the West. Save money by insisting on "Pioneer."

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for samples and prices
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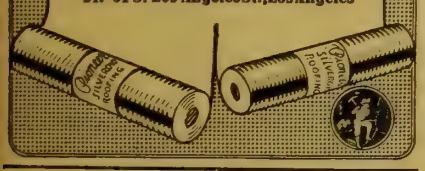
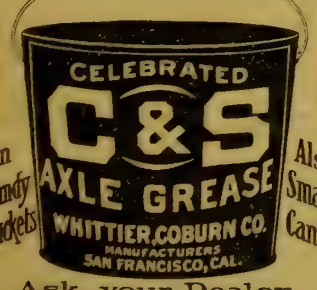


"The Farmers Friend"

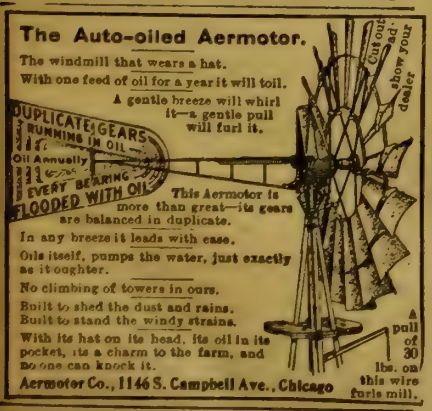


In Handy Buckets
Also Small Cans

Ask your Dealer

The Auto-oiled Aermotor.

The windmill that wears a hat.
With one feed of oil for a year it will toil.
A gentle breeze will whirl it—a gentle pull will furl it.



In any breeze it leads with ease.
No climbing of towers in ours.
Built to shed the dust and rains.
Built to stand the windy strains.
With its hat on its head, its oil in its pocket, its a charm to the farm, and no one can knock it.

Aermotor Co., 1146 S. Campbell Ave., Chicago

Bee Keepers Supplies

We keep a full line of supplies and are prepared to serve beekeepers promptly.

Write for Catalogue C
A. I. ROOT CO,
58 Sutter St. San Francisco

When writing advertisers, mention the Cultivator.

Bees and Their Care

CONTROLLING SWARMING

By C. F. Greening

FIRST, I am working for extracted honey principally as there is less work and far more money in it in the long run. Working for comb honey would be rather more difficult. But I also do some of that.

I store my bees with a super of combs on top for winter, or, if not, I add the super as soon as it becomes warm and let the queen deposit some eggs in it until honey flow begins.

When the flow starts I lift up the super and place another under it full of combs. When that is reasonably filled I again lift the top super, placing another set of combs under it, then examine the top super and see if all the brood has hatched, or nearly so. If it has I remove one frame from the center, go to a hive that has frames of brood in super and simply exchange combs, always keeping some brood unhatched in the top super. As long as there is any space below that super in the hive proper your bees will not swarm. My hives I run as high as my head, eight to ten supers, or if short I extract as required, but always leave or have some unfilled frames below the top super that has brood.

That is my method of non-swarming. I have not had a natural swarm in six years, whereas before that my children and grandchildren have had to watch bees for four months of summer. Now I watch no more, but tell the bees "There's the honey. If any swarming is needed I will attend to that. You go for the honey and keep everlastingly at it." They always mind me.

Now for swarming in May, or up to the honey flow, whenever that occurs. We will say you want to double your colonies and no more. As soon as they are good and strong, and some honey coming in, take an empty hive, fill it with frames of comb, if you have them, or part combs and part guide combs, all but one frame near the middle of the hive. Now go to the best colony you have, and select one good frame of brood in several stages, and put it in the space left in the new hive, putting an empty frame where you removed the brood from.

Now take the hive with the frame of brood to a good strong colony, pick up the colony and carry it away to one side, at least 16 feet, and put the hive with frames and comb of brood in the place where the colony stood. Contract the entrance to a couple of inches and let them alone.

This work must be done when a good number of bees are out in the fields; near the middle of the day is best. In a few minutes you have a thousand bees flying around, and they are completely lost. They will run in and out crazy for a while, but soon get to work with a resolution that, "As we have lost our home and mother we have the wherewith to make a new home and brood to rear a new mother." By the end of the second day they will be working like nailers to build up, while the hive you carried away is as still as a graveyard on a Sunday night. Practically all the field workers are at the old stand in the new hive. Now treat them the same as the first part of this article directs, and you have no swarms that year.

By following this plan you have one swarm each of increase, or none as you elect, not as the bees would do if left alone. Follow the above and save colonies, save watching them, save doubling weak ones, save hives, and what is more important when the honey flow comes in all its beauty, you have every field worker at work. They are not crazy over the swarming fever or losing time strung up waiting for a good day, or building combs when they should be lugging in honey, while honey lasts.

Thus we have the bees all busy while honey comes, whereas if allowed to swarm in the middle of the honey flow, see what a loss you have caused by the demoralization of one, two, three, or four swarms from one, and half of them won't get more than enough to winter on.

My colonies were eight stories high last summer; and while my neighbors got 25 to 50 pounds of honey, I ran up to 150, 200, and one colony 235 pounds. You see it was honey I was after.

Build up strong before the honey flow, get the swarming out of the way, and let every able-bodied bee tote in honey.

By my method pou can build up any kind of swarm you wish or any strain of bees, because you select the brood to rear the queen from. They more readily sober down by taking a frame of brood from the hive you remove and placing it in the new hive, because it is a part of the old home and smells the same. They will never desert their brood.—Exchange.

MOODS OF BEES VARY

By J. D. Fooshe, in Gleanings

I note that the smoke method of introducing queens is not always successful. I have read with interest the many claims for this method. I am not surprised to see that after having been tested a year or more it is not always successful. I have no doubt that veteran beekeepers have tried the same plan oftentimes before but decided that it was not always successful.

Bees are the most erratic little creatures in their temperament of any thing I have ever had to do with. When I worked with bees regularly and reared queens daily and was constantly changing queens or introducing queens that came through the mail I had some notable experiences. In the first place bees are so susceptible to climatic influences which create abnormal conditions inside their hive that they are seldom in the same mood, so to speak. Today you may raise the top of a hive and pull out all the frames and not use a particle of smoke; but tomorrow, look out. There might have been an east wind or a slight sprinkle of rain during the night and the same colony that let you handle them the day before without smoke will hardly let you enter the next day without drastic measures; so oftentimes this condition prevails at the time a queen is to be introduced. If in a normal condition, and honey coming in, almost any of the tried methods of introducing will succeed; but if their temperament has been affected, not so.

I have oftentimes used smoke successfully; but having frequently failed with it I stick to the cage plan.

Virgin queens several days old can often be successfully introduced by any of the common plans, provided conditions are right in the hive. I remember away back into the 70's I received by mail a queen that I prized very highly. I introduced her to a strong colony that I knew positively to be queenless, and in a couple of days I was investigating, and found my queen in a ball of bees. I smoked them and released her and put her back in the cage, and this process of recaging and balling went on for a week, and I deliberately got some chloroform and put them all apparently dead on the bottom-board, and turned the queen loose; and when they awoke from their stupor they seemed to be glad to accept her royalty, and she was soon laying. Any queen that has ever been balled, whether virgin or laying, is harder to introduce than if never antagonized, even though she be changed to another queenless colony.

In all my experience I don't know of anything that is so changeable in physical condition as the bee.

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then why experiment with any other. Lasts a life time.

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GIANT WINTER RHUBARB

Special Prices on Subdivisions for Short Time

Season of 1913-14, from ⅝ of an acre set out in June and July, 1913, I sold $673.70 worth of stems.

Now is the time to plant. Booklet free.

W. A. Lee, Covina, California

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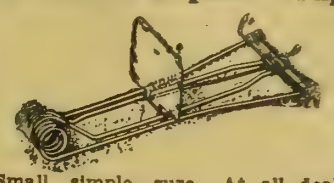

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Tributary to the

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Make your vacation plans beforehand by consulting its pages. Profuse illustration and reliable descriptive text afford an instructive and reliable guide to this inviting VACATIONLAND, lying in Marin, Sonoma, Mendocino, Lake and Humboldt counties. It contains a complete list of Hotels, Town and Rural Homes and Camp Resorts.

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Established 1888. Twenty-seventh Year.

The California Cultivator

Rural Californian Combined with the California Cultivator

A Journal of Horticulture and Agriculture

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Thursday, June 17, 1915

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

NURSERYMEN TO CONVENE

Secretary Tonneson of the Pacific Association of Nurserymen is sending out a call for the 13th annual meeting of the Pacific Coast Association which will be held in San Francisco August 12-13. The executive committee has an interesting program under preparation. A portion of each day will be given to visiting hours at the Panama-Pacific Exposition. The programs and badge books are now being compiled.

MARKETING CANTALOUPES

About the busiest place on earth these days, providing we omit the central part of Europe, is the Imperial Valley. Hundreds, even thousands, of carloads of melons are going to all parts of the East. One hundred cars within the 24 hours was reached about the first of June and the pressure has increased since then. Chicago reports on June 10 receipt of 25 cars in that one day from the Imperial Valley.

The office of markets of the United States department of agriculture is aiding in marketing this immense crop by installing members of its staff at Brawley, and these men are gathering from all the markets of the country the best information as to conditions. In charge of this work for the department is Mr. O. W. Schleussner. Regarding this bureau and its work Mr. Schleussner recently wrote to the Brawley News:

"The work covers not only fruits and vegetables, but all other perishable products, such as dairy products, poultry and meats and farm products, such as hay, grains, cotton, etc. Since its organization the office has been forced to give most of its attention to the staples, especially cotton, but is now in a position to do more work on perishables.

"It has been planned for some time to establish a limited market news service on some of the more perishable products, and this year a start was made with the strawberry crop. Information was gathered with reference to the daily shipments from all of the principal producing points and also as to the market conditions in the large consuming markets. This information was made available by telegram to all those desiring it."

This matter of assisting in the marketing of perishables by securing these returns surely will prove invaluable.

WORKING THE HOG

We do not believe that the 435-foot Tower of Jewels or any other feature of the Panama-Pacific International Exposition has had more attention than an advertising stunt which is scheduled near the live stock end of the grounds. This is a contrivance for feeding hogs, or rather to encourage hogs to feed themselves with grain which they grind themselves. This contrivance has been illustrated in many California papers and we now note it has reached the agricultural papers along the Atlantic Coast. It consists of a metal drum so arranged that the hogs, nosing about for particles of grain, exert a pressure sufficient to revolve it, causing it to grind a number of grains and drop them down within reach of the hogs. This encourages further rooting and more grain. It has often been said that our great packing plants have so utilized their wastes that nothing but the tail and the root at the end of the snout were thrown away. We are now saving both, in other words, making the hogs, to an extent, work their way. It is now suggested that it might be possible to make them also produce enough electricity to light our homes and pump our irrigation water.

MORE LIGHT

We believe the citrus growers have informed themselves as to their own great marketing organization and as to marketing methods in general as never before. Early this season the marketing conditions were extremely unsatisfactory, and without endeavoring to learn as to these unsatisfactory conditions many concluded that the low prices were due to faulty marketing methods, but the majority of the producers, we believe, investigated this question and answered it satisfactorily to themselves. Some are still asking, and we believe by far the greater proportion will answer the question intelligently. Their investigations have generally taken the path of introspection, but a few have looked at the exchange as something apart from the membership. This view is also taken of our national government by many citizens. They look at it as a thing apart from themselves, a great paternal organization ready to do for or care for those who are subject to it. We believe that any such view of government or cooperative organizations is entirely wrong. They are, or should be, a part of ourselves, and are only successful as the individual members are successful in guiding them.

Among those who are looking at the California Fruit Growers' Exchange as an organization apart from themselves is a body of men who are endeavoring to organize "to affiliate for cooperative purposes all growers of citrus fruits in the state of California, north of the Tehachapi mountains.

"The work of this organization shall primarily consist in the securing of detailed information and its classification and permanent record concerning all matters pertaining to the packing and selling of the fruit of its members by the various agencies related to it. And also to handle the system of inspection that is necessary to standardize the product in the matter of maturity, tests, etc."

If any who are within such organizations propose to investigate their own transactions we fail to see the necessity for an outside organization to accomplish it. The way to cooperate is to cooperate and not to create a great number of organizations the weight of whose machinery will break down the whole cooperative effort.

DIVERSIFY

California has been a state of specialists. The great corporations owning Mexican land grants have as a rule turned exclusively to grain, to lima beans, to beef cattle, or some other one product. The orchardist has centered on prunes, Washington navel oranges, Valencias, lemons, raisins, or some other crop adapted to his section. Fortunately, as a state we have diversified. We say "fortunately," for the farmer generally is coming to the conclusion that diversified farming is far safer than specialized farming. Some of the orange growing sections of California were the first to make this determination and today the orange grower is reaching out for other lines which will round out and make less risky his business venture. Cotton growers of the South have refused to take up with diversification and have created the most embarrassing condition for themselves, one which they are unable to fully appreciate. But even in the South diversification is coming.

Some of our most successful orchardists are now combining their orcharding with dairying and hog raising, and the result is greatly enriched soil which means fatter bank accounts. One large orchardist has said: "If I can make my dairy break even with the high prices which I have to pay for hay and feed, nearly all of which is secured from outside the ranch, I consider the profit in the ordinary waste products, the manure, justify me in keeping up the dairy as a adjunct to the orchard." We grant it may not be so pleasing at first sight, but the greater profit, or surety of profit, will at least justify a trial.

In suggesting methods of increasing our feeding capacity the International Harvester Company suggests that instead of organizing more chambers of commerce and boards of trade or organizations which are offering bonuses to secure factories in our communities that we organize chambers of agriculture which shall endeavor to create greater productive power all over our country instead of grabbing business from each other or from other communities. "No country can become richer than its lands. From the soil comes our food and clothing; all other human needs are subordinate to these. Food is the chief material concern of life, its production the most important occupation. In the hard school of experience we are slowly learning the lesson of real business economy, the greatest lesson of all time, that of feeding ourselves. Let us learn that lesson well."

Agricultural Notes

Kentucky hemp is being commercially grown in the San Joqauin Valley of California.

There is a steadily increasing demand in the Philippine Islands for American apples.

Honolulu is now shipping about 50 cases of fresh pineapples weekly to San Francisco and Portland.

Government entomologists are working in the Hawaiian Islands to find a successful means of combating the pink boll worm of cotton.

The Associated Chambers of Commerce of Australia will hold a congress at Brisbane, May, 1916. This year's congress was held at Hobart, Tasmania.

Considerable shipments of Douglas fir railway ties from the Pacific Coast have been made to England. It is stated that one English firm placed an order for 20,000,000 feet.

Olive oil has been included among the products on the embargo list of Italy, but permission to continue shipments to the United States will be granted upon application to the Italian authorities.

Because of the competition of the jitney busses the electric railway, which operates the city and suburban lines in Vancouver and Victoria, has reduced its rates from five cent fares on transfers to three and one-eighth cents or eight tickets for a quarter, without transfers.

Owing to the pronounced rise in price the government of British India has prohibited the exportation of wheat for one year, beginning April 1, 1915. Another order promulgated March 27 restricts during the same period the expotation of wheat flour, shipment being allowed only when a permit from the chief customs officer has been obtained.

The Philippine Agricultural Review refers to the interesting fact that both cane and beets have been made into sugar at the same factory in Arizona. The first crushing of cane was made in the 1913 season at the factory which previously had operated on sugar beets. Many experimental plantings of sugar cane have been made this year in Arizona and California.

Since the war began sales of bananas have been so unsatisfactory in Jamaica that careful experiments have been made in process of making banana flour. Experiments at Kingston have demonstrated that 915 pounds of fruit on the stem will yield flour to a value of $5.60, which is regarded as a good return. The banana meal is being used with wheat flour for bread making. Producers the world over are awake to the necessity of doing all in their power to make themselves independent of buyers and shippers.

Commercial Agent E. G. Babbitt at San Francisco states in United States "Commerce Reports" that several of the largest bakers' supply houses of the United States contemplate erecting factories and drying plants in China to manufacture dried and desicated eggs. One plant has already been established near Hankow and another is to be erected at Shanghai with a branch at Tientsin. It is planned to market the product in one-pound tins, and several grades of eggs will be marketed. Egg imports into the United States during the fiscal year 1914 consisted of $1,089,164 worth of fresh eggs, of which $242,222 came from China and $504,619 of yolks and frozen eggs, of which $53,076 came from China.

Agricultural News Notes of the Pacific Coast

Northern California

Nevada County is increasing its rhubarb industry.

The Gridley Cow Testing Association reports very successful results from testing work.

Late grain was benefited by late rains in the Sacramento Valley and a good crop is assured.

Twenty-five hundred boxes of asparagus are shipped daily from three packing plants in Sacramento.

Late continued rains caused much damage to first crop hay in many districts of the Sacramento Valley.

The new Orland creamery has been receiving so much cream that it has been forced to double its capacity.

A tract of 400 acres north of Marysville is now being put in shape for planting to olives and citrus trees.

The bureau of soils of the United States department of agriculture is at work upon a soil survey of the Russian River Valley.

Pear scab is alarming the growers of the Sacramento Valley. The unusual development of this trouble is ascribed to the cold spring.

Apricots, plums and peaches which usually start moving through Sacramento by the first of June are about ten days later than usual.

Chief Lively, of the department of live stock of the Panama Pacific, has announced the judges for the sheep show to be held in November.

R. P. Cundiff, for 15 years horticultural commissioner of Riverside County, is visiting orange and olive districts of Oroville, Butte County.

Sutter County reports that its cherry crop was very lightly damaged by the rainy weather which so seriously injured the crops in other sections.

Experiments in growing the Sequoia gigantea in Siskiyou County have proved successful. They are being tried out in the Klamath national forest.

There is talk of establishing a cooperative olive packing house at Chico. It is hoped to bring a large number of growers into the enterprise.

The annual cherry carnival of the San Juan Ridge, Nevada County, was held last week. This carnival is usually held in May but owing to the cold spring it came much later this year.

Yuba County claims leadership of the state in cucumber production. Last year 1,000,000 boxes were shipped from the county and indications are that this year's yield will be much larger.

It is announced that the quarantine on live stock shipped into California will be raised on June 30. It is hoped by officials of the live stock department of the Panama Pacific that many animals will be brought in in time for the fall shows.

Many scientists and experts from the United States department of agriculture were in Chico the first of June visiting the plant introduction gardens. They also visited the rice experiment station at Biggs. These gentlemen were in attendance at the cereal conference, their visit taking them through the San Joaquin and Sacramento Valleys.

Central California

Green fruit trains started June 15 from Fresno.

Modesto is organizing a new local of the county farm bureau.

Several successful plantings of hemp have been made along the San Joaquin River.

The Southern Pacific has put on three new fruit trains daily, one starting at Fresno and two at Merced.

The last link in the state highway from Fresno to San Francisco will, it is announced, be completed by July 1.

Farm Adviser Mayhew of Madera County says that deer are proving a pest to the farmers of the mountain districts.

The Kerman Cured Fruit Association held its monthly meeting June 4, at which time important amendments to its by-laws were made.

Directors of the Tulare County Growers' Association have issued a call for a general meeting Saturday, June 19, at the cannery building.

The Armona cannery has contracted for 600 tons of apricots this year, just twice the amount preserved last season. Operations have already begun.

Kings County is expecting a bumper bean crop. The plantings are largely experimental, and tepary beans have been used more than any other variety.

Farm Adviser Roberts of the Santa Fe Railway addressed farmers of the Alta irrigation district on the advisability of securing a county farm adviser for Fresno.

Farmers of Los Banos, Merced County, are organizing a cooperative creamery association. The location of the plant will be decided at the next meeting of directors.

The organization committee of the Lindsay-Strathmore Irrigation District now has more than 8,000 acres signed up and expects to present its petition to the supervisors at the July meeting.

More than 5000 sacks of rice will be harvested in the San Joaquin Valley this year, according to a rice importer of San Francisco. Most of this will be obtained from fields in Kern County.

Work of fumigation against the gray scale of citrus will be started very soon. County outfits will not be used this year as the grove owners have themselves taken up the fumigation work.

The committee of five which is seeking to find a market for the 1914 holdover crop of dried peaches in Fresno County reports that it finds no evidence of unusually large amount of holdover stock. It is nevertheless continuing its activities.

The prune crop of Santa Clara County is estimated at only half of normal. At a meeting held May 15 at which some 300 growers representing all parts of the county were present detailed reports from all sections showed that there could be no change in the previous estimate of only a 50 per cent crop. Growers therefore see no reason why they should accept low prices for their crop.

Southern California

San Fernando held its June festival June 9 and 10.

Eleven carloads of beans were shipped from Saticoy, Ventura County, during May.

The Hemet Farmers' Association held its first picnic on June 12 at Castile Canyon.

Bell peppers are a considerable feature in the crop planting of the Brawley district this year.

It is rumored that a by-products plant is to be established at Arcadia, Los Angeles County.

There will be a large bean crop on the mesa of the Buena Park district this year, mostly of the blackeye variety.

Over 400 people attended the first annual meeting and picnic of the Ventura County farm bureau at Foster Park.

Farmers of San Diego County have organized a winter vegetable union and tentative contracts are being signed up.

Hemet, Riverside County, has promise of its biggest fruit crop. Peaches and apricots constitute the larger portion of the deciduous fruit.

The cantaloupe crop of Imperial County is almost a month late this season and it is estimated that it will be at least 25 per cent short of normal.

J. D. Cleminson of El Monte has been chosen president of the San Gabriel Valley Potato Growers' Association. The organization has about 100 members.

Cantaloupe growers report daily to Government Agent Schleussner at Brawley the number of cars shipped and destination of each. In this way it is hoped to control shipments and not overcrowd any market.

Citrus growers of Covina will visit the experiment station at Riverside June 19, and the following Saturday, June 26, Orange County growers will visit the station. There will be an all-day meeting on both days.

The final details in the transfer of property bought by the state university for the citrus experiment station at Riverside are now being arranged. An architect has in hand the making of plans for the new buildings.

It is estimated that the walnut crop of Southern California will be between 12,000 and 16,000 tons, although it is possible the blight which is now appearing in orchards may materially reduce these figures. Blight has been exceptionally severe.

The Hemet Cured Fruit Association has more than 90 per cent of the ranchers of that vicinity in its membership. There will probably be much drying of fruit this season as the crop is large and the dried fruit can be stored for satisfactory prices.

The U. S. government has sent an expert from the department of agriculture to Brawley, Imperial County, to aid in distribution of the cantaloupe crop. An office has been opened in Brawley which will post daily records of the number of cars shipped together with report of market prices and conditions.

The Coast

Prescott, Arizona, will have a Frontier Days' celebration July 4, 5 and 6.

A new fruit processing plant is to be erected in the Yakima Valley of Washington.

Kansas City live stock buyers are in the Salt River Valley of Arizona buying steers.

Brigham City, Utah, will have a peach day celebration, the date to be announced soon.

Chandler, Arizona, is promised a broom factory if sufficient acreage is planted to broom corn.

Ex-Game Warden Stevenson of Oregon has a flock of wild turkeys on his ranch near Forest Grove.

Texas pecan growers are expecting a large crop although blight is affecting the trees rather seriously.

Cantaloupes and watermelons are being put on the market from fields of the Rio Grande Valley in Texas.

The Bonneville County Grazing Association of Idaho has sold its entire clip of 500,000 pounds of wool at 26½ cents.

Texas farmers are refusing to ship their onions at present prices and are putting them in storage as fast as they can find facilities.

A new beet sugar factory is in contemplation at Spanish Fork, Utah. Canvassers are now in the field securing contracts with growers for acreage.

Some Oregon farmers are objecting to the bounty on coyotes as they say the rabbits are worse on crops and the coyotes if left alone will keep down the rabbit pest.

The management of the Columbia River Interstate Fair, to be held at Vancouver, Washington, September 6-7, has appointed C. A. Watts director of the coming fair.

Dr. Ashley, chief of the milk and dairy inspection division of the health department of Utah, has taken samples of milk to the National Pure Milk Contest held in San Francisco.

The United States department of agriculture has just published a bulletin on date palms which describes in detail the structure of leaves of different varieties as a means of identifying them.

Hundreds of entries have been made for the first annual sheep and ram sale to be held under direction of the National Wool Growers' Association at Salt Lake City, Utah, September 6 and 7.

Governor Withycombe of Oregon has just made announcement of the following appointments of stock inspectors: Charles Wendt, Baker County; T. B. Johnson, Union County; Henry Haas, Wallowa County; A. W. Rugg, Umatilla County; M. D. Kelly, Malheur County, and Gerry Snow, Multnomah County.

Members of the joint commission representing the United States reclamation bureau and the appropriations committee of congress are now on their tour of inspection of 35 reclamation projects under consideration by the government which, if carried out, will bring water to over 6,000,000 acres of land.

There is a Difference
between the
Ideal Green Feed Silo
and
Other Silos

IT DOESN'T TAKE AN EXPERT to tell the difference between an Ideal Green Feed Silo and some others.
ON THE CONTRARY, it is an easy matter if the prospective purchaser will remember that a silo to be of any value whatever must be "air and water-tight" and capable of producing as good ensilage from every pound of good feed put into it.
IF HE WILL THEN TAKE FIVE MINUTES to compare
The detail of construction,
The quality of material and workmanship,
The contact of the doors with the door frame,
The kind and size of hoops and lugs used,
The quality of the paint for the inside,
The type of roof and whether or not it is fitted with a galvanized ventilator,
What provision, if any, is made for keeping the silo round and preventing its collapsing,
In fact, everything that enters into the design and construction of a silo that will make it a thoroughly practical piece of equipment,
He will then see the difference.

THE MAN WHO TAKES even the first step indicated in seeing for himself the difference between the Ideal Green Feed Silo and others does not put his money into any other one time in a thousand.

THE COMPARATIVELY FEW BUYERS of other silos are those who merely read printed claims or listen to the argument of some self-styled "adviser", who is probably working for a commission only, and whose only purpose is primarily to sell a bill of lumber.

THE WISE BUYER OF A SILO today does see the difference when buying his first silo, while the unwise or careless one usually finds that his presumed saving in first cost actually means a loss to him in spoiled feed and represents the difference between success and failure in the use of a silo.

OUR PURPOSE in selling a silo is to develop the dairy and stock-raising industry on a more substantial basis than heretofore, and in order to do this we must supply a silo that is a thoroughly practical piece of equipment.

THAT IS THE REASON WHY four buyers out of five are buying Ideal Green Feed Silos and why the use of the Ideal Green Feed Silo will before long be as nearly universal on the Pacific Coast ranch as they are in the eastern states and in Canada.

SEND FOR CATALOGUE A

EVERYTHING FOR THE DAIRY

DE LAVAL DAIRY SUPPLY CO.

SAN FRANCISCO **SEATTLE**

Alpha Engines **Feed Cutters**

Advertisements in California Cultivator are Guaranteed
See Announcement at Head of Editorial Page

Live Stock and Dairy

BUTTER MAKING ON THE FARM.

THE flavor and aroma of butter depend very largely on the ripening of the cream. Ripening of cream also improves the churnability of the cream and increases the keeping quality of the butter. Ripening means souring or preparing the cream for churning. It is brought about by the development of lactic acid which is a by-product resulting from the growth of certain species of bacteria, commonly called lactic acid bacteria. These bacteria are normal to milk and cream and their presence is necessary for the development of desirable flavors in butter.

Ripening Temperature

The temperature at which cream ripens best is between 60 and 70 degrees Fahrenheit. A lower temperature than this will produce a bitter cream, while higher temperatures are likely to produce foul flavors.

Starters

It is a common practice among farmers to use a little buttermilk from one churning as a starter for the next batch of cream. This is the easiest way of providing a starter, and if the buttermilk is good it is very satisfactory. However, if one is having trouble with poor flavors and difficult churning a more satisfactory starter is to save four or five bottles of clean milk and allow them to sour naturally, at 60 to 70 degrees Fahrenheit until firmly coagulated. Then taste the contents of each bottle and use that which has the cleanest and pleasantest acid flavor for a mother starter. By adding this starter to a larger amount of milk enough can be made to sour any amount of cream. A starter is simply a quantity of milk containing a preponderance of desirable germs. It should be added to cream at the rate of three to ten percent of the cream at least 12 hours before churning.

Precautions

Stir cream frequently to insure even ripening and to prevent the curd from settling to the bottom and becoming lumpy. Do not add fresh warm cream to the older cream. Let it cool first. Sweet cream should not be added to sour cream less than 12 hours before churning as it will not ripen evenly with the older cream and will thus cause a large loss of butter-fat in the buttermilk.

The Churn

For making butter of good body or texture a churn without any internal dashers or paddles should be used. The swing and barrel churns give good satisfaction. The churn should be scalded and cooled with water to prevent the cream from sticking to the sides.

Temperature for Churning

The proper temperature for churning varies at different times of the year, with character of feed, with period of lactation and breed of cows. As a rule the temperature should be about 60 degrees in winter and 56 in summer, and the cream should be held at these temperatures for at least an hour before churning. If the cream is too warm the butter will come soft and salvy. It will have poor keeping quality and there will be a large loss of fat in the buttermilk. If the cream is too cold it will froth and stick to the churn. It is well to have the temperature so that churning may be accomplished in 25 to 30 minutes and the butter come in firm condition. A dairy thermometer should be used in controlling the temperature.

Churning

The cream should be strained into the churn to remove any hardened curd. Do not fill the churn more than one-third full, as more will lessen the agitation. If color is to be added it should be put in the cream after it is in the churn and before the churn is started. The amount to add varies from none to about an ounce per hundred pounds of butter, depending on the market, season of the year and breed of cow. The churning should proceed in a manner to secure the greatest agitation. If a tight churn is used it should be opened two or three times to allow the gas to escape. Stop the churn when the granules have reached the size of wheat grains. If the butter is churned into balls buttermilk will be incorporated and the butter will deteriorate quickly.

Washing the Butter

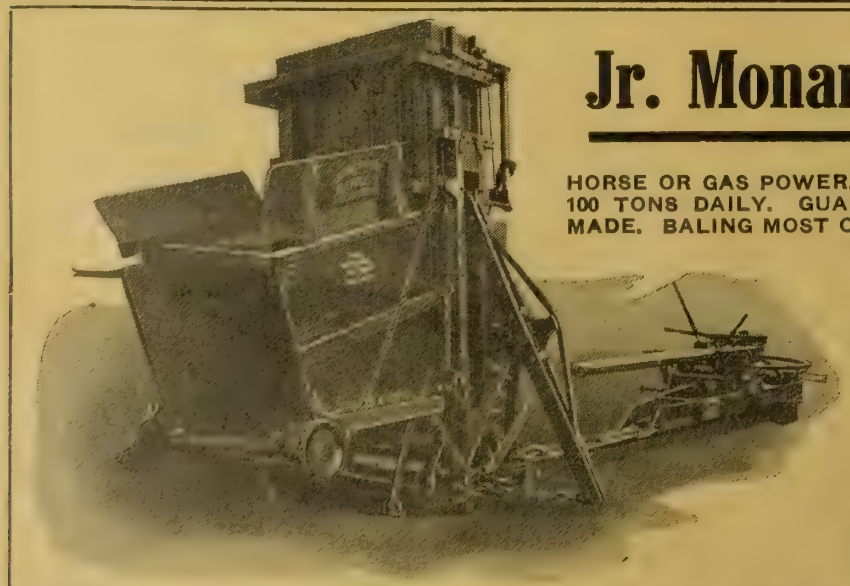
Draw off the buttermilk and add as much water to the butter as there was cream to begin with. The wash water should be of about the same temperature as the buttermilk, though if the butter is soft it may be cooler, to firm the butter. Revolve the churn a few times before removing the water. The purpose of the wash water is to remove the buttermilk and thereby improve the keeping quality of the butter.

Salting

Salt serves both to flavor and preserve the butter. Different markets require different amounts of salt. Under average conditions six-tenths of an ounce of salt to a pound of butter should be used.

Working the Butter

Butter is worked to distribute the salt uniformly, to remove excess buttermilk and water, and to give the butter a compact, waxy body or texture. It may be worked in a bowl with a ladle or with one of the lever workers. Overworking causes it to



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have an oily or salvy texture and occasionally a fishy flavor. Underworking causes a leaky and mottled butter of loose texture. Butter should be cool at time of working.

Marketing

Butter should be printed or molded, preferably in rectangular shape, and wrapped in parchment paper. If a fancy market is desired it is well to put the butter in special cartons which have printed on them the name of the farm or of the brand of butter, together with statements as to the purity of the product. The style or neatness of the package helps to sell the butter.—W. S. Cunningham, New Mexico College of Agriculture.

DOGS THE FARM SHEEP'S WORST ENEMY.

The number of sheep killed annually by dogs cannot be stated exactly since there are many cases which are not reported at all. Judging from the figures in those counties and states in which reasonably complete reports are obtainable, however, it may be said that in the 36 farm states more than 100,000 sheep are killed each year by dogs. This, it is true, is less than one per cent of the total number of sheep in this area, but a one per cent loss on a business that is being conducted on a profit basis of five or six per cent cannot be ignored. This estimate it must be remembered is also probably much lower than the actual figures. It is certain too that many men have been kept out of the sheep business through fear that in their own particular cases the loss would be much more than one per cent. Any one who has actually seen sheep killed, injured, or frightened by dogs is likely to think twice before engaging in the business. In many cases while only one or two sheep may be actually bitten by the dogs, the whole flock is chased until it dies from exhaustion.

A remedy that is suggested for this situation is a uniform state dog law embodying the principle of a tax upon dogs sufficiently heavy to discourage those who are not willing to take care of their pets from keeping them. Under this plan all dogs over six months of age must be licensed each year, the tax paid at the time of licensing and a metal tag bearing the license number attached to the dog's collar. Any dog found without this tag, unattended and off its owner's premises, may be killed. When found unattended on a farm where sheep are kept the dog may be killed whether it has the tag or not, and under any circumstances a dog caught chasing or killing sheep may be killed. All dogs which can be proved to be sheep killers must be killed whether caught in the act or not, and a reward of $15 should be offered for any one identifying a sheep-killing dog. The money received from dog taxes should be devoted to reimbursing sheep owners for their lost stock and the county should in turn recover this money whenever possible from the dog's owner. A special license should be issued for kennels where large numbers of dogs are maintained under such conditions that they cannot possibly do any harm to neighboring flocks.

While some such plan as this is probably indispensable to the full development of the sheep industry in the United States, there are cases where the flock master will find in its absence the use of dog-proof fences very desirable. The grazing of sheep upon comparatively small areas of land sown to forage crops, instead of upon permanent pastures in larger fields, materially reduces the area to be fenced and makes this a practicable precaution. In the West fences have been built which prove a satisfactory defence against coyotes, and the fence that will turn aside a coyote will turn a dog. A fence of this character can be built as follows:

Posts 7½ feet in length, set 2½ feet in the ground and 16 feet apart; a barbed wire stretched flat to the surface of the ground; 3 inches higher a 36-inch woven-wire fence having a 4-inch triangular mesh; 5 inches higher a barbed wire; 6 inches higher a second barbed wire; 7 inches above this a third barbed wire. Total height 57 inches.

It is important to remember, however, that the bottom strand of barbed wire must be stretched flat on the surface of the ground at all points. If necessary the ground should be graded before the fence is built. Thereafter such small holes as appear may be filled in. It is not always necessary to fence the entire pasture, for dogs usually atack sheep at night only. If a sufficient area can be fenced to give the flock protection during the night, therefore, they may be safely left in uninclosed pastures through the day. This method involves a certain loss of time in driving the sheep to and from the inclosure, but in many cases will be preferred to the expense of fencing on a large scale.

BREAKING COLTS

In breaking the colt to draw a vehicle the horse may develop bad habits unless he is properly handled. The most common cause of balkiness among horses is punishment to make them do something that they can not do or that they do not understand how to do. If the horse balks because the load is too heavy, and he is not allowed occasionally to rest and regain his breath, the use of whip or spur will very often provoke further and more stubborn rebellion. He should be given a short rest, and while he is resting, rub his nose, pick up a front foot and tap the hoof a few times, or adjust the harness, and he may forget his balkiness. Take up the lines and give the command to go ahead, turning slightly to the right or left to start. If the horse does not start it is either a case of overload or a chronic balker. If the former, the load should be lightened, but in the case of the latter, training will be necessary to overcome the habit.

Where the balking habit is fixed the horse should be trained to obey all commands with promptness without being hitched to the wagon. First put on the double trip ropes which consist of a strong surcingle, four two-inch iron rings, two straps to go around pasterns, and a rope about 25 feet long. Fasten two two-inch rings to the underside of the surcingle and put straps with rings on front feet. Run end of rope through near ring on surcingle, through ring on near foot, up and through off side surcingle ring, down, and tie to off fore foot. A pull on the rope when the horse steps will bring him to his knees. Always use knee pads or have the horse on soft ground where he will not injure his knees.

Use the ropes until the horse stops and stands when he hears "whoa." Next put on the guy line, which should be managed by an assistant, while you drive and attend the trip ropes. The guy line is a rope fastened around the horse's neck and a half hitch over the lower jaw. It is very severe and should not be used to excess. If the horse shows any tendency to balk, give the command "whoa" before he stops of his own accord. When ready to start the assistant should take a position in front of the horse and smartly jerk him forward with the guy line at the same time you give the command "get up." Repeat the process of stopping and starting until the horse shows no signs of self-will. Use the guy line and use it severely on the slightest intimation that the horse is going to balk. After a few of these lessons the horse may be hitched to the wagon. The trip ropes and guy line should be kept on until he is well broken of the habit.

In treating the colt to overcome kicking put on the harness and trip ropes. Let the assistant take a stick about four feet long, wrap a gunny sack around one end and tie it. With this the assistant, if he stands at the colt's shoulders and holds the halter with one hand, can rub the colt's hind legs without being placed in danger of his heels If the colt kicks, do not hit him but allow him to examine the stick again, and proceed to stick and pole him all over, that is, make him become accustomed to being touched on any part of his anatomy without kicking. After he becomes submissive to the stick, tie sacks of hay to the traces and breeching and continue the lesson until he pays no attention to it.

Fasten a long pole on either side of him, with one end to drag on the ground, the other end to be fastened to the shaft carrier. Drive the colt around with these, and if he attempts to kick, steady him and pull him to his knees. This should be continued

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until he submits to the poles dragging between his legs and all around him. This is also a good lesson to be given a colt that does not kick, before trying to drive him single.—United States Department of Agriculture, Farm Bulletin 667.

ANNUAL MEETING OF AMERICAN GUERNSEY CATTLE CLUB

The annual meeting of the American Guernsey Catle Club was held in New York City on Wednesday, May 12. and the reports of the year's business furnished added grounds for the optimistic spirit which prevails among the men who favor the fawn and white breed of dairy cattle.

In spite of the serious interference which the unfortunate outbreak of foot and mouth disease and the decline of the importing business has caused the year's work shows a gain in every respect except in the number of transfers.

There was during the past year a total of 11,076 animals registered though the number of imported cattle registered was less than half that of the previous year. This is a gain of 14 per cent in the total registration of the breed. There were 582 more entries for bulls and 710 more entries for cows than the previous year.

The number of transfers this year was 9036 as compared with 9871 a year ago and 8142 the year before. Up to November 1 or the time when the quarantine regulations were first felt, there had been recorded 5334 transfers as compared with 4767 for the corresponding period of a year ago, a gain of 570. During the last six months there were recorded 3702 transfers as against 5106 a year ago, a loss of 1404. The bright spot in this is the fact that 40 per cent of the transfers recorded in the past six months have been received since the first of March.

Fifty-two new members have joined the club. There are now 427 active members.

There has been an increase in the gross revenue of the office business of $8,007.79.

The growth of the Advanced Register has been most encouraging. In the last five years the number of breeders doing Advanced Register work has increased from 93 to 243 and the number of cows on test from 554 to nearly 1200. Eight hundred and fifty-nine certificates for completed records were written last year. The average yield for the breed has increased 150 pounds of milk and eight pounds of butter fat, 3770 records giving the present average of 8,673.73 pounds of milk and 433.91 pounds of butter fat, with an average test of 5.003 per cent. Ninety-three bulls have been added to the list of Advanced Register sires which now totals 566. Sixty-seven of these bulls were sons of bulls already in the list. Five hundred and seventy-nine cows have been added to the list of Great Producing dams, which are those cows which have two or more Advanced Register progeny.

The transfer of the 'World's record over all breeds" from one cow to another within the Guernsey breed was not forgotten, Murne Cowan having recently been honored with that title by producing 28,008 pounds of milk and 1098.18 pounds of butter fat. Her work as well as that of other cows who have recently made large records was thoroughly discussed.

The following officers were elected: President, James Logan Fisher, Philadelphia; vice-presidents, Hon. W. D. Hoard, Fort. Atkinson, Wisconsin; and E. R. Andrews, Putney, Vermont; secretary and treasurer, Wm. H. Caldwell, Peterboro, New Hampshire; members of executive committee, F. G. Benham, Canandaigua, New York; W. W. Marsh, Waterloo, Iowa.

Dr. Woods Hutchinson says: "Sunlight is a splendid and matchless servant in promoting the healthfulness of a house, for which no substitute has yet been discovered. It is foe alike of bacteria and the blues, the best tonic ever yet invented for the liver and the scalp and for everything between, the only real complexion restorer, and the deadliest foe of dirt and disease."

REDWOOD PIPE LONG LIVED

For centuries the only method of transmiting water for domestic use or irrigation other than in open ditch was wood logs bored through the center and connected with slip joints. Constantinople is still supplied with water through wooden pipe manufactured as above. As late as last April workmen employed by a contracting firm in Boston to lay a new water main on Elliott Street unearthed about 2,000 feet of wooden water pipe which according to the records available is at least 125 years old. These ancient pipes were in a remarkable state of preservation and still in condition to carry water for household supply. It is only recently that the old wooden pipes supplying part of the city of London were discarded because new and modern high pressure systems were installed.

As to length of life it is conceded that cast iron pipe is the longest lived pipe made; the only pipe approaching it in life is redwood stave. Both will last more than a lifetime. Consequently the only comparison in that respect is cost. Redwood stave will outlast several steel or corrugated iron pipes as they are open to corrosion, particularly in the alkaline soil prevalent throughout the West, whereas soil conditions have no effect on redwood.

Redwood stave pipe is made to withstand water pressure from 0 to 400 foot head, and at least one company manufacturing redwood stave pipe will guarantee it for 400 foot head and guarantee it for 100 per cent overload or 800-foot head. This puts beyond question its ability to hold pressure. The difference between the low head price of redwood and the high head is the amount of metal or rather the spacing of the metal on the pipe, the thickness of the staves varying but slightly.

Redwood is essentially adapted by nature for pipe use, being straight and even grained, free from any resinous matter, free from pitch pockets or pitch seams and free from the defects inherent in pipe made of other wood such as the uneven expansion caused by the hard spots in the wood and the decay inevitable around pitch pockets or pitch seams when under saturation. Redwood having no hard spots expands evenly forming tight joints and consequently there is no leakage. Having neither pitch pockets nor seams to break down the cells of the wood it is free from decay. There are many instances of redwood pipes in the western country that have been in daily use under all sorts and conditions of climate and soil for 25 to 30 years and they are still in perfect condition, free from decay and good for as many more years of actual service. Redwood being free from corrosion, the pipe made of it cannot leak in spots as is the case in metal pipe and in case corrosion attacks the bands the pipe can be rebanded without being taken out of service or the flow of water ceasing.

TONICS FOR HOGS.

We have often advised our readers to keep ashes, bone and charcoal before the hogs when at pasture. This seems to be specially needed when the hogs are in an orchard. It is sometimes desirable to give something besides the ashes. Dr. R. H. Williams suggests the following: Charcoal, 8 pounds, air-slacked lime 8 pounds, common salt 6 pounds, hardwood ashes 8 pounds, powdered sulphur 4 pounds, powdered blue stone 2 pounds.

These should be thoroughly mixed and kept in stock so that a small supply may be before the hogs at all times. A low box makes a useful container.

We have known of cases where these things were made into a "lick ball." This was made of clay and kept under a shed where the stock could come and lick it at will. While these "tonics" will help keep the hogs thrifty, let no farmer imagine that this will prevent or cure hog cholera, for it will do nothing of the sort.—Rural New Yorker.

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THE BROODY HEN.

Written for the California Cultivator
By Jean A. Koethen.

EGG-LAYING, as has often been said, is merely reproduction. The primitive hen laid a few eggs, then incubated them and raised her brood. When her chicks were old enough to care for themselves she was ready to lay again. She did this perhaps two or three times in a season, then stopped laying till the next spring. This instinct for incubation has been to a large extent bred out of Leghorns and other Mediterranean breeds, but it is found in practically all hens of the heavy breeds.

Theoretically it should be possible to breed this instinct out of all hens; practically there is no reason why we should. While the Mediterraneans on an average lay more eggs in a year than Rocks, Wyandottes and Orpingtons, so many individuals of these breeds have out-distanced Leghorns in their egg-records, in spite of occasional broody spells, that we can by no means make the sweeping statement that non-sitters are better layers than sitters. The sitter, thanks to her greater amount of fat and warmer feathers, is almost sure to be a winter layer. She is also, if she is allowed to hatch a brood in late spring, quite sure to be a good summer layer, and if she is allowed to sit in early summer, she will molt quickly and easily and be ready for business in the fall. I have been watching sitters and non-sitters side by side for two years, and as far as I can see the latter have very little to their credit in the comparison.

The broody hen is theoretically a tired hen. Her nerves are exhausted by laying and she needs to recuperate. If she is not tired she is very likely overfat and needs to be reduced a bit. Personally, I am inclined to add a third to these two classes of broodies—the hen that is just perversely broody because she wants to be. We all know her. She lays 16 or 18 eggs, then goes broody and insists and insists till her caretaker's patience is exhausted on her right to raise a family. After two or three weeks she begins to lay again but goes broody as before. The best place for such a hen is the Sunday dinner table. Certainly she should never be used as a breeder.

In breaking up broodies it is better generally to take it for granted that they are tired and need building up. In order to begin this building up or recuperative process as soon as possible the hen must be made to forget her desire to sit. Three steps are necessary here:

First, get her off the nest as soon as her broodiness is noticed. Whenever a hen is found on the nest at night when the other hens are eating their supper she may be considered a broody and treated accordingly. The longer a hen stays on the nest the stronger becomes her desire to sit. Hence the wisdom of leaving a hen that is to be used in hatching right on her old nest for a night or two. I have broken up many a hen by moving her the first night and so I know that conversely the sooner a hen is taken from the nest, the more readily will she forget her broody desire.

Second, put her where she cannot sit. What is done with the hen after she is removed from the nest depends largely on the convenience of the caretaker and the disposition of the hen. On a large egg ranch a jail or broody coop is a necessary part of the equipment. The hen is kept four days in this jail, supplied with food and water, and at the end of the fourth day is returned to the laying pen. Where only a small number of hens are kept all that is necessary is to remove the hen to another pen where there is no nest. An Orpington will usually recover from her broodiness if she is merely placed in a different pen and will rarely go onto another nest. A Buttercup, non-sitter as she is, is more persistent, and will sit anywhere. For hens of this sort a jail with a slatted bottom, where there is no chance to sit, is almost a necessity.

Third, feed her well. The broody hen should be provided with all the green feed she will eat and with the materials she needs for egg production so that she will be in shape to begin laying as soon as her broodines has passed. A good mash containing plenty of protein or meat, table scraps, clabbered milk, anything a little more appetizing than her usual fare, will help her to forget and to get ready for laying again. The idea that a hen must be starved out of her broodiness is one of the greatest mistakes. There are cases, I know, where a hen is very unwilling to forget, and harshness seems almost justifiable, but it never pays. I have found merely taking a hen from the pen and letting her run a few days on green range a very easy way of controlling broodiness. It may not work with all hens, and it may not work with hens that are left on the nest several days before anything is done to break them up, but it has always worked for me.

It is sometimes said that the best way to break up a broody hen is to let her sit. This is true enough, but like many other wise maxims it must be taken with a grain of salt. No doubt it is better for the hen to sit provided she does not ask to sit too often. This is nature's way, and the hen that raises a brood in April and another in September will very likely lay better between-times. It is not wise however to try to raise summer chicks unless you have room and clean ground for them and time and inclination to care for them. Neither is it wise to set the hen that goes broody in January. Depend upon it, she is your best layer, and the hen you ought to breed from. Better break up the hen that wants to sit at the wrong time, get her back to laying as quickly as possible and give her her chance when you want chicks and can care for them. If, with all this consideration, she is still disagreeably persistent, eat her.

BAD HABITS AND THEIR PREVENTION

Lack of exercise is the chief cause of all bad habits as developed in a flock of chickens. Lack of exercise is generally brought about by insufficient or worn litter. It is a noticeable fact that all bad habits are started in the winter when fowls are more or less confined. On general principles in order to prevent bad habits, when getting started, see to it that your poultry of all ages exercise as much as possible, especially when confined. Provide a litter, loose and dry, of wheat straw at least 12 inches deep.

Egg-eating is probably the most objectionable of all bad habits. It is a vice generally brought about by overcrowding, lack of exercise, lack of proper shell-forming material and improperly constructed nests. Low down nests are also sometimes the cause. To prevent egg-eating, make your fowls exercise for practically all the feed they get. Do not overcrowd, allowing at least four square feet of floor space per fowl; provide plenty of oyster shell and grit; locate nests in a dark and secluded place raised several feet above the floor, so they will have to fly in order to get to the same. Guard against having and leaving broken eggs around so they can find and eat them. The feeding of egg shells without breaking them often leads to this objectionable habit.

Probably the surest way of curing this bad habit is by cutting the guilty party's head off, is she is known. This practice is especially advisable when only one or two have contracted the habit. Feed plenty of grit and oyster shell and add alfalfa leaves to their ration. In experiments it has been proven that one of the greatest causes of egg-eating hens is the lack of oyster shell.

Another vice to which confined and overcrowded poultry lacking exercise and proper food often fall prey is the feather-eating habit. It is a most objectionable habit when it once gets thoroughly started in a flock and one which in a short while will greatly damage the general appearance of the flock. Often it leads to drawing blood and eating at the sore places, some in the end turning cannibals. Probably the two greatest causes of this habit are lack of exercise and proper foods. Free range stock very seldom contract the habit and if they do contract it it is because they are lacking something in their ration. If you have a flock of fowls thus affected the first thing you want to remedy is the provision for exercise. Make them work all day long for everything they get. Feed plenty of animal food in the form of beef scraps, green cut bone and blood meal. Do not forget the regular feeding of green food daily, because very often a lack of the same brings on the above vice. If you think over-crowding is the cause remove the cause by providing larger quarters.

Another way of stopping this habit is by annointing the feathers about the picked area with an ointment made by adding a tablespoon of aloes to a cup of lard, rubbing the same well together. After one or two bitter doses of feathers thus treated the birds will usually stop pulling and eating them.

In closing let me remind you that all bad habits are brought about by either the lack of exercise or some food or by being kept in a very crowded condition. Remedy these and as a rule you will not be bothered with any bad habits in your flock.—Farmers' Review.

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Investigate the wonderful Avocado industry. A ranch planted now will make you independent in a few years. Write for further information and literature. Vigorous field-grown budded trees of standard frost-resistant variety, from four to seven feet high, $1.50 to $2.00. W. A. Spinks, Duarte, California.

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Very Fine Sweet and Sour Orange Seed-Bed Stock — PRICE REASONABLE. MIGHT TRADE FOR GOOD AUTO OR TEAM. ORANGE COVE NURSERIES, OROSI, CAL.

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100,000 Citrus Trees—Choice Seedlings and Buds. Wanted, a budder. Butler's Morning Side Nursery, Lamanda Park, Cal.

For Sale—Field-grown budded avocados, Harman, Ganter, Taft; 2 feet to 7 feet high, $1.00 to $3.00. Home Phone 444. A. B. Rogers, Glendora, Cal.

Nurserymen—Pot grown conifers, palms, shrubs and ferns for lining out or potting. Ballou's Nursery, Pasadena, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

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Leading Rabbitry in America—Flemish Giants a specialty. Prize winning and heavy weight stock. Scored and sold on their merits. Inquiry and inspection solicited. Catalogue on request. Empire Rabbitry, Empire, Cal.

Ripon Rabbitry selling out, account going East. Rich racy Rufus Reds, Does with litters and youngsters all ages go at half price during June only. Howard C. Jones, Ripon, California.

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Special Piano Offer to country buyers, for a short time only. Any piano or player piano at $100.00 special discount. Ten different standard makes, styles and finishes to select from. Act quick. Address GIRARD PIANO COMPANY, 517-519 14th St., Oakland, Cal. Established 1873.

We repair, buy, sell and exchange musical instruments; used instruments, good as new, sold cheap. Write for bargain list. Bolander's Fiddle Hospital, 52 Second street, San Francisco.

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Catalogues for the seed and nursery trade. The live stock and poultry industries are a specialty with us. Two thousand illustrations to select from. Write for prices and samples. The Kruckeberg Press, 237 Franklin St., Los Angeles.

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VICTORIA, AUSTRALIA, WANTS SETTLERS
Special inducements; government land, railways, free schools; cheap irrigation; 31 years to pay for farms adapted to alfalfa, corn, grains, fruit, etc.; climate like California; ample markets; reduced passages; special excursion being arranged. Free particulars from F. T. A. Fricke, Government Representative from Victoria, 687 Market St., San Francisco, Cal., Box X.

For Sale, Lease or Exchange—A nine acre fruit ranch two miles east of Center Street, Phoenix, Ariz. House of four rooms, stable, chicken corral, good well of water, woven wire fence, half trees in bearing, peaches, plums, apricots, grapes and other fruits. Address, Geo. M. Smith, Bide-A-Wee, Phoenix, Ariz.

Free—"True Blue" 1915 Booklet. Tells the "how," "why" and "where" of overlooked State and Government Land bargains. Write CALIFORNIA STATE LAND INFORMATION BUREAU, SACRAMENTO.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

For Sale—You can own your own 10-acre ranch and home with water for $750.00, $150.00 cash and $150.00 a year; 7 per cent interest, in Fruitland Colony Lands. F2467. 1005 S. Main St., Los Angeles, Cal.

I have some cash buyers for salable farms and ranches, owners only, write C. C. Buckingham, Houston, Texas.

For Sale—On reasonable terms, 40 acres young orchard. Implements, Buildings, everything complete. G. C., 1015 I St., Fresno.

For Sale—Magnificent 372 acre ranch. If interested, see it quick. Write owner, Box 2, Arroyo Grande, California.

MISCELLANEOUS

Free for Six Months—My special offer to introduce my magazine "INVESTING FOR PROFIT." It is worth $10 a copy to anyone who has been getting poorer while the rich, richer. It demonstrates the REAL earning power of money, and shows how anyone, no matter how poor, CAN acquire riches. INVESTING FOR PROFIT is the only progressive financial journal published. It shows how $100 grows to $2200. Write NOW and I'll send it six months free. H. L. Barber, 430, 28 W. Jackson Blvd., Chicago.

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AWAY BEHIND. R. R. Snowden, Agent,
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Living Expenses Reduced Through Co-operative Buying—Open to all. Write for catalog and particulars. Pacific Co-operative League, Dept. C, 236 Commercial St., San Francisco.

"Smith's Pay the Freight"—To reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St., San Francisco.

For Sale or Trade — $500.00 equity in $950.00 lot just out of Los Angeles. Will consider Ford or what have you? B. C. Dodson, Glendora, Cal.

POULTRY

Just Out—The Cultivator Poultry Book, "Poultry for Profit," by Jean A. Koethen. Published by the Cultivator Publishing Co. Highly endorsed by experts. Over 200 pages, 50 illustrations. Contains simple methods of avoiding and overcoming difficulties. A guide to poultry success under Western conditions—it tells what to do, why to do it, and how to do it. Nicely bound in cloth. Price $1.00 postpaid, or with Cultivator one year, $1.75. Send orders to Cultivator Publishing Co., 115-117 North Broadway, Los Angeles, Cal.

Baby Chicks—Rhode Island Reds and White Leghorns. My guarantee safe arrival, full count, strong, vigorous; fine bred chicks, Leghorns, $9.00 per 100. Will lay in five months. Reds, $11.00 per 100. Will lay in six months. J. W. Lyon, Gardena, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately . National Poultry Co., 607 E. Third St., Los Angeles, Cal.

Baby Chicks—Electric Hatched. White and Brown Leghorns, R. I. Reds, Barred Rocks, Black Minorcas and Anconas. Special prices for June and July. The ORLAND HATCHERY, ORLAND, GLENN CO., CALIF.

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Barred Plymouth Rocks—"The kind that Lay and Win." Choice stock for sale. Catalog free. C. H. Vodden, Los Gatos, Cal.

At Your Service 365 Days in the Year—First-class chix; eggs for hatching, eight breeds. Hawkeye Hatchery, Turlock, Cal.

For Sale—Barred Rock Cockerels, also Barred Rock, R. I. Red, Anconas, Buff and White Orpington chix. Enoch Crews, Santa Cruz, Cal.

Barred Plymouth Cockerels and baby chicks, from my prize winning stock. None better. K. L. Kirby, Oakdale Poultry Farm, Watsonville, R. D. 2.

KODAK FINISHING

Developing, 10c per roll. Printing, 2¼x3¼, 2½c; 2½x4¼, 3c; 3¼x4¼, 3c; 3¼x5½, 4c. Denver Store, 706 S. Hill St., Los Angeles.

LIVE STOCK

PIGS! HOGS! PIGS! HOGS!
Buy a pig and see how quick he will make a hog out of himself on the waste around your farm and orchard. California needs the hogs, you need the money, get busy, start now, but start right. Buy only cholera-proof brood stock, that is the foundation for your success. We have for sale 150 head of choice young gilts, Duroc-Tamworth breed, all solid reds, cholera-proof, guaranteed. Price only $15 each. For full particulars, call or write. JOHN H. HOLLOWELL, Local Agent, 316 Investment Bldg., Los Angeles, Cal.

Billiken Herd—Pure bred, registered. O. I. C. Swine. The Big White kind. Sows now farrowing. Three herd boars used; new blood lines. Weaned pigs will be ready soon for shipment. Cholera immune; first class in every way. Make your reservations now for singles, pairs and trios. Write for my new circular. C. B. Cunningham, Mills, Sacramento County, Cal.

Hogs—Forty head of BIG TYPE POLAND CHINA boars of any age. Sired by IOWA WONDER, who is a son of A WONDER, the greatest hog living or dead. No females to sell at present. On account of large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

For Sale—Registered Tamworth swine—boars, sows and gilts of this famous bacon hog. This breed commands a premium on the market. Our original sows from the University Farm at Davis. Sweetwater Fruit Company, Bonita, San Diego County, Cal.

Grape Wild Farm Thoroughbreds—Guernsey Bulls of A. R. Breeding. BERKSHIRE HOGS. Finest herd in the state. All ages for sale. A. B. Humphrey, proprietor. Mayhews, Sacramento Co., California.

For Sale—Registered. Berkshires:. 25 choice pigs of best breeding from the best strains in America. For prices and description address H. L. Murphy, Perkins, Sacramento Co., Cal.

Blatchford's Pig Meal weans pigs easily and safely; no trouble; no milk. Write for free folder, "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

Toggenberg Goat For Sale — No better milker in the country. Will sell at a bargain. Address, Nicholas Weber, Esparto, Yolo Co., Cal.

For Sale—At all times, Jacks and Stallions, driving and saddle horses. Price and stock guaranteed. Phillips and Kingsbury, 2318 G Street, Sacramento.

Cholera Immune—Registered Berkshires of all ages, both sexes, from large-boned pigs. Riccomi Bros., Mountain View, Cal.

Berkshires—Pedigreed Boars ready for service. Bred sows, weanling pigs, both grade and thoroughbred, finest stock. C. H. Thompson, Novato, Cal.

Duroc Jersey Swine—Registered boars, no gilts for sale. Guarantee satisfaction. Prices reasonable. H. P. Eakle, R. F. D. 3, Woodland, Cal.

For Sale—Bred sows and gilts. All cholera immune—and extra choice large stock. Main 1326—F-6350. Mr. Hill, 429 Union Oil Bldg., Los Angeles, Cal.

Poland Chinas—Young stock; either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

Glenview Poland China—Stock for sale. Chas R. Hanna, R. F. D. No. 3, Riverside, Cal.

Pedigreed Duroc Jersey Boars or sow pigs —Extra fine. John Kincaid, Box 151, East Bakersfield, Cal.

For Sale—Thoroughbred Duroc Jersey Boars and Gilts, strong and vigorous stock. Fred Hart, Exeter, Cal.

Will Exchange Los Angeles property for cows. See or write S. F. Sheridan, Atwater, California.

N. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale.

MACHINERY

USED RANCH MACHINERY, PUMPS, WINDMILLS, TANKS, ENGINES, HAY MACHINERY, PUMPING PLANTS.
SPECIAL SNAP, PRACTICALLY NEW
38 H.P. White Middleton engine complete with $65 friction clutch, $75 belt, 5 two-step B. J. Centrifugal pump with frame, shafting, pipe, fittings, pulleys, gates, 50,000 gal. redwood tank, 30-ft. stand. Take entire plant for $1200, engine alone cost $1500, or will separate.
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Double - acting LUITWEILER pump complete with cylinder, pipe and rods, $325; pump alone cost $680. Bulldozer jack, $32; many other pumps, all kinds and sizes.
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8-ft. mills, $19.50; 10-ft., $27.50; 12-ft., $45. NEW 1000-gal. tanks, $19.50; 2000, $29.50; 3000 used redwood and stand, $30; 30,000 redwood like new, $125; many others 50 gallon up. H. P. BALER, $90; SOUTHWICK power baler, $350, cost over $700; WHITMAN power baler, $200. Steam tractor with complete baling outfit, $600.
Mowers, Rakes, Sprayer, harrows, potato, beet machinery, Fan Mill, Corn Sheller, small ranch tools.
ENGINES, PUMPS, BOILERS
Eighty H. Boiler, Smith Valle Steam engine 14x18 and Compressor 12x18, $1000, cost $6000. Absolutely cheapest serviceable material can be produced for. Pioneers in our line. DEMMITT CO., UPSTAIRS, 120 N. Main, Los Angeles, Yard, 816 Yale. Buy Tools of All Kinds.

For Sale—Used and new Gas Engines, 2 H. P. up, rebuilt and fitted with modern equipment. 22 years' experience enables us to repair and rebuild Gas Engines correctly. Get prices. Lloyd, 806-808 N. Main St., Los Angeles. F7020—Broadway 4103.

SEEDS AND PLANTS

Increases Milk Flow, Egg Laying and animal weight 25 per cent. Cheapest feed. Plant now Luther Burbank and Mediterranean Spineless Cactus. ROBINSON CITRUS NURSERIES, R. F. D. 35-A, San Dimas, Cal. Covina phone 902.

Burbank Spineless Cactus—Hardiest varieties, "Melrose" and "Special." Strong, matured slabs. $8.50 per 100; $50 per 1,000. Labranza Ranch, Athlone, Merced Co., Cal.

Sudan Seed, Burbank Spineless Cactus and Giant Winter Rhubarb. Special prices. Write now. Black Bros., 455 Lucas, Los Angeles.

For Sale—Yellow sweet potato plants $1.00 per thousand F. O. B. Santa Ana, Cal. S. D. Teel, R. D. No. 3, Box No. 8, Santa Ana, Cal.

Genuine Burbank Spineless Cactus—Strong mature slabs, $6 per 100—$50 per 1,000. Thos. Cathers, Morgan Hill, Cal.

WANTED

Farms Wanted—We have direct buyers. Don't pay commissions. Write describing property, naming lowest price. We help buyers locate desirable property free. American Investment Association, 12 Palace building, Minneapolis, Minn.

Wanted to hear from owner of Farm or Fruit Ranch for sale. O. O. Mattson, Minneapolis, Minn.

Agents wanted to sell W. R. P. Legume Bacteria. Western Rock Products Co., Balboa Bldg., San Francisco.

Wanted Good Farm, or unimproved land from owner. H. L. Downing, 105 Palace Bldg., Minneapolis, Minn.

DUCKS

Selected Indian Runner and Mammoth Pekin Duck eggs. Write for special prices. Black Bros., 455 Lucas, Los Angeles.

THE GARDENETTE.

"The Gardenette, or City Backyard Gardening by the Sandwich System," by Benjamin F. Albaugh, published by Stewart & Kidd Company, Cincinnati, at $1.25 net.

Primarily this book is intended for the city "farmer," but for any one who has a desire to get the most out of the small garden patch it has a world of information. There are two parts to the book, the first being given over to vegetable gardening, the second to flowers and ornamentals. There are many full page halftone illustrations, several plats showing methods of laying out the garden, and all the way through explicit instruction for each step to take to secure certain results with vegetables or flowers. One little feature described is well worth the price of the book. It is on page 26, while the illustration making it all plain follows. It touches upon "the plant incubator." It appeals to us that it would be far better than the hotbed and almost equal to the regular glass house. It is comparatively inexpensive, the essential feature being a box two feet square covered with a platform on which is room for three flats each capable of growing 150 plants. Within the small square box underneath is placed an ordinary hand lamp, and the heat from this warming a sheet of iron gives the under heat necessary to the propagating of many plants. The cost of running this outfit is two cents for 24 hours, according to the figures given in the book.

The calendar or planting table should be hunched ahead a few weeks or possibly months to make it fit California conditions. Excepting that we do not see why the instruction given in the book should not be most helpful to every Californian.

From the first page of the flower gardening part of the book we take one paragraph:

"No one need be deterred from attempting to grow flowers successfully because of limited space or because of unfavorable conditions, for there is such a wide range for selection that it would seem as if plants may be chosen that are suited to thrive in almost any condition of soil, exposure, etc. Of course many varieties require plenty of sunshine, but there are others which do equally well when shaded. Some varieties need plenty of room and do best when isolated, or as single specimens. Others thrive when somewhat crowded. So there is ample opportunity to choose those adapted to varied conditions."

A WISE YOUTH.

A small boy had been vaccinated and after the operation the doctor prepared to bandage the sore arm, but the boy objected.

"Put it on the other arm, Doctor."

"Why, no," said the physician, "I want to put the bandage on your sore arm, so the boys at school won't hit you on it."

"Put it on the other arm, Doc," reiterated the small boy; "you don't know the fellows at our school."

Questions and Answers

THE EDITOR AND STAFF

"Orange" Rust

I send rose leaves covered with yellow or rather orange colored spots. What are they and what is the remedy?—Subscriber, Soledad.

This orange colored rust is rather perplexing to handle on blackberries and roses. Bordeaux of 4-5-50 strength is the safest to be applied after cutting off all parts of the vine or bush which are affected. There is no saving of leaves on which fungus has secured a foothold. The only thing to do is to subdue the spores of the disease so that new growth may be freed from it.

Twig Borer

I am mailing package containing twig from olives showing small round hole at the place of junction with larger limb, also in same box the insect which causes the trouble. What is it and how should it be handled?—Subscriber, Greenfield.

This is the common branch and twig borer, description of which can be seen on page 238 of Essig's "Injurious and Beneficial Insects." It not only infests the olive but also the branches of almonds, apples, apricots, cherries, figs, orange, peach, pear and many others of our fruits. As the damage is not great from this pest there is no control measure possible within economic bounds.

New Zealand Rabbits

A New Zealand doe had young outside the nest prepared for her and one rabbit was found dead outside the hutch. I inspected the hutch and nest, but failed to find any more, so concluded she had eaten them. She appeared large, as if she had not yet had young, but there was sufficient evidence in the hutch (but not in the nest) to show that she had. The next day, to my surprise, I saw fur in her nest and further inspection showed it to be full of rabbits. She was bred to one buck and was with him from six to eight hours.—Subscriber, Los Angeles.

As you do not state whether your doe was kept separate from any bucks I take it for granted she was kept continually alone after breeding, which rabbit fanciers know is necessary in many cases if premature birth or miscarriages are to be averted, although sometimes even if the doe is kept separate from all other rabbts in a hutch the above fate is liable to befall the offspring, due to sudden fright or fear at some passing object or cause in nature's development. The latter cause no doubt brought on the incident you mention, as the one you found dead was either "still-born" or had frozen to death from exposure by getting out of the nest, as many do, or by being trampled to death. I may add it is not necessary to leave the doe with the buck over five minutes if she receives him. This is much more satisfactory than leaving them together for a longer period.—R. V. M.

Spraying Olives

Is it safe to spray olives with Bordeaux, especially where trees are in full bloom? What is the best time of the year for spraying?—Subscriber, Los Angeles.

We would defer all spraying until after fruit is set unless there is serious fungus trouble. Spraying for most insect pests, however, is more effective in the fall—September to December. For that use the kerosene emulsion or at least some insecticide. Bear in mind that Bordeaux is only a fungicide and has no effect whatever on insects.

California Vine Disease

Grape vines on my place are dying of a disease which experiment station terms "California vine disease." Is this the disease also called phylloxera? Is there not a stock that is resistant? I am informed that there is no remedy for the disease, which is gradually taking all vines in my home vineyard.—Subscriber, Lankershim.

There is a material difference between the California Vine Disease and phylloxera. Phylloxera is an insect which attacks the roots of the vines and may be to a degree overcome by planting resistant vines. The California vine disease has killed thousands of acres of thrifty vineyards and is among the most destructive of plant maladies. In its effect and methods of work on the vines it much resembles peach yellows, the pest of the eastern peach orchards. Owing to its first observation in the vineyards at Anaheim, Orange County, it is often called the Anaheim disease. As the cuttings from these vines are almost sure to be diseased they should never be used for propagating new vineyards. It has been found that cuttings from healthy vines often do well in the ground from which the diseased vines have been removed. As to treatment, once the disease has shown in the vine we believe there is none.

Fig Not Bearing

I have fig tree about three or four years old that never ripens any fruit. The fruit sets and after growing to an inch in diameter shrivels up on the tree or falls. Can you tell me what is the trouble? The tree is on rather heavy red soil underlaid with hardpan.—Subscriber, Porterville.

Presumably this is the Smyrna fig which must be fertilized with pollen from the wild fig, usually called caprifig. In order to accomplish this a small insect known as the blastophaga, or fig wasp, has been introduced from Asia Minor, and all growers of Smyrna (sometimes called Calimyrna) figs find it necessary to grow other trees on which these wild or inedible figs grow and remain the year around. At about this time of year these wild figs are placed in orchards of commercial figs and the insect as it escapes from the wild figs enters and fertilizes the blossom in interior of the others. In the case of only a tree or two it will probably be necessary to write to Mr. Roeding at Fresno, or someone who has caprifigs for sale, and obtain and distribute these through your tree.

Almonds Not Bearing

I have almond trees four or five years old that blossom sparingly and set very few nuts. What is the cause of the trouble?—Subscriber, Porterville.

Perhaps the bloom which comes on your tree is not fertilized by pollen of some other tree. It has been the practice in commercial orchards to arrange alternate rows of different varieties which bloom at the same time. For instance, Nonpareil or N. P. U. should alternate with Drake's Seedling or Texas Prolific, while the I. X. L. should alternate with Peerless. As to your tree not blooming profusely it may be due to poor variety or lack of vigor in the individual tree.

Spotted Liver

Please advise me if there is any cure for spotted liver in rabbits. They seem perfectly healthy, but when they are killed I find the liver all full of white spots.—Subscriber, Pomona.

The usual cause of spotted liver in rabbits is soured food and lack of exercise. Sometimes with these things well provided for they will get it anyway. It is not difficult to stamp out and does not affect the meat otherwise. The liver, however, is spoiled and must be thrown out. Give animals so affected and the young stock a little of Pratt's or other good animal regulator, about one-sixth what you would give to young lambs according to the directions, in the water at the morning meal. In the evening put about one teaspoon of sweet spirits of niter in each gallon of drinking water for them, especially for the young. A disinfectant may be made by mixing creosote oil with a dilution of water and mixing that with what sawdust it will dampen well. A handful of this thrown in the corner of the hutches and runs will work wonders for the health and appearance of the rabbits. A rabbitry should be kept as clean as a butcher shop if healthy animals are expected to be kept in it.—R. V. M.

Slobbers

Will you please tell me what to do for rabbits when eyes and nose swell shut? They have to breathe through their mouths and soon die. They have clean quarters and variety of feed. Some only live one or two days; others a week.—Subscriber, Fillmore.

Rabbits affected with swell heads with nose and eyes swollen shut are troubled with those almost incurable diseases known as slobbers and sniffles which are brought on in the form of a cold or pneumonia, due usually from being exposed in cold, damp or drafty hutches. It may also be inherited. Drastic measures are necessary. Separate immediately all that are affected. Disinfect all hutches with a solution of carbolic acid. Make an oil of four ounces of sweet oil, two drops of carbolic acid, six drops of turpentine, and six drops of camphor. Shake well and put in a small new oil can. Shake well each time used. Put five drops of this mixture in each nostril of each animal that you suspect to be affected, twice a day. Feed clean, dry hay and alfalfa that is not dusty, and clean grasses. Above all use above treatment regularly. They are of little use without. A little regulator in their drinking water is also beneficial. If your stock are wet around the eyes and mouth they have the slobbers which is a disease prevalent among many rabbitries. An excellent remedy is to put two drops of muriatic acid in each pint of drinking water every other day for a week or so. Separate all sick from the rest. Disinfect with creosote oil or with carbolic acid diluted and mixed with sawdust, then thrown into the corners of the hutches. After you are free from the trouble be sure to dust a little salt on each ration of grain each day. This is one of the best preventives of slobbers or indigestion. Rabbits in confinement should never be fed green foods such as alfalfa, hay or grass, unless sparingly, and never cabbage. They do much better on dry alfalfa, bran, rolled barley and other grains with a fresh carrot or two occasionally.—R. V. M.

Kerosene Sprays

Would kerosene emulsion applied to citrus trees with a good hand pump be as good as when applied with a power driven machine, using a mechanical mixture of kerosene and water instead? That is, will the hand pump have force enough?—Subscriber, San Diego.

Kerosene emulsion may be applied with a hand pump nearly as effectively, though less economically, as with a power pump. It is entirely different, however, with the ordinary kerosene or distillate mixture with water. This is only effective when the mixture is complete and the pressure strong, and that can only be secured by such thorough agitation as is given by the large power outfit. Kerosene, if properly emulsified, remains in solution and all parts of the mixture are of equal strength. The common mechanical mixture proceeds to separate the moment agitation is stopped.

THE WISE FOOL.

"Dead men tell no tales," observed the Sage.

"Maybe not," replied the Fool. "But their tombstones are awful liars."

Los Angeles Lumber Company Makes Announcement

The Robert Holmes Lumber Company of Los Angeles wish to announce to their friends and customers that they have perfected an arrangement with the Salt Lake Railroad Co. for the renewal of their lease, and will continue to operate their lumber yard at the old location.

They have added a complete stock of hardware, wire fencing, poultry netting, etc., to their stock, and are quoting some very low prices on both lumber and hardware.

They are especially well equipped to handle out-of-town shipments, having a railroad track direct into their yard where they can load cars for all roads leading out of Los Angeles. A letter, wire, or phone call will receive prompt attention. The Robert Holmes Lumber Co., 2150 East Seventh St., Los Angeles. Phone 41335, Boyle 73.

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Some More Uses for Cornstarch

Tasty Dishes That Can Be Quickly Prepared With This Delicious Food Product.

Among the many things in which cornstarch can be used with pleasing results are wheat bread, graham bread, biscuits or short cake crust, popovers, graham muffins, corn gems, brown bread, French rolls, griddle cakes and waffles, buckwheat cakes, fritters, pies, cakes, cookies, fillings and icings, puddings, custards, sauces, soups, gravies, ice cream and many other delicacies too numerous to mention.

It is self-evident, therefore, that an ingredient which can be used in so many ways should be thoroughly understood by every housekeeper—in order that she may enlarge the possibilities of her cooking to the utmost.

But to obtain the best results with cornstarch recipes, it is absolutely essential that the best quality of cornstarch be used. One of the leading culinary experts—referring to correspondence she had had with housekeepers all over the country—states as follows: "I found that their experience was the same as mine—that those who had the greatest success with cornstarch recipes always depended upon Kingsford's."

This famous brand has been the favorite of discriminating housekeepers for many years. It can be obtained at all modern grocers. Order a package of Kingsford's today, and ask for the little Kingsford's cook book containing hundreds of valuable cornstarch recipes.

The Household Department

LEANIN' ON YOUR HOE

By Winston W. Wharton

You talk about the comfort
You have had along the way,
About the blissful moments,
When your work gave place to play,
But of all ecstatic hours,
There are "none such," I know,
Like moments in the garden
A-leanin' on your hoe.

Most likely in the springtime,
When the flowers burst into bloom,
And the corn and beans and lettuce
Are a-fightin' weeds for room:
You start out while it's dew-wet
To clean out every row,
But long before it's meal time
You're leanin' on your hoe.

You maybe planted taters,
A paradise of spuds.
You hoe and dig among them
And sweat out all your duds:
When at last you've gone your limit
And a breeze begins to blow,
There ain't no rest in all the world
Like leanin' on your hoe.

O you talk about the comfort
Of a cushioned rockin' chair,
Or a pew on Sunday mornin's
Where you sleep all through the prayer,
But there's nothin' rests the conscience
And mind and body so,
Like stoppin' when you want to
And leanin' on your hoe.

O it may be in the mornin',
Or at noon or later still,
That, amid the ceaseless chopping,
You receive a Sabbath thrill,
And you pause, O blissful moment,
Softly sounds a vesper low,
And you're caught to realms supernal
A-leanin' on your hoe.

THE OLD SQUIRE'S EDEN.

By C. A. Stephens in Youth's Companion

On the upper side of the north field at the old squire's was a great rock overshadowed by a huge sugar maple; just below the rock was as pretty a little field as you could wish to see. It was not much larger than a good-sized house lot, but its soil was of deep, clear, yellow loam, and it had a gentle southern slope that caught the sunshine. To the north and west the woods above the rock sheltered the field from the cold winter winds and the fierce summer thundershowers. It was such a pretty spot that we called it the old squire's "Eden," and sometimes the old squire's "garden," although he never raised flowers there, or even garden vegetables—except one kind. In point of fact, the best name for it would have been the "potato-ball garden," for there, season after season, for more than 20 years, the old squire had been experimenting with potato balls.

As farmers well know, the various varieties of potatoes tend to run out in time,—or did tend to do so under former methods of cultivation,—and have to be replaced by new ones. Several varieties had run out at the old squire's, and he was constantly trying to grow new varieties by planting the seeds in the potato "ball." Two or three seasons are needed to grow edible potatoes in that way. The first crop is usually immature. Nor can you ever be sure what kind of potatoes you will get from planting the balls of even the best varieties. It is usually a poor kind, but occasionally a very good variety appears.

A fine new variety of potato is likely to be very profitable to its grower; he can sell it a high price for field planting, until other farmers get enough of the potatoes for seed.

The old squire hoped to grow an extra good variety in his potato-ball garden, and to make us all rich. The old gentleman was always optimistic—"schemy," grandmother called him,—and usually had high hopes for the success, not only of his potatoes, but of his hops, sweet corn, and other farm products.

Every spring, and sometimes also in the fall, he planted potato balls, from different varieties, up there by the great rock. In September he dug up what had grown during the summer, and put them into several carefully labeled bins in the farmhouse cellar; the next spring he replanted them, each kind by itself. He repeated that process for two or three or perhaps four years, until he had produced well-matured potatoes, and could see whether they had real merit as a new variety.

In time, the old squire came to be somewhat of a potato expert. Many of the varieties that he raised proved valueless; but now and then he grew a pretty good variety that he could recommend farmers to raise. There was one small kind that he called the Nest Egg, because it was white and smooth, and shaped much like a hen's egg. Another kind he named the Round Reds, and another Ruth's Favorite, because grandmother liked them for cooking. Then there were the Beauty of the Forest, the Irishman's Dinner, the Pearl Whites, Irish Dumplings, and the Long-Live-in-the Ground, so named because the seed lived in the patch, and for three successive winters survived the frosts.

But the best variety of all was the Bobolinks. The name came from a pet bobolink that Theodora had tamed that summer. The bird was a vociferous singer, and whenever the old squire went up to his potato garden, the little bird flew after him, perched on some tall weed stalk, and then burst forth into his merry song.

After these flights in the free air the bobolink would always come back to its cage to be fed.

The Bobolink was a superior kind of potato, and bade fair to be very profitable to us. As I remember, it was yellowish white in color, of good size, but not too large; in shape it was a little elongated and ovoid. It had a thin, smooth skin, from which the soil dropped off cleanly; and its "eyes" were not deep-sunk, but on the surface. When it was boiled, the skin cleaved off; and when either boiled or baked, it was very mealy, and had a fine flavor. Moreover, it grew fast and ripened early; the tops showed no tendency to "rust," and it kept sound throughout the winter. Another good point was that the potatoes grew in a compact cluster in the hill, and could be easily dug.

There were three rows of Bobolinks, each about twenty yards long; the old squire thought that there would be at least five bushels of them. His plan for getting the variety known was to give one or two of them to various farmers, far and near, for them to examine and eat. He felt sure that many would want the Bobolinks for seed, and that as their fame spread abroad, there would be a steady demand for all we could raise, for ten years, perhaps.

It was then about the tenth of September, the beginning of the harvest season. One cloudy evening I had been at our nearest neighbors, the Edwards's, playing checkers with Tom. We got interested in a long, slow game, and it was almost 11 o'clock before I started for home by the path across the fields.

I hurried,—for bears were sometimes roaming about at that time of year,—and just as I was passing behind our west barn, to reach the back door of the farmhouse, I heard a queer little noise, like the clink of a hoe on a stone. I was thinkin more of bears than of hoes, I guess, and as I knew no bear had made that noise, I went on indoors and stole up the chamber stairs. The house was dark, for everyone was in bed.

As I undressed, however, it occurred that it was very odd to hear a hoe clink at that time of night. As

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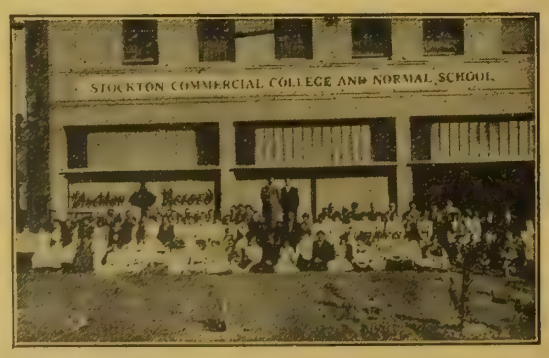

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A Good Table and Cooking Syrup

Its Many Possibilities in the Hands of the Skilled Housewife

In addition to its well-known uses as a dressing for the bread of little tots, as well as for the griddle cakes and waffles of the grown-ups, a good syrup serves many important purposes in the hands of the skilled housewife. It is one of the principal ingredients in the making of many candies and desserts, while a little dash of it has a most pleasing effect in the preparation of hundreds of other dishes.

When baking ham, if a good table syrup is substituted for brown sugar to mix with the bread crumbs and yolk of egg with which it is covered before the final browning, a finer flavor will be obtained; while brushing pastry lightly with syrup will give it that fine glaze considered so desirable.

For all of these purposes the famous brand of Karo Syrup is most strongly recommended. No less an authority than Marion Harland states: "I do not hesitate to award Karo the preference above any other table syrup used in my household."

Karo Syrup can be obtained at all modern grocers. When ordering Karo, ask for the little Karo cook book, which contains hundreds of valuable recipes—many of them contributed by famous culinary experts in all parts of the country.

I now remembered, the sound had seemed to come from up near the woods, north of the west barn—the direction of the old squire's Eden. Even then I did not suspect anything in particular. Instead of getting into bed, however, I went to my cousin Addison's room and waked him.

"What do you want" he muttered sleepiiy.

"Ad," I said, "what do you suppose anyone is doing with a hoe up in the old squire's Eden at this time of night"

"Who is" said he. "How do you know?"

"I heard a hoe clink up there as I came in," said I.

Addison sat up. "That's queer!" he muttered, and then asked me whether I were sure.

"Pretty sure," said I.

He thought a moment, then jumped up and began to dress. "Let's go up there and see," said he.

We went quietly downstairs. It was very dark. We lighted one of the barn lanterns—which shows how little we really thought that we should find thieves there—and went up to the squire's Eden. All was quiet.

"Guess you imagined that noise," Addison said, and then, holding the lantern low, he looked along the potato rows. "By jingo!" he suddenly exclaimed. "Some one has been digging potatoes here! Look at the fresh dirt. It's the old squire's Bobolinks, too, and"—following fast along the three rows—"they've dug every blessed hill of them!"

"The thieves can't have gone far!" I exclaimed.

"That's so. We'll catch them."

We blew out the lantern, and then Addison went in one direction, out toward the highway, and I in the other, toward the Edwards farm. We listened as we ran, but heard no sound of anyone stealing away.

We now ran back to the house and waked the old squire. He was at first incredulous, and went up to the rock with a lantern to satisfy himself. Our first conjecture was that hunters or woodsmen had stolen the potatoes for food; but if that were so, it seemed very odd that they had not touched any of the other kinds growing there. At the head of each row of Bobolinks we had set a little stake with the name of the potato written on it. Every hill in those three rows had been cleanly dug, as if the thief had intended to get every potato.

(Continued Next Week)

LEGGINS AND MITTS

A lad of outdoor proclivities made it clear that he had come to the library only because his mother had sent him to get some "leggin's." The young woman at the desk hesitated, and did not look responsive.

"And if you haven't no leggin's, I was to take some mitts."

The conjunction brought a flash of enlightenment, and she brought him a suitable selection of legends and myths.

Many People Suffering From Ants

Thousands of People Welcome This Simple Method of Relief.

Certain pests are often confined by condition to certain localities, but ants can be found most anywhere. Ants not only are an annoyance, but they are dangerous as well—spreading disease germs in the same manner as flies and mosquitoes. Nothing tries the patience of the good housewife any more than to find them in the sugar and the jam, and over-running the entire pantry.

There is no need of putting up with this annoyance any longer, however, for a very simple remedy is now available. It is known as Kellogg's Ant Paste and can be obtained at all modern druggists. This paste seems to have almost supernatural powers over ants. Not only will it drive every ant out of the house, but will prevent their ever getting a foothold in your place again.

Try a package today—the results will be a revelation.

IDEAS FOR THE COOK

Written for the California Cultivator
By Isabel Cottle

Breakfast

Blackberries Cream
Shirred Eggs Cream Muffins
Coffee

Lunch or Supper

Baked Macaroni Summer Squash
Egg and Lettuce Salad
Cracker Pudding Tea or Milk

Dinner

Pot Roast of Beef
Potatoes a la France
Creamed Lima Beans
Rolls Spiced Blackberry Jelly
Gold Cake
Ripe Apricots with Cream
Coffee

New Potatoes a la France

Three tablespoons butter, two pounds new potatoes, two sprigs mint, one teaspoon salt, one tablespoon chopped parsley, one tablespoon lemon juice. Wash and scrape potatoes. With round vegetable cutter scoop out from potatoes a number of little balls. Boil these until tender in hot water to which has been added salt and mint. Drain, add butter, parsley and lemon juice. Toss about gently in pan a few minutes and serve on hot dish.

Delicate Cracker Pudding

Roll three crackers fine, pour over them a pint of boiling milk; stir well together and add three tablespoons of sugar, a pinch of salt and the yolks of two eggs. Mix together thoroughly and bake in a deep dish half an hour. Beat the whites of the two eggs stiff, adding a tablespoon of powdered sugar and one-half teaspoon nutmeg and one-half teaspoon cinnamon. Pile on roughly and brown lightly.

Gold Cake

Three-fourths cup sugar, five tablespoons butter, one-half cup milk, four yolks of eggs, one and one-half cups flour, one-half teaspoon salt, three teaspoons baking powder, one-half teaspoon lemon extract. Cream butter and sugar together. Beat egg yolks very light and add to creamed mixture. Add dry ingredients, milk, and lemon extract and mix well. Turn into a small greased and floured cake tin and bake in moderate oven 45 minutes. Sufficient for one small cake.

Baked Macaroni

Boil one-half pound of macaroni in salted water 20 minutes and drain. While the macaroni is cooking put over the fire in a saucepan one cup of cooked or canned tomatoes; add a pinch of soda, one cup of milk, one-fourth pound of cheese cut fine, a little chopped ham or bacon and seasoning. When boiling hot pour over the drained macaroni and bake one-half hour.

HEMSTITCHED SEAMS

We find, on ready-made clothes, finishing touches of many kinds which make them look chic. The home dressmaker is able to imitate many of these with comparatively little trouble.

In the last few years seam beading has been used to a large extent, but it does not give the same effect so often seen on ready-made garments, especially on those made of silk or fine materials. This finish may be obtained by loosening the upper tension of the sewing machine and lengthening the stitch. The two pieces of material which are to be seamed together are placed on top of each other with their edges even. Two layers of blotting paper are then inserted between them and they are either pinned or basted to the paper to hold them in place. The seam is then stitched and the blotting paper torn out. The sides of the seam are turned back, leaving the hemstitching open.

These seams are quite durable and add to the appearance of a garment. This method may, also, be used to give a hemstitched appearance to the hems of pillow slips and sheets.—Hazel Emigh, Colorado Agricultural College.

CORRECT

"What is the most difficult disease you have to contend with?" asked the student.

"Imagination," replied the doctor.—Cincinnati Inquirer.

Gas Stove Convenience with Kerosene

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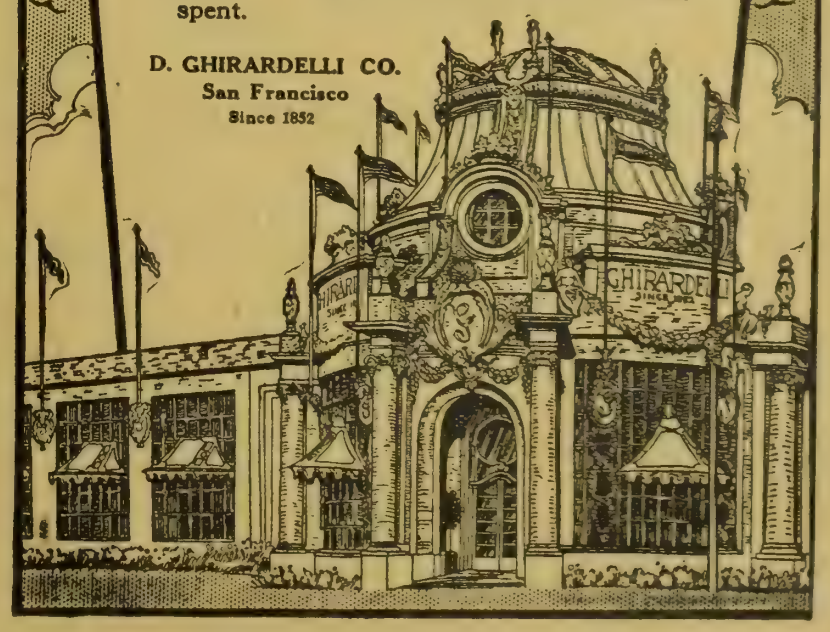

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San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, June 16, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade 3 to 4 cents above following quotations:

Creamery Extras 26
Firsts 24
Country .....22@23
Ladle .....20@21

CHEESE

Prices to trade, 1 and 2 cents higher:

California Fresh 13½
Cheddar .....19@20
Domestic Swiss 20
Eastern Daisy .....18½@19
Oregon Triplets .....15½@16
Longhorn .....19@19½
Imported Swiss .....30@32
Tillamook .....16½@17

EGGS AND POULTRY

Prices to trade, 3 cents higher than following quotations:

Fresh Ranch, case counts.....20
Candled 22
Petaluma—Santa Rosa 23
Northern Case Counts.....22
Other Outside Stock.....19½

Prices to producers:

Hens, lb. .....13@16
Roosters, old 7
Broilers, lb. 14
Fryers 18
Roasters, lb. 18
Turkeys .....15@17
Ducks 14
Geese 12
Squabs, doz. 2.00

LIVE STOCK

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs., per cwt.....8.50
Prime Steers .....7¼@7½
Heifers .....6¼@6½
Calves, lb. .....8½@9
Sheep—
Ewes, head 4.50
Wethers 5.00
Lambs, head .....4.75@5.00

POTATOES

Wholesale selling prices:

Idaho Russet 2.40
Idaho Rurals 1.60
New, cwt. .....1.40@1.50
Northern Burbanks 1.60

ONIONS

Wholesale selling price:

Bermudas—
Imperial Valley, crate.....90
Crystal Wax, crate.....1.00
Garlic 15

VEGETABLES

Wholesale selling price:

Asparagus, green, lb.....7@11
Artichokes, Northern, doz.....25@75
Beets, doz. 30
Beans—
Wax .....4½@5
Limas .....9@10
Green .....4@5
Cabbage, sack 90
Carrots, doz. .....30@35
Cauliflower, doz. 1.50
Celery, doz. .....75@1.15
Chicory .....35@40
Chives, doz. 1.25
Corn, lug .....55@60
Cucumbers, box 40
Egg Plant, lb.....7@8
Escarole, doz. .....35@40
Horseradish, lb. 15
Leeks, doz. .....35@40
Lettuce, crate .....85@1.00
Mint, doz. .....35@40
Okra, lb. 10
Onions, Green, bunch.....15@20
Oyster Plant, doz. .....35@40
Parsnips, doz. .....35@40
Parsley, doz. 15
Peas—
Small .....3@4
Telephone .....5½@6
Peppers, lb. .....10@15
Pumpkins, lb. .....1¼@1½
Radishes, doz. 15
Rhubarb—
Crimson Winter, box.....75
Strawberry 1.25
Spinach, doz. .....15@18
Squash—
Summer, lug .....35@40
Tomatoes, crate 1.00
Turnips 30

FRESH FRUIT

Wholesale selling price:

Apples—
New Spring Crop, lug.....1.25
Pippins 2.50
Rome Beauties, half box.....1.75
Pearmains 2.50
Apricots, lug .....1.00@1.25
Avocados, doz. .....4.00@5.00
Bananas .....4@4½
Berries—
Strawberries, basket .....4@5
Blackberries, basket 3
Raspberries 3
Loganberries, basket 3
Gooseberries, lb. 15
Cantaloupes—
Diamond Pack .....1.35@1.50
Standard .....1.50@1.75
Cherries—
Red .....9@10
White .....9@10
Cherimoyas, lb. .....20@25
Currants, crate .....140@1.50
Figs, Black, box.....1.25@1.35
Calimyrnas, box .....1.75@2.00
Loquats, lb. .....9@10
Pears, Winter Nelis, lug.....1.50
Peaches, lug 1.65
Pineapples, lb. .....6@7
Watermelons, lb. .....2½@3

CITRUS FRUIT

Wholesale selling price:

Lemons .....1.75@2.50
Grapefruit, Seedless .....2.25@2.50
Navels .....2.00@2.50
Tangerines, box 1.35
Limes, basket 1.00
Valencias .....2.00@2.85

DRIED FRUITS

Wholesale prices to retailers are:

Evaporated Apples, Fancy, lb.
Boxes .....7½@11
Apricots 10
Nectarines 12½
Peaches .....5@7
Pears 12½
Prunes .....8@12½

HONEY

Wholesale selling price:

Comb, Fancy, Water White.....15@16
White .....14@15
Light Amber 12½
Extr. Water White.....7@7½
White .....6@6½
Light Amber 5
Beeswax .....24@25

NUTS

Prices named by California Walnut Growers' Association are:

No. 1 .....16½
Budded Walnuts 20
Jumbos 19
No. 2 12
Culls 9

Prices fixed by California Almond Growers' Exchange, f. o. b. California.

Almonds—
Nonpareil .....21@22
I X L .....19@19½
N P U.....17½@18½
Drake's Thinshell .....18@18½
Pecans 17
Peanuts—
California, Raw 6
Japan 5½
Eastern 7½
Rice Corn .....5.00@5.25

RICE

Wholesale selling price:

California .....4.75@5.00
Broken .....3.75@4.00

BEANS

Wholesale selling price:

Producer's price not far from one dollar under these quotations:

Limas 6.00
Bayous .....6.00@7.00
Lady Washington 6.00
Pinks .....4.65@4.75
Black Eyes .....6.75@7.00
Lentils 14.00
Small White .....5.50@5.75
Garbanzos 8.50

HAY

Prices to producer f. o. b. Los Angeles: Following prices are on new hay.

Barley Hay .....8.00@9.00
Wheat Hay .....8.00@11.00
Tame Oat .....9.00@12.00
Alfalfa .....8.00@11.00
Volunteer .....5.00@7.00
Straw .....5.00@6.00

GRAIN

The most spectacular feature in the grain market this week is the great decline in wheat. It is rumored that this is not the bottom notch by any means and that within a few days a still further decline will be noted.

Wholesale selling prices f. o. b. Los Angeles:

Corn, Yellow 2.20
Corn, White 2.30
Wheat .....2.10@2.15
Oats, White 1.90
Oats, Hulled 2.25
Egyptian Corn 2.20
Barley Seed 1.35
Barley, Hulled 1.70
Milo 1.85
Sunflower Seed 7.00

FEED STUFF

Wholesale selling prices f. o. b. Los Angeles:

Bran, Heavy 1.90
Alfalfa Meal 1.15
Alfalfa Molasses. per cwt..... 1.20
Beef Scraps 3.00
Beet Pulp 1.25
Cracked Corn, cwt. 2.25
Cracked Wheat, cwt.....2.25
Cotton Seed Meal 1.80
Bone Meal 1.95
Meat Meal 3.00
Bone, Green 1.65
Charcoal 1.90
Oil Cake Meal.....2.60
Fish Meal .....3.15@3.25
Rolled Oats 1.95
Middlings 2.20
Rolled Barley 1.30
Feed Meal 2.30
Scratch Feed .....2.10@2.30
Oyster Shell .....1.15@1.25

San Francisco Market

SAN FRANCISCO, June 15, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade, 4 cents above following quotations:

Extras 26
Firsts 24½

CHEESE

Wholesaler to retailer.

Oregon Y. Am.....14½
Young America 12½
California Flats .....8@11
Cheddar 20
Oregon Twins 18½

EGGS AND POULTRY

Prices to trade 3 cents higher than following quotations:

Extras 21½
Firsts 19
Select Pullets 19½

Price to producer:

Hens, lb. .....15@17
Fryers .....24@26
Broilers .....18@20
Roosters—
Young .....25@26
Old .....10@11
Squabs .....1.75@2.25
Ducks .....12@16
Geese .....2.50@3.00
Belgian Hares, lb.....7@8

LIVE STOCK

San Francisco prices. gross weight:

Steers .....4@6½
Cows and Heifers .....3@6
Calves, lb., live weight.....6@9
Hogs .....4¾@8
Wethers .....6½@7
Ewes .....6@6½
Milk Lambs, lb.....8@8½
Shorn stock ¾@1c less

POTATOES

Wholesale selling price:

Idaho .....1.50@1.75
Idaho Russet .....1.50@1.75
Burbanks .....1.25@1.50
New Delta .....85@1.25
New Potatoes, cwt.....1.25@1.75

ONIONS

Wholesale selling price:

Onions, cwt. .....65@85
Bermudas .....65@75
Australian Browns .....1.75@2.00
Oregon .....90@1.00
Garlic, new .....5@7

VEGETABLES

Wholesale selling price:

Asparagus, box .....1.00@1.25
Canner's Price .....75@1.00
Beans—
String .....2½@4
Wax .....2@3
Brussels Sprouts, lb. .....3@5
Celery, crate .....50@1.25
Corn, Brentwood, doz.....20@40
Cucumbers, Southern, box.....25@35
Egg Plant, lb.....4@5
Lettuce—
Sacramento, crate .....75@1.00
Okra, crate .....75@1.25
Peas, sack .....1.00@2.00
Peppers—
Bell, lb. .....10@15
Chili, Mexican .....10@12½
Rhubarb—
San Jose .....50@75
Alameda .....40@70
Squash, Summer, lug.....60@75
Tomatoes—
Imperial Valley, crate.....50@90
Merced .....50@65

FRESH FRUIT

Wholesale selling price:

Apples—
Newton Pippins .....1.50@1.75
Red Astrachan .....1.00@1.25
Other varieties .....40@75
Apricots, crate .....75@1.00
Bananas, Hawaiian, bunch.....1.25@1.50
Blackberries, chest .....7.00@8.00
Cantaloupes—
Ponies .....35@75
Standard .....50@1.00
Cherries—
Blacks, lb. .....3@6
Royal Ann .....5@8
Currants, chest .....5.00@7.00
Figs, box, single layer.....1.00@1.50
Gooseberries, lb. .....3@6
Loganberries, chest .....2.50@3.50
Loquats, crate .....75@1.25
Peaches, crate .....75@1.00
Pineapples, doz. .....1.50@2.00
Plums—
Clyman .....75@1.00
Cherry, drawer .....40@50
Raspberries, chest .....8.00@10.00
Strawberries—
Longworths, chest .....4.00@6.00
Other Varieties, chest.....3.50@5.00
Watermelons, lb. .....½@1½

CITRUS FRUIT

Wholesale selling price:

Grapefruit, Seedless, new crop..1.75@2.75
Lemons .....1.50@3.50
Lemonettes .....1.00@1.75
Navels .....1.75@2.75
Limes, Mexican, case.....4.00@5.00
Tangerines, halves .....75@1.75
Valencias .....1.75@2.75

DRIED FRUITS

Wholesale Prices are:

Prunes—Bulk basis, 1914 crop almost cleaned up; 30-40s, 5¾c; all other sizes, 5c; 1915 crop, Santa Claras, 30-40s, 4½c; 40-50s, 3½c; all other sizes, 3¼c. Outside sections ¼c lower.

Other Fruits—

50-lb. boxes—	Stan.	Ch.	Ex. Ch.	Fcy.
Evaporated apples	5¼c	5¾c	6½c	
Apricots	6 c	7¼c	7¾c	9 c
Peaches	3 c	3¼c	3½c	4¼c
Pears	7 c	8 c	9 c	10 c

RAISINS

California Associated Raisin Company's f. o. b prices. 1914 crop, guaranteed against decline to August 1. Seeded fancy, 16-oz., 7½c; 12-oz., 5⅞c; bulk, 6c; choice, 16-oz., 6⅞c; 12-oz., 5⅞c; bulk, 5¾c; two-thirds fancy, one-third choice, 16-oz., 5c; per case, 48 pkgs., $3.40. Loose Muscatels, 3-crown, 50-lb. cases, per lb., 6c; 3-crown, 50-lb. cases, per lb., 5⅞c; 2-crown, 50-lb. cases, per lb., 5½c ;1-crown, 50-lb. cases, per lb., 5½c. Seedless Thompsons, 50-lb. cases, 6½c; 16-oz. pkgs., 7⅝c; 12-oz. pkgs., 6½c. Sultanas, 50-lb. cases, 6c; 16-oz. pkgs., 6¾c; 12-oz. pkgs., 5½c. Layers, bulk layers, 50-lb. boxes, $2.75; 6-crown, 20-lb. boxes, $2.75; 5-crown, 20-lb. boxes, $2.25; 4-crown, 20-lb. boxes, $1.60; 3-crown, 20-lb. boxes, $1.30; 5-lb. boxes, add 50c; 10-lb. boxes, 25c. Cartons, No. 1 clusters, 20 to case, $1.70; No. 2 clusters, 12 to case, $2.10; No. 5 clusters, 4 to case, $2.25. Local representatives of the Associated are asking about ¼c higher, while several of the larger independent packers are offering ½c under these figures.

NUTS

Local stocks of all nuts practically cleaned up.

ALMONDS—Prices fixed by Almond Growers' Exchange to the trade, f. o. b. California:

Nonpareil .....11@13
I X L.....11@13
Ne Plus Ultra.....11@13
Drakes 10

Wholesale selling price:

Peanuts—
Unpolished .....3½@4½
Polished .....4@5½
Shelled, China .....5½@6
Italian Chestnuts .....6½@7

BEANS

Wholesale selling price:

Limas .....4.70@4.80
Pink .....4.00@4.10
Black Eyes .....6.00@6.25
Cranberry .....4.80@4.90
Small White .....4.70@4.80
Garbanzos .....6.50@6.75
Large White .....4.70@4.80
Bayou .....4.65@4.75
Manchurian Speckled Bayous.3.60@3.80
Manchurian Butters .....4.50@4.75
Red Mexican .....5.30@5.40
Red Kidney .....5.90@6.00
Horse Beans .....3.50@4.00

HONEY

Wholesale selling price:

Comb, Water White.....18
Light Amber .....10@12
Amber .....7@10
Extracted White .....6@7
Light Amber .....3½@4½
Dark Amber 2
Beeswax .....25@28

HOPS

1914

Wholesale selling price:

Sacramento Valley .....8@10
Sonoma-Mendocino .....11@12½
Oregon Clusters .....11@12½

HAY

Under date of June 12, Scott, Magner & Miller say:

WEATHER CONDITIONS

For Week Ending June 12, 1915

Report from the various California stations of the United States Weather Bureau by George H. Wilson, director, San Francisco.

	Rainfall Data			Temperature Data —Past Week—	
	Past Week	Seasonal to Date	Normal to Date	Maximum	Minimum
Eureka	.00	42.38	45.53	58	48
Red Bluff	.00	34.79	24.81	100	50
Sacramento	.00	17.21	20.06	92	54
San Francisco	.00	27.41	22.22	72	50
San Jose	.00	22.71	16.78	82	46
Fresno	.00	10.92	9.68	102	54
Independence	.00	3.80	9.53	92	..
San Luis Obispo	.00	28.16	20.51	78	44
Los Angeles	.00	17.04	15.62	80	56
San Diego	.00	14.41	10.01	72	58

There was received on the San Francisco market during the last six days 3365 tons of hay. The market has been fairly good, although not particularly active. All of the above arrivals having consisted of old crop, with the exception of some first-cutting alfalfa from the river district. A good quality of hay is always a prime factor in determining a market. Our last year's harvest was of such poor quality, generally, that it burdened this market so heavily that it brought down the prices on the better qualities. We are led to expect a good quality of grain hay this year, which will be a satisfaction and a benefit to everybody concerned. The alfalfa hay market has been rather quiet lately, but more activity is expected and a better demand is looked for in a short time. The market on straw is dull with very little offering.

We quote the average wholesale selling price of hay in carload lots on today's market as follows:

Fancy Wheat Hay (lt. bales)	13.00@14.00
No. 1 Wheat or Wheat and Oat	11.00@12.00
No. 2 Wheat or Wheat and Oat	8.00@9.00
Choice Tame Oat	12.00@12.50
Other Tame Oat	7.50@10.00
Barley	5.00@8.00
Wild Oat	6.00@8.00
Alfalfa	6.00@9.00
Stock Hay	4.50@5.00
Straw, per bale	40@45

GRAIN

Alfalfa Seed	16½
Wheat, Cal. Club	1.75@177½
Corn, Eastern Yellow	1.72½@1.73¾
Corn, Eastern Yellow	1.77@1.78½
Barley Feed	1.00@1.05
Oats, Red, Feed	1.35@1.40
Oats, White Feed	1.45@1.50
Millet	2½ @3¼
Flaxseed	5@5½
Rye	2.00@2.25
Sunflower	5@5½

FEED STUFF

Wholesale prices.

Alfalfa Meal, car lots	13.50@14.50
Bran, ton	26.50@29.50
Feed Cornmeal	40.00@41.00
Cracked Corn	40.00@41.00
Rolled Barley, ton	23.00@24.00
Rolled Oats, ton	37.00@37.50
Middlings	31.00@34.00
Shorts	30.00@31.00
Oilcake Meal	38.00@39.50
Cocoanut Oilcake Meal	24.00@25.00

Citrus Fruit Market

LOS ANGELES, June 16, 1915.

About the best orange market of the year now prevails. It is hoped this favorable condition will continue for a few weeks, at least, until peaches come in. Sales are being made which mean close to a $2.10 f. o. b price. The best of it is the demand is keen and nearly every offering is quickly picked up.

On the contrary, lemons are showing about the worst market of the season; in fact, the worst in the history of the industry. Many sales have been made in Eastern markets at $1.00 or under, which means a great loss to the producer. Weather still continues cool and disagreeable.

Shipments

Shipments of oranges from Southern California since November 1, 1914: 27,223 cars, lemons 4,343 cars, total for the season 31,566; last year same date: oranges 29,545, lemons 1,934, total 31,479. From Tulare and Central California points, this season: oranges 5,628, lemons 197, total 5,825; last year same date: oranges 5,797, lemons 30, total 5,827; from Butte and other Northern California points, this year's orange shipments 630, lemons 2; last year to same date, oranges 405, lemons 5.

NEW YORK, June 14.—Eighteen cars Valencias. eight navels. three sweets, one St. Michaels, one seedlings, two mixed cars. and five cars lemons sold. Market is higher on oranges and lemons. Fair and warm.

VALENCIAS—	Avge.
Cal. Belle, S. T. Ex	$3.75
Carmencita, S. T. Ex	3.35
Atlas, Or. Ex	3.30
Hector, Or. Ex	3.05
Iris, D. M. Ex	3.65
NAVELS—	
Moose, O. K. Ex	$2.85
Prong Horn, O. K. Ex	2.50
Gold Buckle, R. H. Ex	2.60
Lochinvar, R. H. Ex	2.35
SWEETS—	
Tiger	$2.50
Cream	2.70
Minnehaha	2.15
SEEDLINGS—	
Alhambra	$2.55
Don Quixote	2.35
GRAPEFRUIT—	
Mahala	$1.75
Orchard	1.50
LEMONS—	
So. Beauties	$2.40
Justrite	2.10

CINCINNATI, June 14.—Seven cars sold. Market is doing better.

VALENCIAS—	Avge.
Poppy, Red, Hgts. Orch	$3.05
Balboa, S. T. Ex	3.05
LEMONS—	
Pup, S. T. Ex	$1.75
California, A. C. G. Ex	1.80
Green Crown	2.00
Urchin	1.40
NAVELS—	
Allendale	$1.75

KANSAS CITY, June 14.—Cool, rainy. One car Valencias sold.

VALENCIAS—	Avge.
Wildflower, Randolph Ft. Co	$1.88

PITTSBURGH, June 14.—Market is higher.

VALENCIAS—	Avge.
Oakleaf, T. C. Ex	$2.85
Big Chief, O. K. Ex	2.65
Violet, D. M. Ex	3.40
GRAPEFRUIT—	
Orchard	$1.95

ST. LOUIS, June 14.—Eleven cars sold. Market is steady.

VALENCIAS—	Avge.
Rooster	$3.35
Searchlight	3.15
Golden Circle	3.20
Dolores, C. C. Ex	3.00
LEMONS—	
Rough Diamonds, V. C. Ex	$1.70
Pitcher, V. C. Ex	1.60
Pony, S. B. Ex	2.00
Plain Ends	1.80
Growers, L. G	1.60
NAVELS—	
Standards	$2.65
Allendale	2.60
VALENCIAS—HALVES—	
Red Ridinghood	$1.50
SEEDLINGS—	
Standards	$2.60
Don Quixote	2.60

BOSTON, June 14.—Twenty-two cars sold. Market is higher.

VALENCIAS—	Avge.
Blue Banner, Sutherland Ft. Co	$3.40
Blue Banner, Suth. Ft. Co	3.35
Aurora, Amer. Ft. Dis	3.25
Green Banner, Suth. Ft. Co	3.20
LEMONS—	
AA, E. High. C. A	$1.85
Westside, xf.	1.85
Choice	1.60
Chanticleer, E. High. C. A	1.60
NAVELS—	
Orchard	$3.75
Standard	3.05
Standard	3.10
JAFFAS—	
Rey	$2.30
Glendora Home	2.35
Monopole	2.20

CLEVELAND, June 14.—Nine cars sold. Market is higher.

VALENCIAS—	Avge.
Mars, Amer. Ft. Dis	$3.25
Jupiter, Amer. Ft. Dis	3.10
Hollywreath	2.50
Mistletoe	2.05
LEMONS—	
Red Shield, A. C. G. Ex	$2.00
Green Crown	1.80
Tunnel, S. T. Ex	2.20
Patio	2.20
SEEDLINGS—	
Red Globe	$2.60
Pepperleaf	2.35
Standard	2.20

PHILADELPHIA, June 14.—Eleven cars sold. Market higher.

VALENCIAS—	Avge.
Dos Palmas, San Marino G	$3.75
Montezuma, S. T. Ex	3.55
LEMONS—	
Greenleaf, S. T. Ex	$2.00
La Puente	1.70
OIC	1.60
NAVELS—	
Gold Bear	$2.20
S. S. Brand	2.50
Grizzly Giant	2.75
SWEETS—	
Golden Scepter	$2.35
Redskin	2.10
ST. MICHAELS—	
Parrot	$3.15
Hawk	2.70

CHICAGO, June 14.—California navel oranges are about cleaned up, no quotations. Valencias, boxes, 3.00@3.25; seedlings, 2.65@2.90. Lemons, boxes, California fresh, 2.50@3.00. Cherries, boxes, 10 pounds, California black sweet, 1.00@1.75; white sweet, 1.25@1.75; Oregon Bings, cases, 24 pints, 2.75@3.05; southern stock, small sour, cases, 24 quarts, 1.75@2.25. Peaches, boxes, 20 pounds, California, 1.35@1.50; Texas clings, cases, 4 baskets, 1.25@1.50. Apricots, California, cases, 4 baskets, 1.35@1.60. Plums, Clyman, boxes, 1.00@2.00; Chickasaw, cases, 4 quarts, 1.00@1.25. Cantaloupes, California standard cases, 3.00@3.25; pony crates, 2.25. Apples, barrel stock only offerings, 5.00@8.00. Strawberries, cases, 24 quarts, 2.75@3.00. Red raspberries, cases, 24 pints, 4.50@5.00.

FERTILIZATION OF VEGETABLES

(Continued from Page 680)

ities of vegetables are largely dependent on conditions that make possible quick and uninterruped growth. When growth is interrupted or unduly retarded, then some undesirable quality of flavor, texture, color, etc., is likely to develop. So far as interruption of growth is due to lack of sunshine or rainfall, when this is the only source of water supply, one is, of course, helpless. However, under favorable conditions of soil, of light, warmth and moisture, the quality of vegetables can be fairly controlled by judicious regulation of the amounts and kinds of plantfood supplied.

VISITING THE EXPOSITION

(Continued from Page 681)

day the 25th is San Joaquin Valley Day. It is expected that the entire valley will forget all its duties and fill the grounds. The National Association of Real Estate Exchanges and Brooklyn also fill the same day. Buffalo Day is the 27th, while the 28th is given over to Florida and National Association of Piano merchants. June 30 is Arizona, also Phoenix and Salt Lake Valley and Prescott special days. The 30th and 31st are given over to the Swiss people, to manufacturers, to track and field athletics.

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Profitable Business

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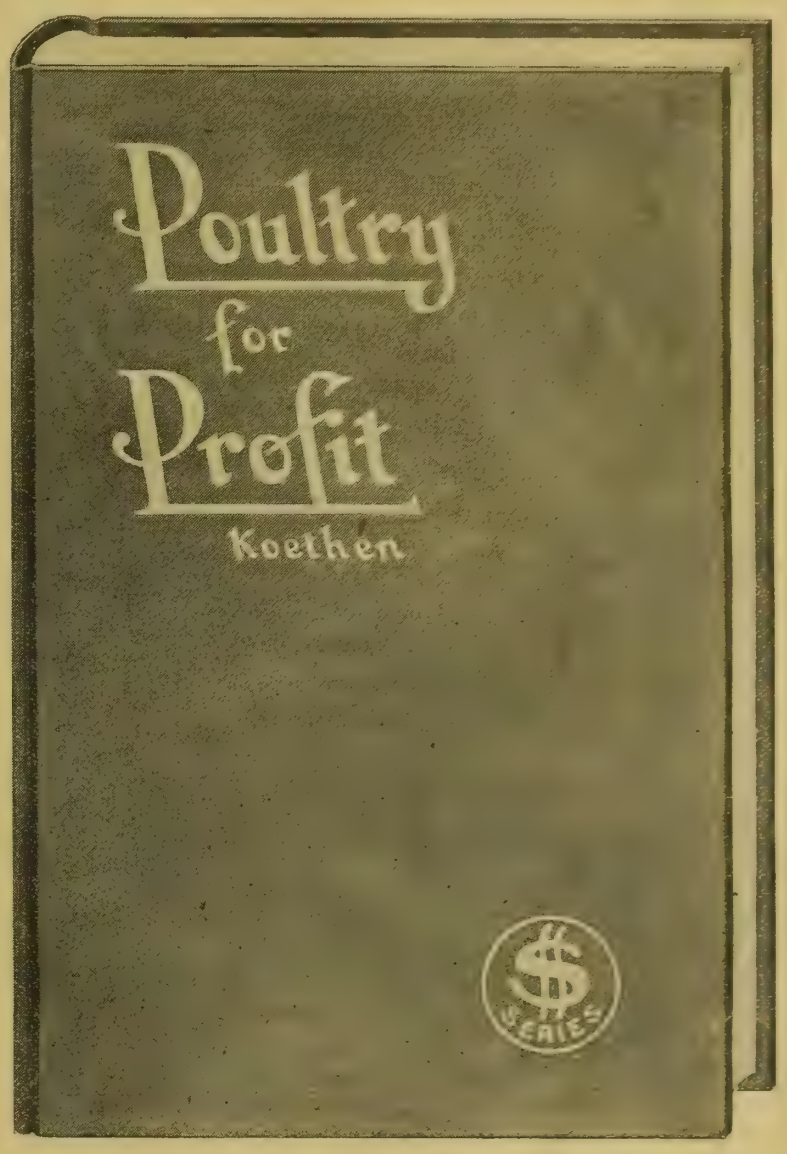

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by

Jean A. Koethen, Graduate of University of California

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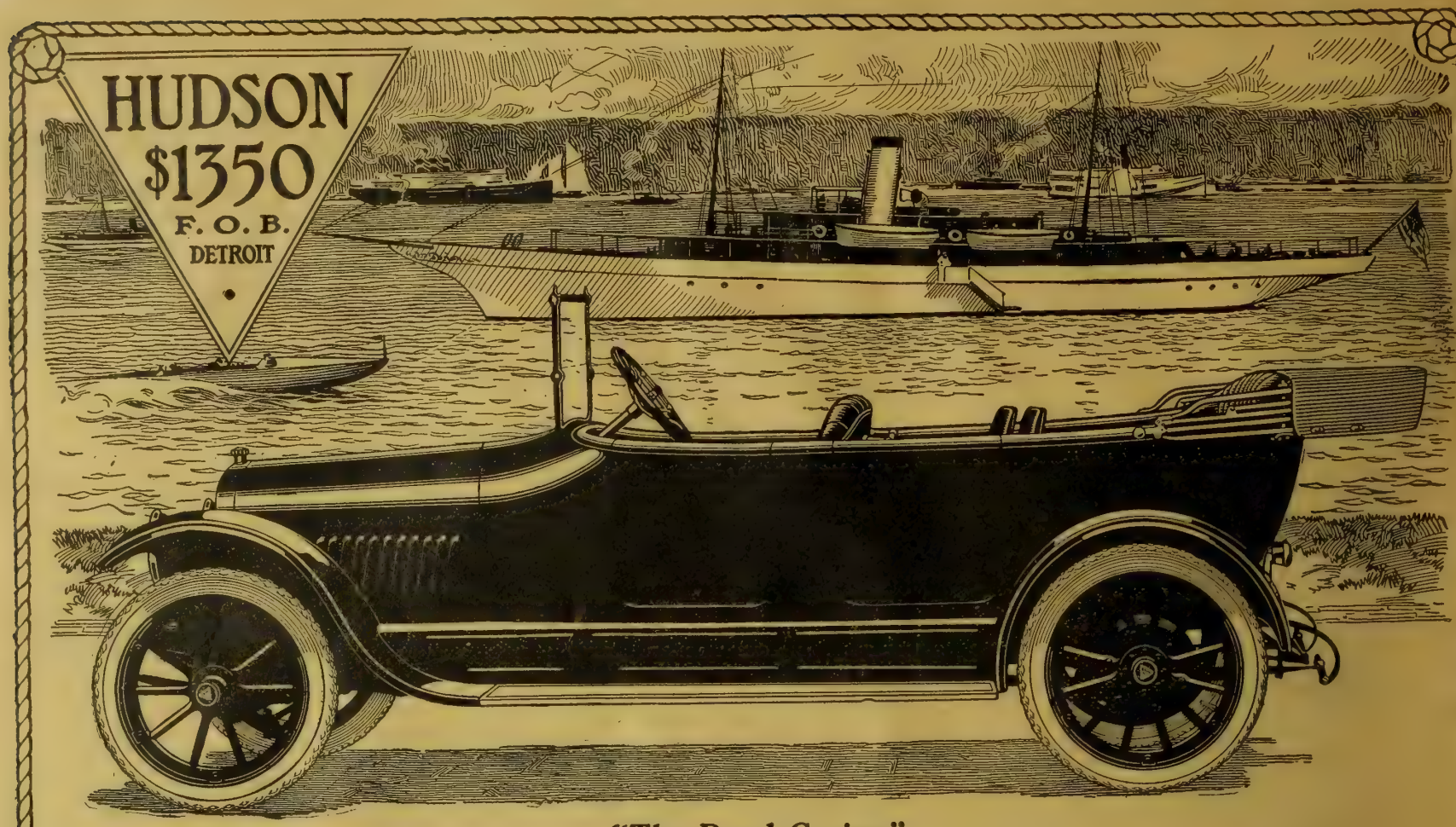

"The Road Cruiser"

Ready—the 1916 Hudson

This is to announce the 1916 HUDSON—the third model of this new-type HUDSON, which has become the most popular class car of the day.

It is 20 months since this new-type HUDSON came out at $1750. It weighed about one-third less than average old-time Sixes. It cut tire and fuel cost in two. It had ample power, ample room for seven. It has proved itself one of the staunchest cars ever built. Despite its low price, it excelled in [illegible] costly cars of that day. [illegible] is due to better materials, better designing, to refinement in place of crudity.

This HUDSON became instantly popular. It took us one year to catch up with our orders. It forced us to treble our output. Repeatedly it attained a sale of a million dollars weekly.

In the past 20 months, 15,000 men have bought it. After two seasons with it they unite in pronouncing it the ideal modern car.

Now we announce improvements, in some respects the greatest HUDSON ever made. And one at least will be the most welcome innovation of the year—the new Ever-Lustre finish.

Now a $1350 Price

The first price on this new type was $1750. That was late in 1913. It startled Motordom. This was the first quality Six to sell under $2000, and many engineers said that price was impossible on a car of HUDSON quality. And they said our lightness—under 3000 pounds—was incompatible with strength.

Four Innovations

1—Yacht-Line Body
2—Ever-Lustre Finish
3—Roomier Tonneau
4—$200 Reduction

But the car was a HUDSON, and HUDSON standards are high. Howard E. Coffin was the designer, and he never had made a mistake. So men flocked to this car in such numbers that our next model, with 31 improvements, could be sold for $1550.

Now, with a trebled output, we offer another $200 reduction. And that on a new model, vastly improved. That means $400 reduction—23 per cent—since this new type first came out at a price pronounced impossible.

Yacht-Line Body

And now comes the Yacht-Line body, a seven-year evolution. From straight lines we came to streamline. Now come lines so graceful and unbroken that we call them Yacht-Lines, and the car has been called "The Road Cruiser."

Even the door lines are unbroken. The tops of both the doors and the body are leather bound.

The tonneau is roomier, the rear seat is wider. Now three big people are comfortable on it. With seven in the car, nobody is crowded, and the two extra tonneau seats disappear when not wanted, doubling the tonneau room.

And now comes enameled leather upholstery over deep curled hair—a luxury which heretofore has been confined to costlier cars.

Ever-Lustre Finish

And now, best of all, comes a finish that stays new. We have built in our factory enormous ovens, large enough for hundreds of bodies. Now each coat of finish is forced on, then baked on. The result is a finish brilliant, deep and enduring. It resists weather, washing, rubbing, mud. You who have seen good cars quickly grow shabby will realize what this finish means.

Note that these advances come to you in a $1350 HUDSON. And note that this HUDSON, by keeping so far ahead, is winning by thousands men who demand the best. Wherever you go you will see this new-type HUDSON driven by men of distinction, men who know cars, old, experienced motorists. And this new model will undoubtedly win 20,000 more.

Go see it now. Most HUDSON dealers have it. And this, like every new-model HUDSON, is bound to be oversold. Last summer, thousands of buyers waited weeks for their HUDSON. This summer, despite our larger output, there will be waiting for those who delay. And you won't find a car for second choice anywhere near so attractive.

7-Passenger Phaeton or 3-Passenger Roadster, $1350, f. o. b. Detroit
Also a new Cabriolet, $1650, f. o. b. Detroit

HUDSON MOTOR CAR COMPANY
DETROIT, MICHIGAN

Ask your dealer about HUDSON service. It is exceptional and extreme. It will tell you one reason why HUDSON cars give such perfect satisfaction.

We have dealers everywhere. These are a few in your vicinity:

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Fresno—Evans Auto Co.
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Hemet—Gibbell & Aylesworth
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Monterey—J. M. Bussey
Oakland—H. O. Harrison Co.
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San Bernardino—H. J. Kelly
San Francisco—H. O. Harrison Co.
San Diego—M. L. Sarsfield
San Jose—Normandin-Campen Co.
San Pedro—Amar & Foot
Richmond—H. A. Sellers
Santa Cruz—Jensen Bros. Auto Co.
Stockton—Patterson's Hudson Garage
Vacaville—M. Banker Ukiah and W. S. Killingsworth, Jr.
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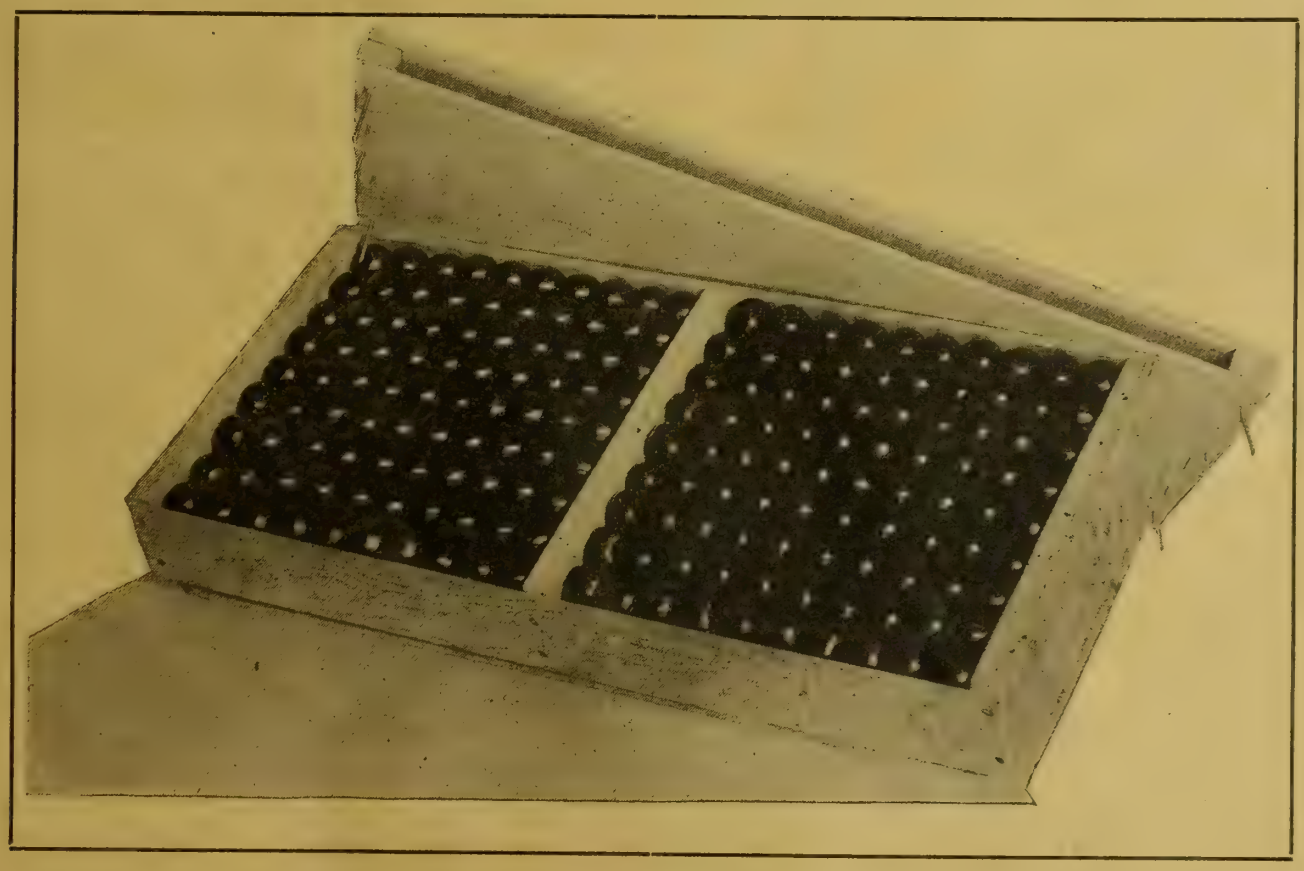
CALIFORNIA CULTIVATOR

Rural Californian combined with California Cultivator

An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES June 24, 1915 SAN FRANCISCO

Standardized Pack to be Proud Of



A box of cherries recently shipped to California Cultivator from the ranch of Millard Sharpe at Vacaville. Note the perfection of the pack, the double cover to protect the fruit and the general attractiveness of the box. Fruit packed like this has given the Vaca Valley and California a reputation for producing some of the finest fruit on earth. Unfortunately all fruits are not packed this way.

CYANEGG FOR FUMIGATION R&HCCo TRADE MARK

BETTER Oranges and Lemons

and Larger Crops with More Money to the Grower

CYANEGG FOR FUMIGATION R&HCCo TRADE MARK

assured to the Orchard Owner who keeps his trees Clear and Free from Scale Pests

by **Thorough Fumigation** with

Hydrocyanic Acid Gas generated from Cyanegg

For Full Particulars, Address: **F. W. Braun,** Los Angeles Sales Agent: The **Roessler & Hasslacher Chemical Co.** Manufacturers **100 William St., New York**

CYANEGG FOR FUMIGATION R&HCCo TRADE MARK

ON THE DECAY OF ORANGES WHILE IN TRANSIT FROM CALIFORNIA

G. Harold Powell says:

(**Extracts** from Bulletin No. 123 of U. S. Dept. of Agriculture, Bureau of Plant Industry.)

CYANEGG FOR FUMIGATION R&HCCo TRADE MARK

"The work of three years has shown that the orange as it comes from the tree in sound condition seldom develops decay and that brushing, washing, and the mechanical injury of the fruit in handling are followed by more or less loss, the greatest decay developing in the mechanically injured oranges. . . . an apparently sound orange when it comes from the tree shows greater resistance to decay than the same fruit after it has been handled in different ways, that the fruit showing visible mechanical injury as the result of handling develops the maximum decay, and that the brushing and washing of sound oranges is more or less detrimental to their keeping quality . . . The packing house tests indicate that an orange with a sound skin is not more likely to decay when grown in the coast region than a similar orange grown in other parts of the orange belt and that a similar line of handling produces similar results in the different regions. . . . in groves that are well fumigated the fruit is practically free from the sooty-mold fungus. . . . Oranges are washed primarily to remove the sooty-mold fungus that grows in the so-called honeydew exuded by the black scale. . . . When the present investigation by the Bureau of Plant Industry was undertaken, from one-third to one-half of the oranges of California were washed, practically all of the fruit in some sections being treated in this way, especially where the growers had been overconfident in the parasite 'Scutellista cyanea' or in the use of oil sprays as means of holding the black scale in check. . . . The necessity for washing the orange should be avoided by a proper fumigation of the groves with cyanide" (this of course means fumigation with hydrocyanic acid generated from cyanide). "Fumigation, on the other hand, is one of the operations that promotes good orchard management; it maintains strong, healthy trees and fruit, and it reduces the cost of preparing the oranges for market in a manner that increases the keeping quality of the fruit."

In Bulletin No. 63, of the U. S. Department of Agriculture, Bureau of Plant Industry, by A. V. Stubenrauch, under the heading INFLUENCE OF CLEANING OPERATIONS UPON DECAY, appears the following:

"Washing is perhaps the severest treatment that can be given to citrus fruits, and wherever it is not absolutely necessary in order to render the fruit marketable it should be omitted."

"CYANOFUMER"

(Trade Mark)

(Patents Applied For)

Process for the Generation of

Hydrocyanic Acid Gas

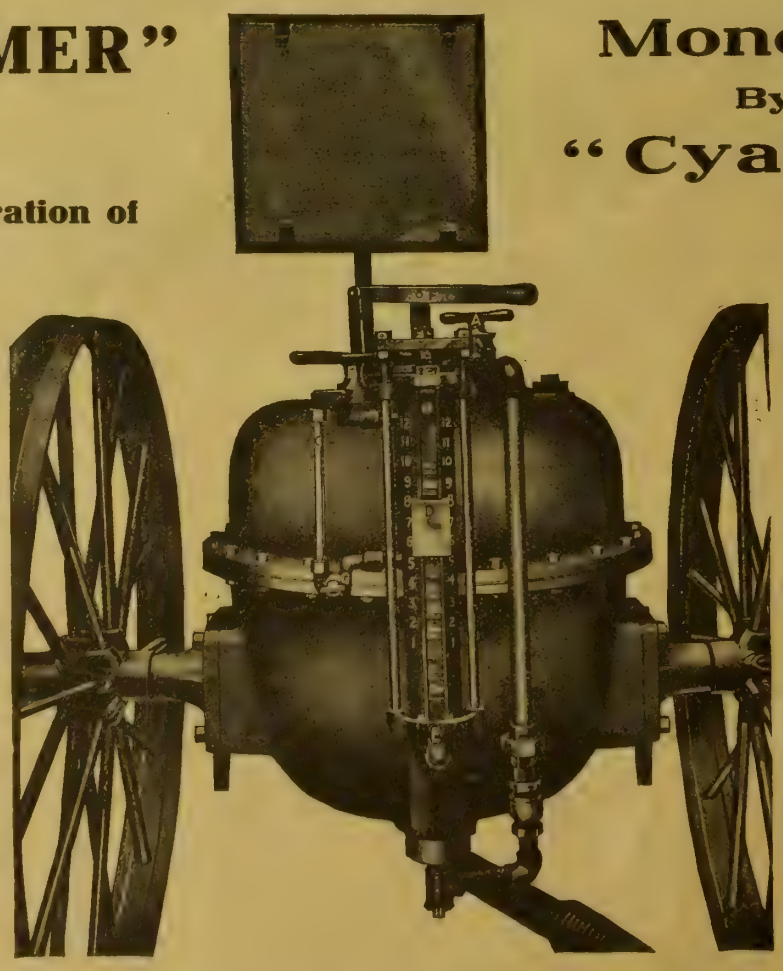
AND

Mechanical Device

for Applying the Process in Practical Fumigation Operations

The "CYANOFUMER" (Process and Mechanical Device) while new is fully proven and we are prepared to establish the correctness of every claim which we make in its behalf.

The "CYANOFUMER" generates and delivers Pure Hydrocyanic Acid Gas to the tents and does it with satisfactory uniformity, one charge with another.



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It produces perfect chemical reaction.
It generates pure Hydrocyanic Acid Gas.
It delivers the pure gas under the tent.
It removes risk of gas condensation.
It stops loss of gas by absorption.
It solves the problem of normal tent leakage.
It increases fumigation efficiency.
It saves time and labor.
It prevents acid burning of tents.

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Vol. XLIV No. 25 LOS ANGELES: THURSDAY, JUNE 24, 1915 One Dollar Yearly

Relation of a Permanent Agriculture to Social Welfare

By Thomas Forsyth Hunt Before the Annual Convention of National Real Estate Exchanges at Los Angeles

IN the short time at my disposal I propose to support the following propositions:

American farms must be recapitalized at least three times in a century.

Young men are born into the world with their clothes off. They are without capital.

The open country cannot afford to support numerous social, religious or racial divisions.

The country population of one generation determines the character of the city population in the next generation.

Land credit, popularly known as rural credit, is a means of creating a permanent agriculture by putting farm mortgages on an investment basis.

On preliminary observation, wealth and welfare are not synonymous terms. There is a great deal of wealth invested in diamonds, but diamonds cause very little welfare. In this discussion we are interested primarily not in the wealth, but in the welfare of society.

In San Francisco there is a furniture store that has been in existence since the early '50s. How many farms can you recall that have been under the same management since 1860? A corporation is endowed with the capacity for succession. A farm enterprise is dependent upon the life of a single individual.

This National Association of Real Estate Exchanges represents a conscious effort to settle America. The one thing I wish to drive home to this audience is, that after the land is occupied you are not through with the problem. The one undeniable, unescapable, inevitable condition is, that the farms of the United States must be recapitalized at least three times in a century. This problem of recapitalizing the farm has been met in at least 14 countries, but it has not yet been met in the United States.

Young men are born into the world with their clothes off. Few are born with a gold or even a silver spoon in their mouths. Those who inherit money seldom do so at the age of 21. There are in this country today approximately 1,000,000 young men between the ages of 18 and 22 inclusive who will eventually occupy farms of the United States. Moreover there are 1,000,000 young women who are going to live with them and rear families. The farm is no place for a bachelor. All this is so unless the number of farms decrease or they are cultivated in the future by foreigners.

How are these young men to secure the $6,000,000,000 worth of capital required to possess a million farms? Whence will come the money to furnish the homes so that these young mothers may have the ordinary comforts of life? When 160 acres of fertile land could be obtained free we did not need to ask these questions. Now they are the most serious questions before the American people.

From the institution with which I am connected, there were graduated last year 66 men who had studied agriculture. Only 22 per cent of these men had any farm, expected to inherit a farm or to inherit any money with which to buy a farm. The average farm in this state is worth more than $16,000. How are these young men to get the capital or the credit with which to secure an average California farm? What is the use of educating young men in the practice of agriculture if they cannot practice it? It is all very well to say that they should go to work and earn the money to buy a farm. Indeed that is just what happens. For want of capital they go to work on a salary and if they ever earn enough money to buy a farm they have reached an earning capacity that it is unwise to sacrifice and what is more important they have reached a time of life when it is not advantageous either for their families or society that they should begin farming. Popular tradition to the contrary, notwithstanding, the farm is not a place to return to after a successful business life, but rather a place to retire from after rearing a successful family.

Dr. Warren of Cornell University has pointed out that in Southeastern United States the land is held at a lower price because two races occupy the land, necessitating two sets of social institutions. This greater overhead charge makes the land less valuable. In the large cities the people subdivide and stratify without special inconvenience. To see how beautifully it works one needs only to cross the Hudson River or San Francisco Bay by ferry at different hours of the day. Crossing at a certain morning hour you will find scarcely a person with a daily paper. Those who smoke, smoke a pipe. Later in the day nearly every man carries a paper and if he smokes it is generally a cigar. Each class goes back and forth over exactly the same channel scarcely conscious of the other's existence and wholly without being in the slightest degree discommoded. It is a sample of the hundreds of ways in which people stratify in cities. Nor is there any criticism to be offered of the methods in vogue although at times there may be certain manifestations which cannot be commended. In the open country such stratifications are for physical and economic reasons impossible. In the city, without any apparent impropriety, you may not associate with the gentleman in the adjoining apartment because you do not fancy the way he trims his beard, but in the country you must associate with the man on the next farm even though he is constitutionally opposed to the use of a bath tub.

(Continued Next Week)

The Culture of Tomatoes in California

Written for the California Cultivator by S. S. Rogers

THE tomato or love apple originated in Peru and was first named by botanists in the 16th century. It was not however before the following century that this vegetable was in general use. At this time it was considered poisonous which probably accounts for its very slow progress in becoming popular. During 1812 tomatoes were first quoted in the American markets, and the seedsmen first began to sell seed in 1818. After 1835 the demand increased rapidly until at the present time the tomato is considered one of the most healthful vegetables grown.

Importance in California

California is especially favorable for the production of this crop, both as a fresh vegetable and as a canned product. During 1906 there were over a million cases of tomatoes packed in this state, which made California rank third in the United States in this respect.

In 1907 California stood second with a pack of 1,284,000. During the season of 1913 there were 1,490,000 cases grown and packed in this state. Aside from the production of tomatoes for the cannery there is a large acreage devoted to raising tomatoes for the fresh market; the average planting in California for Eastern shipment alone amounting to approximately 2000 acres per year, with several hundred more acres grown for the local marketss. Tomatoes are grown in a large number of counties throughout the state but the centers of the industry are located in Los Angeles, Orange and Alameda Counties and in certain portions of the Sacramento and San Joaquin Valleys.

Yields

When growing for the cannery yields of 15, 20 and accasionally 25 tons per acre are secured. Of the 10,000 acres grown for the canning industry in this state the average production is between eight and ten tons per acre. When producing this crop for the market under proper conditions a grower should expect from five to eight tons per acre and occasionally as high as from ten to 15 tons are obtained.

Cost of Production and Prices Received

The average cost of producing one acre of tomatoes will vary from $25 to $45 per acre, with the average cost from $32 to $40 per acre. The average price for tomatoes when growing for the canneries varies from $6.00 to $8.00 per ton, while the prices received on the market vary from $10 to $40 per ton, with the average price from $15 to $25.

Cultural Requirements

Tomatoes are grown on soils varying from coarse gravel to heavy adobe. As a rule larger yields are produced when growing on soils which are not too rich in plant food and which do not contain too much water, for if the soil is over abundant in nitrogen there is liable to be a too luxuriant vine growth at the expense of the yield. In the miscellaneous vegetable garden tomatoes should be planted on the lighter classes of soils, especially when producing an early spring crop; the best type of soil being a sandy loam underlaid at a depth of three to five feet with a heavy loam. As the tomato is a very deep-rooted vegetable it is not adapted to shallow soils. Tomatoes are tender and are injured by a low temperature at which many of the other vegetables, such as onions, cabbage, etc., will thrive. This crop will stand the heat much better than cold, especially when the quantity of moisture is adequate.

Preparation of Soil

Soil which is to be planted to tomatoes in the spring should be fall plowed if possible. At this time the plowing should be 12 to 15 inches deep. The field may either be left in this rough condition or worked down immediately and left in a fine condition of tilth during the winter, but under ordinary conditions the former method is preferred. A short time before the field is to be planted in the spring it should be replowed to a depth of eight to ten inches and pulverized as finely as possible with the various farm implements. At the desired time of planting the field should be marked off, showing the location of the rows of plants.

Planting

Tomatoes are grown by sowing the seed in seed beds and transplanting the young plants into the field. The grower should use a hot bed during the early spring months, but later can produce plants by the use of a cold frame or by planting directly in the open. At the time of transplanting the plants should be about six to ten inches in height, stocky and free from disease. When growing an early spring crop the plants are usually set in the field at distances of 6 by 6 or 6 by 8. When growing for the cannery or the midsummer crop, which often produces a larger vine growth than the early planting, 7 by 8 or 8 by 8 is the usual distance. During the early spring when there is an abundance of moisture in the soil it is not customary to irrigate the plants at the time of setting them out, but later in the season furrows from four to six inches deep should be made down which the water is run and along which the plants are set.

Irrigating

The number of irigations which the field should receive depends wholly upon the season of growth and character of the soil. The plants should never be allowed to suffer for water, and irrigation should be timed so that an optimum of moisture will be present throughout the season. Under ordinary conditions when growing this crop during the spring or summer months the plants are irrigated once or twice soon after planting and until they have commenced to bloom. During this period irrigation should be discontinued until after the fruit is about the size of a walnut, and water should not be put on after the fruit has commenced to turn in color. The water is applied in furrows between the rows, near enough to them so that the plants will get the benefit of the irrigation but not so close that their roots will be injured by making the furrows.

Cultivation

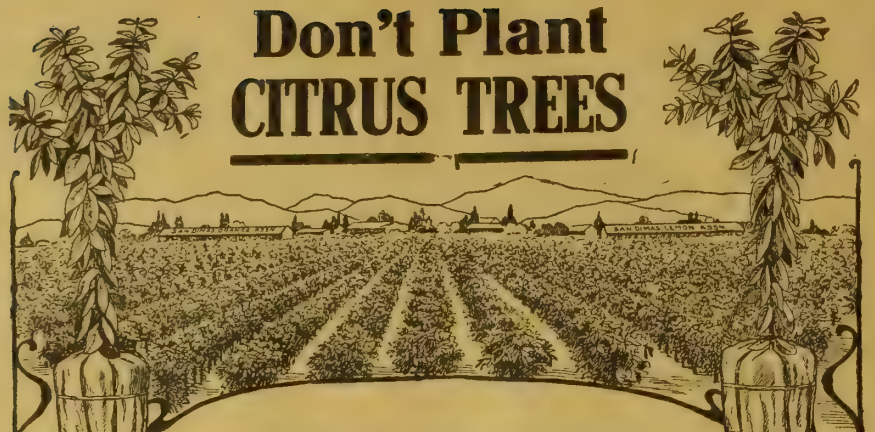
After the plants have recovered from their transplanting the field should be carefully gone over, stirring the soil as deep as possible in the middle of the rows, but care should be taken not to come to close to the plants. If irrigation was used at the time of planting the furrows should be thoroughly covered and the soil stirred to prevent cracking. The sub sequent care of the field depends largely upon the local conditions but it should be cultivated often enough to keep the weed growth in check and to preserve a fine mulch on the surface. If the field has been carefully cultivated while the plants were young this operation can be done away with after the vines have reached maturity, for they should not be disturbed any more than possible at this time. Under ordinary conditions one or two hand hoe ings will be found sufficient during the season. It is important that the field be thoroughly cultivated after each irrigation.

Harvesting

The exact time and manner of harvesting depends largely upon the markets to which the crop is to be shipped. Tomatoes that are to be shipped to long distance markets are usually picked just as they are turning red in color, while those used for local consumption may be colored fairly highly

(Continued on Page 707)

Don't Plant CITRUS TREES



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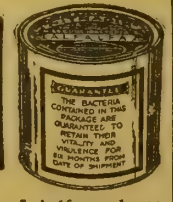

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MARMALADE AND JELLY FROM CITRUS FRUITS

Written for California Cultivator
By Professor W. V. Cruess, University of California

OF THE citrus products easily made in the kitchen citrus fruit marmalades and jellies are among the most attractive. Unfortunately the standard recipes for citrus fruit jellies call for the use of meat gelatin to give the jellying property and only a mere trace of citrus fruit is used to give flavor. One such recipe required about half an orange and half a lemon to give the same quantity of jelly that would require six oranges and three lemons if a pure citrus fruit jelly were made.

The advantage to the grower of teaching the housewife to make the pure orange-lemon jelly is at once apparent. The wholesomeness and nutritive value of the pure jelly is also greatly superior to the gelatin made article. Therefore it is of advantage to the housewife and the grower to make pure jelly. It might be well to make the suggestion that packing houses spread the recipes given in this article or similar tried recipes among the users of oranges. Ways of disseminating this information will suggest themselves to those concerned.

Citrus fruits, and especially lemons, contain large amounts of pectin, the substance which gives a jelly consistency to jellies and marmalades. This pectin is situated principally in the white portion of the skins and in the fibrous tissue of the mesh of the orange. The skin contains most of this substance; therefore in order to successfully make marmalade or jelly the skins must be included when the fruit is boiled with water to get a pectin solution. The pectin is practically insoluble in cold water or juice but dissolves readily in boiling water; these facts explain the necessity of heating any fruit before pressing out the juice for jelly making.

To cause the pectin to jelly a certain quantity of fruit acid must be present. Ripe oranges do not contain quite enough of this under ordinary conditions; hence it becomes necessary to make up this deficiency by mixing the oranges with lemons. About three lemons to six oranges will be the correct ratio.

A third necessary constituent of jellies and marmalades is sugar. The sugar is necessary to cause the pectin to jelly and must also be in sufficient quantity to act as an antiseptic to prevent molding. This will be about 65 per cent sugar. Sugar testers are available at about 75 cents each. These are either Baume or Brix testers. Sixty-five per cent sugar is equal to 65 per cent Brix or to 35 degrees Baume. These figures refer to tests made when the juice or syrup is at room temperature. If made while the jelly or marmalade is boiling or almost boiling hot, the testers would indicate less than 65 per cent and 35 degrees respectively, and the readings would then become 57 per cent Brix or 31 degrees Baume. That is to say, when a pectin extract from boiled fruit is mixed with sugar and boiled to the proper jellying point, a Brix sugar tester will indicate 57 per cent and a Baume will test 31 degrees if the hot juice is used for the test.

A simpler method is to test the boiling point of the mixed sugar and juice. When the proper point is reached the liquid will boil at nine degrees Fahrenheit above the boiling point of water for any given locality. If water boils at 212 degrees Fahrenheit at a given place, then the jelly or marmalade when ready to pour into glasses will boil at 221 degrees Fahrenheit. Thus it is only necessary to heat water to boiling, insert a thermometer till the mercury stops rising, heat the solution and sugar until the thermometer will read nine degrees Fahrenheit above the boiling point of water.

Where a thermometer or sugar tester is not available the mixture of juice and sugar may be boiled until the liquid will congeal or "sheet" from the edge of a large cookspoon dipped in the boiling solution and held above the pot or kettle. Ordinarily from one to one and a half parts sugar are added to each part of pectin before beginning the boiling.

One and one-fourth pints sugar to each pint citrus fruit pectin solution has been found satisfactory.

Jelly or marmalade must be clear to be attractive. The common method of obtaining a clear jelly is to observe the following rules: Cut the fruit in medium slices; add water and boil until soft but not until the fruit becomes mushy or broken; drain through a bag without pressure; strain liquid through a jely bag till clear. It can then be used for jelly.

A more convenient way is to slice the fruit; add water; boil till soft; press out as much of hot juice through coarse bag as possible; and let juice settle for 24 hours in jars or bottles; decant off clear liquid for jelly or marmalade. This method works very satisfactorily.

A marmalade is a clear jelly with a few thin slices of orange or lemon or grapefruit peel suspended in the jelly. It should not be a thick jam of skins and pulp.

The following recipes for marmalade and jelly have been developed recently and found to give excellent results.

Orange Marmalade Recipe

Use six oranges and three lemons. Slice one and one-half oranges very thin and barely cover with water. Boil till soft, replacing water that boils off. Cut the remaining four and one-half oranges and three lemons into small pieces. Cover with water. Boil 45 minutes, replacing from time to time the water that boils off. Press out the hot juice and add the hot juice from the first one and one-half oranges. Let the juice stand 24 hours to settle. Retain the thinly sliced one and one-half oranges. Decant or siphon off settled juice from sediment and strain the sediment through a jelly bag till clear, or simply discard the sediment. Add to the clear juice the thinly sliced boiled orange prepared the previous day. Add one pint sugar to each pint juice. Boil slowly until the mixture reaches nine degrees Fahrenheit above boiling point of water or until it will "sheet" from a spoon.

Use whole fruit including skins throughout.

Grapefruit Marmalade

Substitute the word "grapefruit" for "orange" in above recipe.

Orange Jelly Recipe No. 1

This recipe was worked out by Miss Essie Elliott of the Covina high school domestic science department. Use six oranges and three lemons. Remove and discard the thin outer layer of rind, leaving white portion of rind on fruit. Remove the white portion of rind and tie it in a close mesh bag. Shred the remainder of the lemons and oranges very fine and add three times their bulk of water. Boil hard 45 mintes with the bag of white rind immersed in the liquid. This furnishes the pectin. Skim frequently. Remove bag and throw contents away. Strain off six glasses clear liquid and let pulp (which should stil have some liquid left on it) and clear juice stand 24 hours. Carefully decant or syphon off clear liquid from each and combine. Boil ten minutes. Add equal quantity of sugar and boil till it jellies (about five minutes. When the liquid "sheets" from a spoon, it is jellied.

Those who do not object to the flavor of the yellow portion of the rind may leave it on. The sediment from the settled juice will also make jelly, but will be opaque.

Orange Jelly Recipe No. 2

Use six oranges and three lemons. Do not remove any part of peel, but use the whole fruit. Cut into small pieces. Cover with water. Boil 45 to 60 minutes, replacing from time to time the water that evaporates. Press hot through coarse mesh bag. Allow juice to settle 24 hours. Decant off or syphon off the clear liquid. Add one and one-fourth pints sugar to each pint of juice. Boil with frequent skimming until the liquid will sheet from a spoon. Pour into glasses.

Or the liquid may be boiled until it boils nine degrees Fahrenheit above the boiling point of water.

Grapefruit Jelly

Proceed as with orange jelly.

Lemon Jelly

Press out most of juice, leaving about one-fourth of the juice of the fruit in the pulp and skins, or press out all the juice and return one-fourth of it to the peels. Cover peels with water. Boil 60 minutes or more, replacing from time to time water that boils off. Press out hot juice. Let settle 24 hours; decant or syphon off the settled liquid. Add one and one-fourth pints sugar to each pint juice and boil till liquid will sheet from a spoon.

Flavoring the Jelly

After the jelly has been boiled and is ready to pour into glasses, it may be allowed to cool for about five minutes and then can be flavored with a little lemon or orange extract or oil. This may be needed because the boiling of the fruit to extract the pectin drives off most of the flavoring matters of the fruit and leaves the juice rather "flat."

Effect of Ripeness of Fruit On Flavor

Oranges of the first two weeks or first month of the season will give a bitter jelly and marmalade; hence if this is to be avoided, fruit gathered well after the start of the picking season must be used. Such fruit will not give a bitter taste.

New Quarantine Order

DR. A. J. COOK, state horticultural commissioner, held a meeting at the office of the Los Angeles County horticultural commissioner in the Hall of Records on Friday to confer with the nurserymen and the county commissioners regarding steps to be taken to put into operation the amendment to the enabling act for state horticultural commissioners which was passed at the last session of the legislature. This amendment gives to the state commissioner sole power to establish quarantine areas for horticultural products within the state and enables him to formulate rules for their maintenance, thus making the inspection requirement for these goods much more uniform in the different counties. After much discussion the following rules were adopted, subject to approval by the attorney general of the state.

State Quarantine Order

Section 1. No person or persons, firm or corporation, shall receive, bring or cause to be brought into one county of the state of California from another county or section of a county, nor plant, sell or give away any trees, vines, scions, cuttings, grafts, plants or any other horticultural materials or equipment subject to inspection without giving notice within 24 hours after their arrival at their destination, to the county horticultural commissioner, his deputy or an inspector who shall release them, after inspection and disinfection, as hereinafter provided. Notification of the arrival of interestate shipments is provided for in section 1 of the state quarantine law.

Section 2. No person or persons or dealer in nursery stock shall be allowed to sell or deliver, or cause to be delivered, any trees, plants, shrubs, vines, cuttings, grafts or other articles of horticulture from a county or section of a county known to contain new or extremely dangerous and not commonly distributed insect or animal pests, fungous or other plant diseases for which there is no known means of eradication, when such trees, plants, vines, cuttings, grafts or other articles of horticulture or horticultural equipment are known to be hosts for any of these dangerous pests, into a county or section of a county which upon inspection is found to be apparently free from such dangerous insect or animal pests or fungous or other incurable plant diseases. The state commissioner of horticulture through his deputies and the county horticultural commissioners, shall determine what pests are of limited distribution and of such a dangerous character as to demand quarantine under this section, and shall fix as nearly as possible, the exact areas over which they occur. Such areas shall be designated as quarantine districts, and shall consist of one or more counties, one or more townships within a county or counties, or smaller divisions at the discretion of the state commissioner of horticulture. A complete list of all such districts formed, together with the pest or pests, or fungous or other plant diseases occurring within each district, must be furnished to all county horticultural commissioners, their deputies and inspectors, and all nurserymen and others requesting them.

Section 3. For the further protection of the fruit growers of any county against the introduction of injurious insect or animal pests, or fungous or other plant diseases of any trees, plants, shrubs, vines, cuttings, grafts or other articles of horticulture, the state commissioner of horticulture, or under his direction his deputies, the county horticultural commissioners, their deputies and inspectors, shall require such treatment of the aforementioned horticultural materials or articles while growing in the nursery, orchard or elsewhere, or after being dug and before shipment, as it is deemed necessary for the protection of the horticultural industry from pests or diseases that are known to be present on such articles. The county horticultural commissioner, his deputy or inspectors may require such treatment at the point of delivery as is deemed necessary after an inspection has been made and revealed the presence of live insects or animal pests, fungous or other plant diseases. If in the judgment of the state commissioner of horticulture the infestation is so serious as to make treatment ineffective or impracticable, or if pests are present that cannot be controlled by known remedies, the shipment shall be returned to the consignor or destroyed within 48 hours, it being optional with the consignor as to which course is pursued, provided that the nature of the pest is not such as to cause immediate danger, or danger in transit, in either case of which the stock shall be imediately destroyed. Any expense occasioned by the treatment of infested stock must be paid by the consignor. In cases of infestation of crown gall, olive knot, root knot and other serious and incurable diseases the infested trees shall be destroyed.

Whenever a [illegible] commissioner of horticulture may deem it necessary for the safety of the horticultural in-

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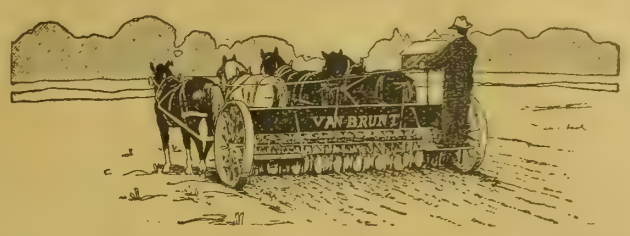

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Now is the time to buy water pipe cheap. We have on hand 100,000 feet of 3 in., 2 in. and 1½ in., dipped and undipped, water pipe with new threads and new couplings and fully guaranteed. We can ship you any amount you want with small lots of fittings free with each order. There never was before a better lot of pipe offered for sale. We are shipping this pipe all over the country for all kinds of purposes where pipe is used. We advise you to take advantage of this offer and send in your order at once.

3	in., new, 15	cents per foot
2	in., 8	cents per foot
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Mail in your order for any amount you want to the

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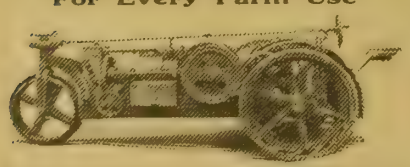

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terests of a county he may hold for subsequent inspection or disinfection, or both, any of the articles mentioned in section 1, for such time as he may deem advisable.

Section 4. The county horticultural commissioner of any county shall under the direction of the state commissioner of horticulture require at stated times the registration at his office of all nursery owners and dealers in nursery stock within his county, requiring data on acreage, variety, number of trees, locality where stock is grown, and anything else which he may deem necessary. No fee shall be charged for this registration.

Section 5. Every person, firm or corporation doing public spraying or fumigation work must obtain a permit to do such work from the county board of supervisors of the county within which operations are to be carried on. Such permit shall be recommended by the county horticultural commissioner and approved by the state commissioner after an examination of the spraying or fumigation apparatus to be used has been made and found to be in good order, and the applicant is known to possess sufficient knowledge of the work that he intends to do, to enable him to carry it on intelligently and successfully. Inspection of all apparatus shall be made by the county horticultural commissioner at such times as he may deem necessary and it shall be his duty to require it kept in efficient working order. Reports of the kinds and amounts of materials and method used in the work of public spraying and fumigation being done by any person, firm or corporation, shall be made to the county horticultural commissioner at stipulated times, and refusal or failure to make a report, to repair apparatus when reported faulty, or to do the work in the manner prescribed by the commissioner shall be considered sufficient cause for the revocation of the permit.

Section 6. No person or persons, firm or corporation shall buy, sell or give away any potatoes to be used for seed purposes or as owner, agent or renter of land, shall plant, or allow to be planted in any county of the state of California, any potatoes infested with eel worm, Heterodera radicicola, or tuber moth, Phthorimea operculella, rhizoctonia, fusarium, scab or other fungous diseases, and for the purpose of inspecting seed potatoes intended for planting in any county, the county horticultural commissioner of the county, his deputy or local inspector working under his direction, may enter into any premises where potatoes are kept, and such person or persons, or other custodian of such potatoes shall point out to such commissioner or local inspector, all potatoes in his possession known by him to be intended for seed, and if on examination they are found to contain eel worm, tuber moth, rhizoctonia, fusarium, scab or other fungous diseases, notice will be served in writing on the owner, agent or renter of said premises, prohibiting the planting of such infected potatoes, provided that seed infested with rhizoctonia, scab or other curable affections, if treated, may be planted.

Section 7. No trees, plants, vines, shrubs, cuttings, or other horticultural materials and equipment shall be accepted for transportation except when accompanied by a certificate of inspection signed by the state horticultural commissioner, or a county horticultural commissioner, deputy or inspector or quarantine officer, such certificate indicating the condition of the stock relative to disease and insect pests, and each carload, case, box, package, crate, bale or bundle of trees, shrubs plants, vines, cuttings, grafts, scions, buds, fruit pits, or fruit or vegetables or seed subject to inspection brought into a county or section from another county or section shall have plainly and legibly marked thereon in a conspicuous manner and place the name and address of the shipper, owner or owners or person forwarding or shipping the same, and also the name of the person, firm or corporation to whom the same is forwarded or shipped, or his or its responsible agents, also the name of the county and locality where the contents were grown and a detailed statement of the contents therein, must be sent to the county horticultural commissioner of the county into which the goods are shipped.

FRUIT STANDARDIZATION LAW

One of the bills which means much to the California fruit industry, at least we believe it does, is that affecting standardization. This bill has been duly signed by the governor and will become effective August 7. It authorizes a standard for the packing of fresh fruit for interstate and foreign shipment. All fruit shall be free from insects and fungus disease.

This law applies only to packed fruits, and so-called lug box sales in local markets do not come under its provisions. Regarding the standard required, we quote from the law:

Sec. 5. All cherries packed in boxes or packages shall contain fruit of practically uniform quality and maturity and one variety only, excepting that such boxes or packages may contain more than one variety if such fact be plainly stamped on the outside of the box or package with the words "mixed varieties" with letters one-half inch high. Each box or package shall be stamped on the outside with the minimum weight of contents, and name of variety or varieties.

Sec. 6. Peaches, apricots, pears, plums and prunes shall be of practically uniform size, quality and maturity. When packed in crates, packages or containers made up of two or more sub-containers having sloping sides, for the purpose of ventilation of the fruit therein, the fruit shall not vary in size more than 10 per cent and no layer below the top layer shall contain a greater numerical count than the top layer. Each box, crate, package, container or sub-container shall be stamped upon the outside with the minimum weight of its contents. Each box, crate, package or container, except sub-containers, shall bear in plain letters the name of the variety contained therein. When packed in a box, package or container having perpendicular sides and ends, each box shall contain approximately the same numerical count in each layer; provided, that when peaches are packed in boxes, packages or containers, having perpendicular sides the box, package or container shall also be marked upon the outside of the end thereof in plain figures with the approximate number of peaches in the box, which shall be within four peaches of the true count.

Sec. 7. Grapes packed for table use shall be of uniform quality and maturity and shall be well matured and show a sugar content of not less than 17 per cent Balling's scale, except Emperor, which shall show not less than 16 per cent Balling's scale. Each crate or other package and containers therein shall bear in plain figures the minimum weight of contents. Each crate or package except sub-containers shall be stamped in plain letters with the name of the variety.

Sec. 8. Berries shall be packed in uniform packages of dry quart containing an interior capacity of 67.2 cubic inches, or dry pint containing an interior capacity of 33.6 cubic inches and shall be reasonably uniform in size, quality and maturity throughout the package or container.

Sec. 9. Cantaloupes shall be placed in standard crates 12x12x23½ inches containing 45 cantaloupes of uniform size and maturity. Pony crates 11x 11x23½ inches containing 45 cantaloupes of uniform size and maturity. Jumbo crates 4½x13½x23½ inches containing 12 cantaloupes of uniform size and maturity or containing 15 cantaloupes of uniform size and maturity.

Sec. 10. All boxes, crates, packages or containers of deciduous fruits of the kinds specified in this act, except sub-containers, when packed and offered for sale, or for transportation for sale, shall bear upon them in plain sight and plain letters on the outside the name of the orchard, if any, and the name and postoffice address of the person, firm, company, corporation or organization, who shall have first packed or authorized the packing of the same, also the name of the locality where the fruit is grown.

Sec. 11. In counties having a county horticultural commissioner, it shall be his duty (and the duty of his deputies) acting as inspectors, which

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keeps your harness in active service. It fills the pores of the leather and protects the fibre against destruction by sweat, dust, moisture and heat—keeps your harness strong, pliable and black. Get your harness dealer to dip your harness occasionally or buy a can and apply it yourself by hand. It is easy, but it pays big.

Dealers everywhere.

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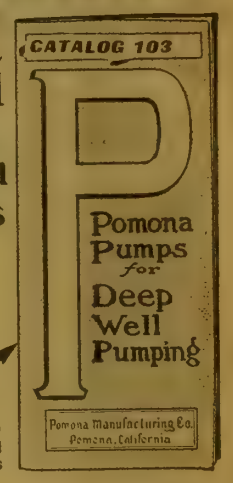
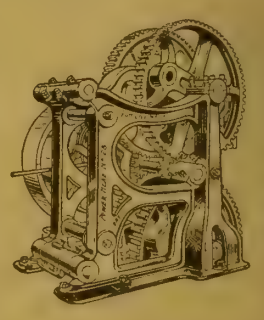
Irrigators

Who are Interested in Lifting Water from Deep Wells Should WRITE for This BOOK

It contains valuable information about irrigation and and the World's best pump.





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office is hereby created, to enforce the provisions of this act.

* * *

Section 12 provides for the securing of inspectors in counties not having horticultural commissioners.

The remainder of the bill refers to its enforcement, repealing other laws in conflict, etc.

FUNGUS TREATMENT OF BLACK SCALE

Some months ago we made reference to the fact that warning was given to citrus orchardists not to depend entirely on a fungus treatment for black scale which it was announced could be applied much cheaper than ordinary methods of spraying or fumigation. Dr. Woodbridge, who was advocating the use of this new method, made a statement regarding its worth from which a quotation was made in a recent Cultivator. Mr. H. S. Smith of the state insectary at Sacramento issued a more general warning that too much dependence should not be placed upon this remedy. Dr. Woodbridge asked for a more thorough investigation than had yet been made and felt sure that if opportunity were granted to him he could show its worth. State Horticultural Commissioner Cook, Commissioner Wood of Los Angeles County and others took up the matter, and this body of representative men issues the following statement:

On Thursday, June 17, the state horticultural commissioner with a number of horticultural scientists from the state university, county horticultural commissioners, and others interested made a trip to the orange and olive groves in the San Gabriel Valley, Glendale and San Fernando districts to ascertain the results of inoculating trees with a fungus claimed to act injuriously on black scale insects. In some citrus districts near the coast such fungus has been noted at times for many years but the benefit resulting from it has never been sufficiently extensive and reliable to be of material aid in scale control.

The following is the report authorized by this delegation, comprising many well known scientists and experts in this branch of knowledge.

We, the undersigned, a committee selected to report on the findings of a delegation called together by the horticultural commissioners of California and the County of Los Angeles for the purpose of investigating the effectiveness of treatment with cultures of a fungus claimed to control black scale (Saissetia oleae), do report as follows:

On June 17, 1915, the delegation, including besides ourselves Dr. A. J. Cook, state horticultural commissioner; J. P. Coy, horticultural commissioner of San Bernardino County; William Wood, horticultural commissioner of Los Angeles County; S. M. Woodbridge, San Bernardino; B. R. Jones, deputy horticultural commissioner, Los Angeles County; D. J. Carpenter, San Diego; J. H. Wright, Riverside; Kenneth McRae, Cucamonga; Mr. Putnam, Inglewood; Dr. A. G. Smith, horticultural inspector Los Angeles County; Bruce Turner, horticultural inspector Los Angeles County, and Mr. Hurdick, Riverside, visited several groves of citrus and olive trees in San Gabriel Valley, Glendale, Pacoima and San Fernando, some of which had been treated with fungus, which, it is claimed has controlled the black scale (Saissetia oleae) and others which had not been so treated, and find no evidence either in the treated or untreated groves that a fungus of any kind has entered into the control of this pest in these districts. No difference was noted between the treated groves and the untreated ones under similar conditions.—Signed—H. J. Quayle, M. S., professor entomology, Riverside citrus experiment station; D. D. Sharpe, horticultural commissioner Riverside County; C. W. Beers, horticultural commissioner Santa Barbara County; H. S. Fawcett, M. S., professor plant pathology, Riverside citrus experiment station; Kent S. Knowlton, horticultural commissioner Kern County; Geo. P. Weldon, deputy state horticultural commissioner.

HIS WAY

"How do you keep from getting seasick?"

"Dunno. How?"

"Why, bolt your meals."

Singleton—He looks to me like a man who has loved and lost.

Henpeckle—He looks to me more like a man who has loved and won.—Puck.

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You don't buy cumbersome, trouble-giving machinery when you buy a Layne & Bowler Pump. You get the most compact, simple, efficient pumping plant ever built—a pump you can ALWAYS depend upon, no matter how rigid your requirements are. The thousands of installations we have made during the last few years offer splendid evidence of the wonderful service the Layne & Bowler Pump gives. In all parts of the West—in fact, in many parts of the world, you'll find the Layne & Bowler Pump giving the utmost satisfaction. It is the cheapest water producer today. Write for Catalog 30. It gives valuable pump information.

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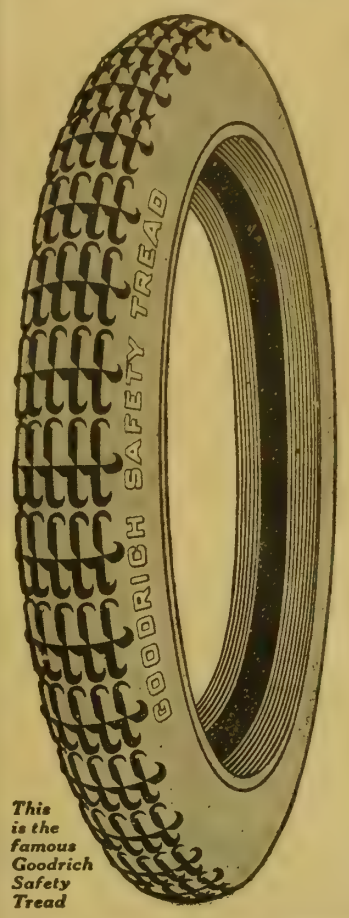
Only 5% PLUS for the Best "Non-Skid"



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PRACTICALLY all Non-Skid Tires that make serious claims to non-skid efficiency cost you 10% to 30% more than Plain Tread Tires of same brand and material.

Goodrich Safety Tread Tires cost you only 5% more than our plain tread tires.

Here's how and Why!

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FORTY-FIVE years of Rubber *working* (in what is now the World's *largest* Rubber Factory) has taught us a few Kinks and Short-cuts that are not common to the Trade.

One of these now comes to the help of your Pocket-book.

Through the simple process of Thinking Hard (and being Candid with ourselves) we have found a Short-Cut to make the *best* Safety Tread ever put on a Tire cost us only about 5% more than it costs us to make the Plain-Tread of similar quality.

By testing out these Goodrich Safety-Tread Tires on a large number of Taxi-cabs (where they could be competitively observed and carefully checked up at the end of each day's use) and by comparing their *actual performance* with that of our own, and other Plain-Treads, of much higher price, we have had this fact forced upon us—

Viz:

—That there is SURPRISINGLY *more Mileage*, in Goodrich *Safety Tread* Tires, than in our own, or any *other*, make of *Plain*-Tread Tires.

So MUCH more *Mileage*, for only 5% more *Cost* looked so *good* to us that we decided to give Car Owners the benefit.

Here's what we now offer *you!*

The *best* Non-Skid Safety Tread ever put on the market, and it costs you only 5% more than our best plain tread tire.

Note the following table of comparative prices on non-skid tires. Columns headed "A," "B," "C" and "D" represent four highly-advertised tires:

Size	Goodrich Safety Tread	OTHER MAKES			
		"A"	"B"	"C"	"D"
30x3	$ 9.45	$10.55	$10.95	$16.35	$18.10
30x3½	12.20	13.35	14.20	21.70	23.60
32x3½	14.00	15.40	16.30	22.85	25.30
34x4	20.35	22.30	23.80	31.15	33.55
36x4½	28.70	32.15	33.60	41.85	41.40
37x5	33.90	39.80	41.80	49.85	52.05

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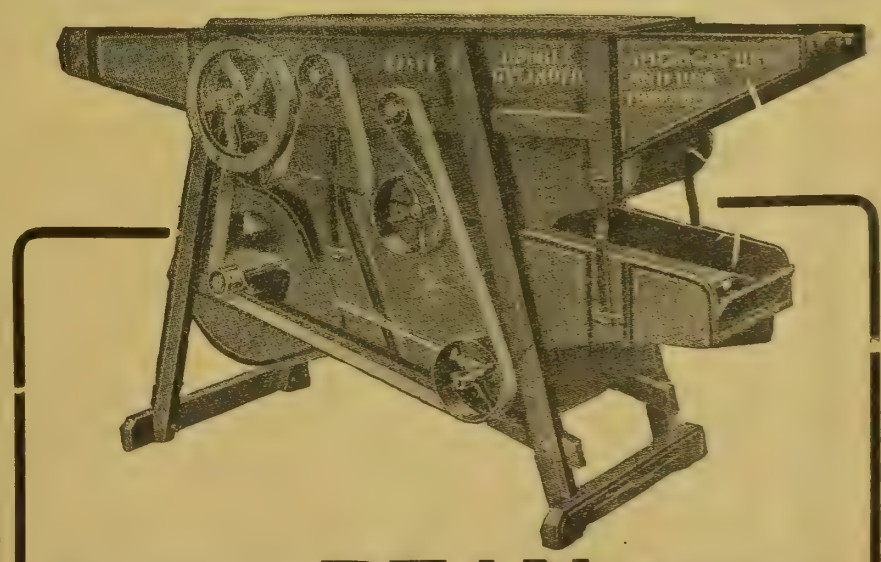

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Double Cylinder — Perfect Separation

SOLD UNDER GUARANTEE

Will Thresh any kind of Beans Grown
Requires 4 H. P. Engine

Price and Information on Application

ARNOTT & COMPANY, Inc.
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Questions and Answers

THE EDITOR AND STAFF

Diabrotica

Am sending specimen of bugs which are destroying many garden plants, especially beans, squash, cucumbers, etc. What is the insect and what is the best bethod of handling?—Subscriber, Tulare.

This greenish yellow bug with the 12 black spots is the common diabrotica, one of our most perplexing garden pests. One member of this family is commonly known as the cucumber beetle, while one 12 spotted specimen, common over the East, is diabrotica duodecimpunctata. The specimen sent by our subscriber, the most common on the Pacific Coast, is diabrotica soror. There are others, but they need not be introduced to our readers for this one gives sufficient opportunity for activity. Where it infests fruit trees it can be destroyed by the use of Paris green or other arsenate sprays though care should be exercised in its use on trees which are ripening fruit. The arsenical poisons, however, prove injurious to members of the cucumber and squash family so the most effective method of protecting a few plants in the garden would be to cover with frames covered with cheesecloth or similar material. Ashes sprinkled with kerosene or distillate and scattered over the ground around the vines are a most excellent repellent.

Lemon Prices

How much do the prices of lemons today depend upon tariff and the present administration, and how much of it is manipulation? How much of it is due to general hard up condition of people who can't or don't buy lemons? I am inclined to believe the distributors are taking advantage of the tariff, for in at least four towns that I know of in the Middle West lemons are selling at the prices they did, 30 cents, 40 cents and even 60 cents a dozen, when we got better prices here.—Warren Roberts, San Diego.

If we should draw upon our wisdom and tell just exactly the effect of the tariff or free trade upon the market we expect a number of our subscribers would rise and say, "Tain't so!" but we may possibly be permitted to remark that there are many things besides tariff which affect prices. The principal influencing factor is that of supply and demand. Perhaps the next most important is the weather. Sizzling hot weather causes consumption of lemons, and it has been noted when the weather has been hot enough over the East and the supply short enough the importers have not been so insistent on the sick in hospitals and poor families having lemons at a low price as they have during the discussion of the tariff question, for at such times they have boosted prices until lemons have sold in New York as high as $10 and $12, and this when the tariff was not far from one dollar per box and at times of free trade at even higher prices. Some of these exceedingly high prices have prevailed since lemons have been practically on the free list. At the present time there are hundreds of thousands of boxes of lemons afloat coming to the American market. The weather is extremely wet and cold over the East, consequently the immense supply and the demand practically nil result in the worst condition our lemon markets have ever experienced. Presumably the low tariff has induced many of these lemons to come, therefore our assumption would be that at the present moment the low tariff has induced larger shipments and lower prices to the producer of American lemons. As a rule the consumer pays very nearly the same price year in and year out, regardless of tariff or even the supply. This the retailer excuses on the ground that when he sells lemons he is selling his services, especially delivery which costs the same the year around.

Chinese and African Geese

Will you kindly advise in your paper the difference between African and Chinese geese in California. Kindly describe both.—Subscriber, Merced.

The Perfected Poultry of America says:

"African Geese—The English class the Chinese and African as being nearly of the same variety." The African goose is of a larger size and has a body more than double the size of the average Chinese. One distinguishing feature between the African and Chinese is that the African is short and heavy in neck, short bill, heavy in head, and carries considerable dewlap, while the Chinese have long, slim necks, small head, and no dewlap. The Chinese with us is the bantam goose, while the African is large in size and highly considered as the best to use for crossing with other varieties, preferably with the Canadian goose. This cross produces what is known as the mongrel goose, which is considered best of all for market purposes in the New England states. The African and Brown Chinese geese are much the same in color. The African goose is of a grayish shade of color, striped with darker shading. The bill and knob are black; shanks and toes dark orange. The neck, which is dark gray in color, has a darker stripe running down the center of the back of the neck.

"Chinese Geese—There are two varieties of these, the brown and the pure white. As stated above, these are the bantam geese, which should be bred small in size and not be encouraged in overweight. The peculiarities of these geese are the long, slim neck, the close, compact body, well-placed legs, and their active motion."

Olives Not Bearing

What is the matter with five-year-old olive trees which blossom profusely but set no fruit? I pruned the trees thoroughly in January. Am not informed whether they have borne in previous years.—Subscriber, Holtville.

It is impossible from the information given to say what is the cause of the olives setting no fruit. A hot wind or a cold rain at blossoming time is sufficient to cause the loss of an entire crop, or lack of pollenization will greatly reduce it. Heavy irrigation with exceptionally cold weather at blossoming time is also a severe test of the ability of the tree to hold its fruit. It would be necessary to make an investigation of previous conditons affecting the trees before a definite answer could be given.

Fungus and Peach Bloom

"We have peach trees about four years old. All the leaves have fallen off, also the fruit. On opening several of the peaches we find that they are wormy. What is the cause and remedy for this trouble?"—Subscriber.

The diseased condition of peach trees this season is quite prevalent and is no doubt due to the very wet spring which with the warm weather created favorable conditions for the growth of fungus. From indications there are all kinds of fungus possible this spring. Some growers say shot hole is even on their walnuts. The wet weather came just at the time spraying should have been done to be the most effective. In most orchards the ground was too wet to get on even

Not Too Late to Plant Tepary Beans

1 lb. 25¢; 5 lbs. $1.00; 10 lbs. $1.80 F. O. B. Los Angeles
Supply Limited.

Plant after the hay or grain is off and
get a paying second crop from the land.

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Buy direct - - at rock-bottom prices - - and save 25% to 40% on every order of building material you place. Clip the coupon, fill it out and send it in TODAY. You will receive the big, comprehensive Whiting-Mead complete Building Material catalog by return mail. It is saving money for thousands of ranchers. Why not for you?

26 Guage Corrugated Iron $2.60 Per 100 sq. ft.

A big special purchase that's another proof of our great buying power, as this price is really less than ordinary wholesale cost.

26 guage, 95 lbs. to 100 sq. ft., best annealed sheet steel thoroughly coated with a specially prepared paint and for many uses, even more satisfactory than galvanized.

Place your orders for this early, as even the great quantity that we have secured will not last us for very long, and it will not be possible to get more to sell at this price until after the war.

Regular widths in 7 ft., 8 ft. and 8½ ft. lengths.

Galvanized Screen Wire—14 mesh, per square foot in full rolls, 2¼c; less than full rolls, 2½c.

Galvanized Conductor Pipe—3 in., 6c per foot in 10 ft. lengths; 4 in., 8c per foot in 10 ft. lengths.

Irrigation Pipe—of galvanized steel for surface use, made of 24 guage steel, 10 ft. lengths only: 4 in., per 100 ft., $14.40; 5 in., $18, and 6 in., $21.60.

These prices will give you some idea of the wonderful savings possible through ordering from us by mail. If you have not a copy of our wonderful new 1915 Catalog of Building Materials, use the coupon and send for it NOW. Everything that you need for building, fencing, tools, piping, etc., at "lower prices."

TOOLS for All Uses

10 in., Victor Brace, 75c.
10 in., Stanley N. P. ball-bearing brace, $1.90.
Stanley Levels, 12 to 18 in., 50c.
26 in., Disston saws, $1.50 and $2.
Buck saws, blade 30x1¾ in., 75c.
Pruning shears, 50c; saws, 45c.
Fence pliers, 75c; will drive and draw staples, cut, splice, straighten and stretch wire, 10 in. size.
6 or 8 in., Stilson wrenches, 75c.
Spading forks, 75c.
Manure forks, $1.10; with 6, 13 inch oval tines.
Hay Forks with 4, 15 inch oval steel tines, $1.
Square point, long handle shovels, 75c.
Garden hoes, 6 in. blade, 60c.
Coes' knife handle monkey wrenches, 6 in. size, 50c.
Agricultural monkey wrenches, 6 in. size, 25c.
Expansion bits, ½ to 1½ inches, 75c.
Large steel measure squares, both sides, 35c.
4½ in., try squares, 20c.
Coe soldering sets, complete, 40c.
12 oz. claw hammers, 25c

Builders Hardware

Inside door locks, nickel finish, 50c each; dull brass, antique copper, or sand blast, 45c.

Sliding door locks, with one bronze key, finished in dull brass, antique copper or sand blast, single, $1.40; double, $2.10.

Cupboard turns, cast brass, T handle, antique copper, dull brass, sand blast or nickel plated, each 40c.

Drop handle drawer pulls, same finishes as above, 20c each.

Flush sash lift, antique copper or dull brass, 7c; sand blast, 8c each.

Bungalow front door handles with plate and thumb latch but no lock, antique copper, dull brass or sand blast, $3.25, or complete with lock, $7.

Store door lock, very serviceable, cylinder lock, bolts and night latch with three bit keys, any of above finishes $5.75, complete with brass escutcheon.

French window locks, any of above finishes, $1.30 complete, a $1.50 value.

Genuine Yale night latches with three German silver keys, $1.50.

Pressed steel butterfly hinges, 10c pair, all finishes.

Pressed steel screen door hinges, japanned, 12c pair; antique copper or dull brass, 20c pair.

Standard House and Floor Paints, $1.50 per gal.

Standard makes of varnishes at 25% off regular prices.

Black Graphite Roof —per gal., 50c.

Standard Roof Paints— red, green, gray- per gal., 85c.

Shingle Stain, made from pure ground colors per gal., 50c.

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for days after the rain ceased. The peach worm is controlled by spraying just before the blossom opens, and this was impossible in many orchards, hence it is surprising that more peach worms have not shown up. If all the trees are thoroughly sprayed this fall and again next spring before the buds open no doubt these troubles will decrease to small degree.—J. W. M.

Ducks in Tules

I have a tule pond of one acre in my pasture where water stands from May to January. The water is good for stock to drink as it rises and falls with the water level of the community. I am informed that ducks will not live long on such pond on account of the tules in the water. Is this information correct?—Subscriber, Parlier.

We do not believe there would be any injury in allowing ducks to feed in this pond. However there have been seasons when wild ducks have died in large numbers without any definite explanation as to the cause. It is possible this may be the explanation. We will be glad to hear from subscribers as to experience with ducks in tule sections.

Feeding Summer Prunings

I am feeding summer prunings from Malaga vines to pigs and shoats. Have they any value and to what other common food could they be compared in feeding value?—Subscriber, Parlier.

We do not question that these prunings make excellent succulent feed for your stock and can see no possibility of harm from feeding them, but as to an analysis showing their value we are not aware that any has ever been made. We would consider their value similar to that of sorghum or other soiling crops.

Cost of Cans

Some weeks ago the Cultivator gave a fund of information regarding canning and referred to the cost of cans as being from $18 to $20 per thousand. A subscriber at Live Oak has written in that last year the best special price he could get was $27.50 in thousand lots or $25 in carlots, and that f. o. b. San Francisco. He wishes information as to the correctness of the figures which were given by Mr. Cruess in the original article. The inquiry was forwarded to Mr. Cruess but as he was out of the city he was unable to reply until the present. He answers as follows:

"The cost of cans given in the article recently published in the Cultivator applies to the sanitary can only. This is the can universally used in large canning factories. The price given is for the number 2½ size of can, the one most commonly used for fruits and tomatoes. The studhole or solder top can is more expensive than the sanitary can because of the smaller number used and because of the greater difficulty in manufacture. Cans of this kind come to about $26.50 per 1000 as compared with $18.00 to $21.00 per 1000 for the sanitary can of corresponding size."

Browning of Avocado Leaves

A subscriber writes asking as to browning of avocado leaves and dropping from the tree. This was referred to Prof. Fawcett and he writes that he was unable to discover any fungus. At the same time we submitted specimens to Mr. F. O. Popenoe of Altadena, and he answers:

"The browning of the avocado leaves is a trouble that I believe no one has exactly determined the cause of, beyond that it is from root disturbance. It is observed when the tree has been watered too heavily for some time, perhaps also where the tree has been overfertilized. If the drainage is not good and watering has been too copious the edges of the leaves turn, then the entire leaf blackens and drops off. The new leaves then come out and if the adverse conditions are not too severe no further difficulty is experienced. It is a rather common trouble but one that rarely causes a tree to die, and so is not considered serious."

Manners have an enormous commercial value in life. No one can have lived as long as I have without noticing the weight and value of manners in the ordinary transaction of life, in public life, and having seen men by appearance and manners get such a start of very much abler fellows that they have been able by appearance and manners to keep their place much higher in public life than their own abilities or service would entitle them to.—Lord Rosebery.

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Of

Nursery Stock to be Held at Claremont, Cal.

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All stock is divided in blocks and will be sold as it stands.

Particulars regarding parcels, contents of each parcel and any other information regarding the sale will be furnished upon application to the Receiver.

Possession is acquired on day of sale, and growing stock may remain in the field until the next digging season, by making arrangements with the present owners of land. Labor can be arranged for, by contracting with responsible parties, now in the employ of the Receiver.

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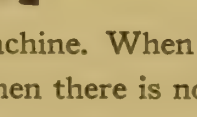

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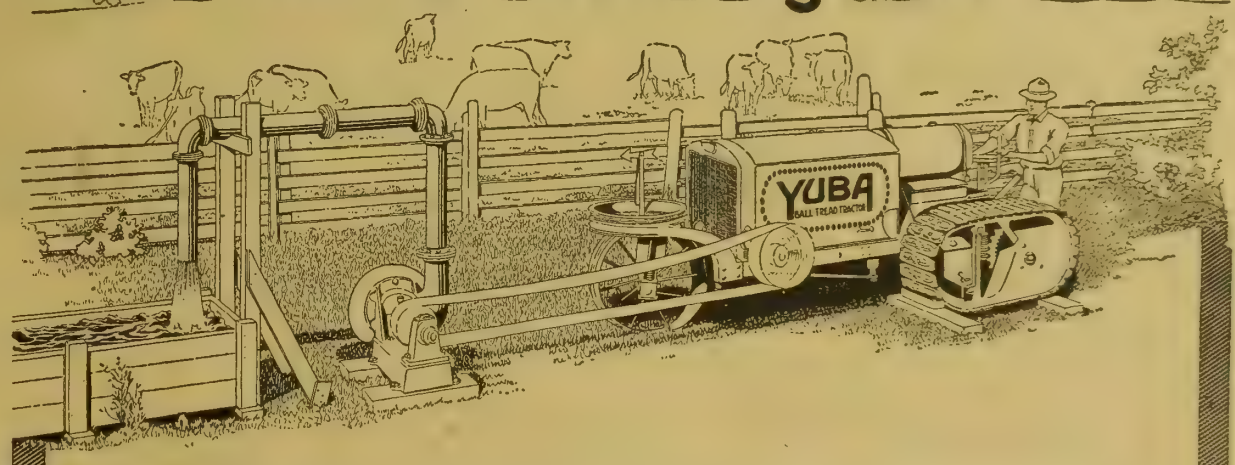

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Trial packets 15c each, 4 for 50c. Write for prices in quantity.

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The Lawn and Flower Garden

BREEDING NEW PLANTS

Written for the California Cultivator
By Ernest Braunton

NEARLY all the good novelties the world has received in plant life have been the work of amateurs. A very small per cent have been the work of professional plant breeders. There are no secrets in this or any other phase of horticulture; all is an open book. I can show anyone in a few minutes how to hybridize and propagate new flowers from seeds.

Everyone engaged in business has a few secrets, matters peculiar to his own methods of attaining results, that he calls business secrets. The plant breeder has no more; they differ but in kind. I have found out certain specific things necessary to best results in getting new sorts of gladioli but I do not keep them secret. Many of them would be useless to any other plant breeder for none work with quite the same material. But an amateur has more time than a professional and so if a dozen amateurs each have a hobby, one of roses, another of carnations, others of dahlias, iris, gladioli, etc., each one crossing every season, the aggregate results will surpass those of any single professional if the work is persistently and intelligently carried forward. As a means of pecuniary profit it is a very poor business, but as a hobby it more closely holds the interest of the worker than any other could possibly do.

If you wish to try hybridizing or crossing of plants the process is easy to understand. First, remove the stamens. In many flowers this should be done before the flowers open. In gladiolus it should be done after the flower is open, and in this flower they are three in number, balanced on the tips of three thread-like stems. Second, put a bag of paper or cheese-cloth over the flower that insects or humming birds will not do the work for you. In gladiolus the second morning after the flower opens the three-pronged stigma will be receptive. Take a stamen from the other flower with which you wish to cross; with a toothpick scoop out a little pollen from the slit in one of the long pollen sacs, which in each gladiolus stamen are two in number. Daub some of this pollen on the prongs of the stigma, cover with the sack for a few days, and seeds will soon set. Better use named varieties, mark on a label on the plant what you have done, thus: America x Klodyke and record the same in a book so if labels be lost the record remains. The remainder is easy—sow seeds in early spring and nature will do the rest.

"The wisest man still looks about
For things to learn day after day,
And daily finds some new things out
Or puts some old belief away."

Burr Clover a Bluffer

Burr clover is, in some places, a very useful plant. In lawns it is a pernicious and persistent weed and one would think it was most tenacious of life. But look for it in a wild state and you will find that as a rule all died a month or more ago. Like the "filaree" it makes a "big bluff" for a few months; threatens to overwhelm all else, but when the rains stop it quickly ripens its seeds and dies quite suddenly. So marked is this change that often but a week is needed to turn a field from living green to a seared, lifeless brown.

Ornamental Fruit Trees

In rural gardens, and others for that matter, why should not ornamental trees and shrubs be used that have as well a recognized economic value for the crops? Orange, lemon, avocado, loquat, sapote, custard-apple, guavas, carissas, and the like, all these are evergreens and compare most favorably with the purely ornamentive trees and shrubs found in local markets. Are they less beautiful by reason of bearing an edible crop? Certainly not. Then, when you have planted in the yard what trees and shrubs you most admire, let the remainder be of things good to eat as well as good to look upon. Do we not doubly prize the social favorite who can bake a fine cake or pie or loaf of bread? Let us assume a similar attitude toward the fruitful ornamental.

PLANET JR. SINGLE WHEEL HOE IN THE FAMILY GARDEN

Protect the Toad

My gladioli are much troubled at present by the striped beetle which so much infests melon, cucumber, and other members of the cucurbit family. I have always been a strong friend and defender of the common toad as it is the best vermin destroyer I know. But a few evenings ago, just at eventide, I saw one dart out his tongue and catch one of these pesky beetles. Wherefore I am once more on the hunt for toads, either lost, strayed or stolen.

DEEP CULTIVATION POSSIBLE WITH WHEEL HOE.

THE BARRIER

First Tramp—You won't get nothing decent there; them people is vegetarians.

Second Tramp—Is that right?

First Tramp—Yes, and they've got a dog wot ain't.—Philadelphia Inquirer.

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As superior to old methods as the modern auto is to the ox cart.

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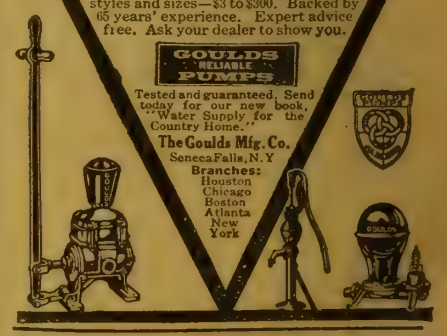

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Richard Garstang, Patentee, 224 W 30 St., Los Angeles

When writing advertisers, mention the Cultivator.

CULTURE OF TOMATOES

(Continued from Page 699)

before harvesting. Tomatoes to be used for local canneries are usually not picked until they are ripe. On account of the structure of this vegetable it is absolutely essential that they be handled in a very careful manner for they are very easy to bruise and every bruise means a rot in a few days. Tomatoes which are grown for the canneries are placed in boxes holding from 35 to 50 pounds, hauled directly to the car and shipped to the cannery. When harvested for the local fresh markets the crop is usually placed in lug boxes or crates and hauled directly to the market. Tomatoes for long distance shipments should be handled extremely carefully and are generally placed in lug boxes, hauled to the packing house in wagons which have springs on them or in which a layer of straw has been laid to prevent unnecessary jarring. At the packing house these are repacked into crates, wrapping each tomato in tissue paper and being careful that the crates are packed tightly and only those of good quality shipped. Those which are unfit for long distance shipments are generally sold to local canneries.

Varieties

Of the large number of varieties of tomatoes there are comparatively few which are grown in this state. The most popular and best variety for canning and for the market is the Stone. This is a large, well-shaped, highly colored tomato and is the general favorite on the market. It is however a little slow in maturing and should not be used for early spring crops. The Trophy is grown principally throughout the San Francisco Bay region for canning purposes. The vine is a vigorous grower and heavy bearer but the fruit is too rough for marketing and not as good a keeper as the Stone. The Sparks Earliana variety is commonly used for the early spring crop. This is a small tomato, not a specially good keeper though it is strongly recommended for the purpose for which it is grown. The Early Los Angeles variety is one which is becoming quite popular and it matures quickly and should prove adapted to the grower for the early spring crop.

Damping Off

This is commonly found when raising tomatoes in the early spring. It appears only in the seed beds where it kills the plants rather promiscuously throughout the beds. It is caused by several different fungi which gain entrance to the stem and root near the surface of the soil and kill the plants in a very short time. The control is more preventive than curative, for after a bed has once become infected it is very hard to stop the ravages. The grower should raise his plants in such a manner that they will have plenty of ventilation, avoid overcrowding and irrigate when possible only in the mornings of pleasant days so that the surface of the soil and tops of the plants will dry off before night. Spray the bed with Bordeaux Mixture using: Blue stone five pounds, lime four pounds, water 50 gallons.

Failure to Set Fruit

It is very commonly found that while the vines set a heavy crop of blossoms many of them fall at the time the tomatoes should be forming. This is brought about chiefly by the climatic conditions, such as rain, cold, heavy fog, extremely dry hot weather or in fact any weather conditions which will prevent the proper scattering of the pollen and proper fertilization of the blossoms. Irrigation at the time the blooms are setting and overrichness of the soil in nitrogen are often responsible for this condition. For the control the growers should find out if possible which of the foregoing conditions is responsible for the failure of the fruit to set and remedy it as best he can.

Late or Winter Blight

When growing tomatoes during the rainy season the grower frequently loses an entire crop from this disease which attacks the leaves, stems and fruit, causing the appearance of black spots or lesions. This is controlled by spraying with Bordeaux mixture, using: Blue stone five pounds, lime six pounds, water 50 gallons. This should be applied immediately after the first appearance of the disease, for when it has become established it is impossible to check it.

Blossom End Rot

This disease is very commonly found in California and is characterized at the blossom end by watery areas which are usually circular and which later turn black, causing the decay of the tomato, making it unfit for food. This has been found chiefly where the field has been allowed to become too dry between irrigations or when the plants have received an inadequate amount of water throughout their growth.

For the control of this disease the grower should so time his irrigations that the plants do not suffer for water, and if irrigation is not practiced, cultivation should be given often enough to preserve a good mulch and retain as much of the soil moisture as possible.

Root Knot

Occasionally in fields in which the soil is of a sandy nature the roots of the tomatoes are found to be completely rotted off. This is usually caused by a very small worm known as the nematode. Where this is found in the fields a rotation of crops should be practiced.

Summer Blight, Wilt or Western Yellow

This disease is very severe in many tomato fields in California especially where the soil is of a sandy nature and the crop is growing during the summer months. This has probably caused more loss to growers than any other tomato disease. It is characterized by the dead plants scattered promiscuously throughout the field, and gradually all the plants may become infected until the field is worthless. Occasionally the infection is limited to a small number of plants.

Description of an Infected Plant

After a plant first becomes infected growth stops and the color becomes unhealthy, resembling a plant which is getting an insufficient amount of nourishment. Upon close examination it will be found that the veins of the leaves have become a purple color which is especially noticeable on the under side. All the leaves show the disease at approximately the same time. The central cylinder often dries up leaving a hollow core, and if the top of the plant be cut off at the ground it will bleed very little, showing a scarcity of sap. After a plant has been killed by this disease the main branches remain in their normal position but the leaves and ends of the stems and laterals finally droop and dry up. No unnatural spots on the leaves, stems or fruit have been seen in connection with this disease.

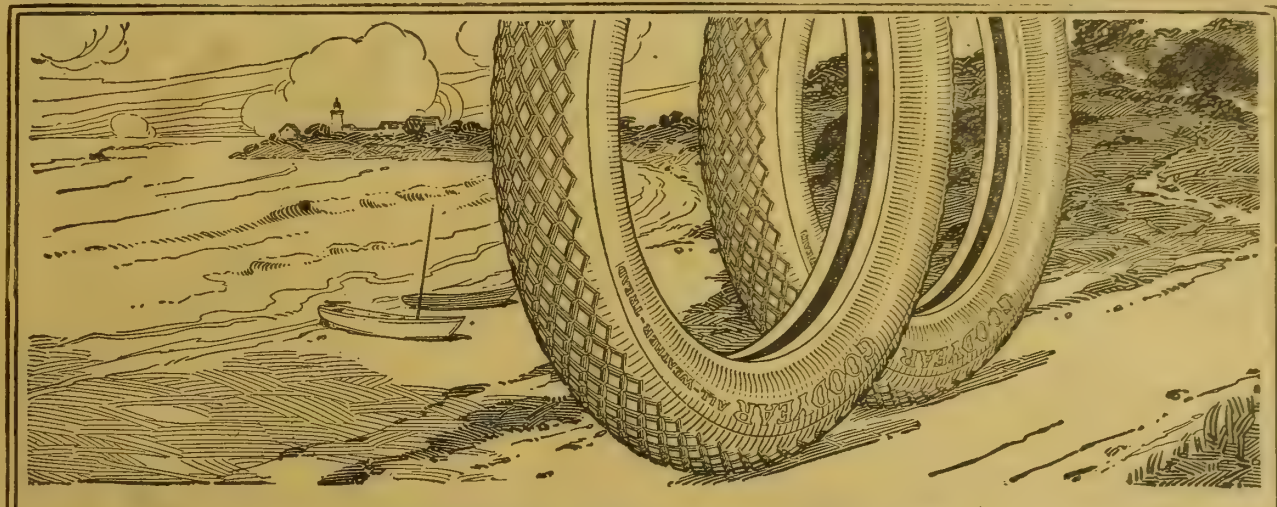
There has never been any satisfactory method of control found for this disease, but following will be found some of the observations which have been noted:

The amount of wilt is not influenced by rotation of crops, character, preparation of the soil or care of the plants in the seed bed and in the field.

There is apparently no difference in the amount of resistance in the various varieties.

There is a close relation between the appearance of this disease and the season of planting. Plants set in the field during the early spring are much more liable to become infected than those planted after the middle of June. The date of the appearance of the wilt is dependent to a large extent upon temperature; it appearing generally soon after the first hot weather of the spring.

Soil which is producing tomatoes for the first time is liable to contain as much disease as that which has been growing this crop for a long number of consecutive years.



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That's because of a big price reduction, made February 1st. It was our third in two years, totaling 45 per cent.

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In those extras lies the reason why Goodyear outsells any other tire. And in that mammoth output lies the reason for the value that we give.

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The California Cultivator

Rural Californian Combined with the California Cultivator

A Journal of Horticulture and Agriculture

By
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115 and 117 N. Broadway,
Los Angeles, Cal.

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Thursday, June 24, 1915

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

SUMMER SESSION

The University of California announces that there will be probably at least 4500 students in its summer courses which begin at the university at Berkeley this week. This number is much greater than have enrolled in any previous summer's work and, more than that, the 4500 students will be learning greater efficiency during the next few weeks.

INDEX

There is one pecularity about the present volume of the California Cultivator; it has only 25 numbers. Volume 33 was also an exception because of its 27 numbers, and the other volume of 1915 which ends with Thursday, December 30, will also have 27 issues. It will be many years before this will occur again. At first glance the index may not look particularly interesting, but we are sure that the subscriber who has saved his file for the last six months will find those ten columns of index of as much value as any book in his library.

We call attention to the binder which the business office of the Cultivator will send to any subscriber for $1.15 to any point in California. This binder has capacity for two full volumes, or for the entire year. We fear that subscribers often fail to preserve their copies and thus lose the vast fund of information which is given in our columns. Note under "Contributors" in the index the number of representative Californians who have contributed to our columns during the past six months. If you have not preserved the file in the past begin with the issue of July 1 in Volume 45, which will have more of value than has Volume 44—a statement which we will probably again make in the last issue in December as to the coming volume, for the farm paper which is not growing better every issue is not serving the needs of California agriculturists.

STANDARDIZATION

Our state law will now compel all of us to be good as to quality of fruit which is to be sent out. This law is not needed to compel three-fourths of California fruit shippers to do what they are already doing, but there is a disposition on the part of a few shippers to trade on the good name of California and secure fair prices for an inferior article or possibly for a fairly good article improperly packed.

The engraving on our cover page is an illustration of ranch packing which is intended to improve the good reputation which California already has in all the fruit markets of the world. Those cherries were packed by Mr. Millard Sharpe whose cherry orchard in the Vaca Valley is growing magnificent cherries. Mr. Sharpe's orchard is not extensive, but he is the kind of person to make up in quality of fruit and pack the lack in quantity. It costs more to pack fruit as is should be packed. It is possible that the first year it brings but little more than the indifferently packed, but where one is in business for life or for a period of years the money will be returned with good interest.

COMMUNITY COOPERATION

The community which does not do team work or hold together, or in other words, whose people do not cooperate in advancing its interests, is an undesirable place in which to live. In the first place there is the direct loss of advantages which may only be secured by intelligent cooperation, and more, it is reasonably sure to be a community of people of not the highest grade of intelligence, for it takes an intelligent people to cooperate. Every section needs better schools, better churches, better roads and sidewalks, better stores, more social facilities, even more of modern luxuries and advantages. It is born in all the human race to be ever demanding more and better, and until the people of each community can rise to the point where they will unite with neighbors, they will be lacking, in some degree at least, in these most desirable things which elevate and consequently make more prosperous all of the people. If good roads, imposing churches and the finest school buildings in the world stand for anything, surely California is well in the advance in cooperative effort.

But few Californians are like the Irishman who preferred nine children to nine million dollars for the reason that if he had the nine children he would be satisfied while if he had the nine millions he would everlastingly want more. Californians want more children and more opportunities for them and in addition propose to get the millions of wealth which will secure those opportunities.

Calling attention to claimed undesirable features in an adjoining or other community never added one factor to any one's welfare. The shouting of "Boost" sounds good, but like the Fourth of July boy's firecracker its force is soon expended. "Community cooperation" has a less explosive sound but its accomplishment goes far in the bettering of our already good schools, stores, facilities and beautiful roadways.

"Cooperate" is a good slogan. Use it in your community.

ADVERTISE OUR PRODUCTS

It has been said of a successful merchant that if he were in a land of savages and should receive a shipload of button hooks his business capacity would create a demand for those millions of button hooks and they would be disposed of at a profit.

There are hundreds of great merchants in this land of advertising who are equally resourceful. We prove this every year by eating thousands of tons of breakfast or other foods at prices sometimes hundreds of percent above other foods equally as nourishing, all because a successful advertising campaign has convinced us that a dependable trademarked sanitary package is desirable enough to justify the higher cost, and we continue to buy.

While we have all recognized that this is true of a manufactured article we have been slow to apply the same principle to our fruits or farm products. However so far as it has been done "California is ahead" again. Our peaches, prunes and persimmons; our cherries, cantaloupes and even celery; our olives, onions and oranges have all felt called upon to advertise themselves.

The orange and the lemon are the most ambitious and have made good as none other in a general and continued advertising campaign. We say continued though during one year—that of the "freeze"—the appropriation was recalled and the work not taken up till the next year.

The burden for this campaign has fallen almost entirely upon the one great cooperative organization, the California Fruit Growers' Exchange. During the past year this organization of growers has spent $275,000 in advertising California oranges and lemons. While the burden has fallen only on the members of this organization the benefits have accrued, to a degree at least, to all. To be sure it was intended to make known the fact that "Sunkist" brand on a box insures quality. But all oranges, both California's and Florida's, have been more generally eaten because of this campaign.

But Sunkist has become a household word. It will become even more familiar for a better managed campaign will be conducted next year than ever before. During last week and the present one a school of Sunkist advertising has been conducted at the office of the general exchange in Los Angeles. At this school or conference there were present President F. Q. Story, General Manager G. Harold Powell. Assistant General Manager E. G. Dezell, Orange Sales Agent D. C. King, Lemon Sales Agent T. H. Powell, Manager F. B. Hutchens of the Fruit Growers' Supply, all of the home office.

From the East came R. J. Grassley, advertising manager of the Exchange; D. W. Francisco, assistant to the general manager of the Chicago office; W. T. Kester, vice-president and general manager of Lord & Thomas; R. T. Crane, writer of ad copy for Lord & Thomas, and Everitt Sisson of the Curtis Publishing Company.

In conference every angle of advertising in newspapers, magazines, car and other banners, window cards, premiums and every other conceivable form was discussed. It will take a year, perhaps years, to learn the full value of this conference. We believe it will be great to the orange grower and to California.

Meantime it is costing the grower less than two cents per box of fruit and adding to the return to him, and far more is increasing consumption, so that hundreds of cars now going Eastward are saved from going to the "wash."

Agricultural Notes

The College of Hawaii has added a four-year course in sugar technology.

The United States forest service is undertaking the reforestation of lands on light house reservations.

When last heard from the jitney had reached Honolulu. Now we hear that it is in the Philippines and Manilla is soon to have a jitney service.

The Florida Citrus Exchange has decided to close its fiscal year on September 15 instead of July 31 as previously. The year of the California Fruit Growers' Exchange closes on October 31.

As a result of the European war the approximate gross earnings of state and guaranteed railways in India for the year ended March 31, 1915, were $10,000,000 less than in the preceding fiscal twelvemonth.

Three ships from South Africa arrived at the port of Boston on May 27 and June 1, carrying wool. These are the first direct shipments of that commodity received at Boston from South Africa for many years. Previous to the arrival of these ships, wool from South Africa reached Boston via England.

The potash famine is turning many eyes toward the Pacific kelp beds where some work is now being done in converting this kelp into fertilizer. Since February 1 but one cargo of German potash has been received in an American port. Potash salts which sold a year ago at $38 per ton are now quoted at $160 to $175.

The relative humidity in the middle of the day will hereafter be included in the weather reports furnished daily by the weather bureau to the newspapers. Observations at present are taken at 8 a. m. and 8 p. m. An observation of the relative humidity at 2 p. m. will indicate much more accurately actual working conditions.

The New Zealand government has expended $7,738,709 in the purchase of frozen meat for the home government since it took over the control of the meat export on March 3, 1915, and there is much still to follow. The price paid is very satisfactory, and the only thing delaying shipments is a lack of refrigerator space in England.

So great is the demand for marmalade in England that Spanish shippers are still sending bitter oranges, to be disposed of on the English market It is abnormally late for the fruit, and the oranges are not good either in quality or condition, but the market price stands at $3.16 to $3.41 a half chest, which contains about 80 pounds of sound fruit.

Grapefruit growers of the Isle of Pines, south of Cuba, expect to profit by Florida's proposed marketing law which prohibits shipment of grapefruit from that state before November 10. The island growers say this will give them 60 days market without competition as their fruit ripens earlier in the warmer climate. Many Florida growers also see the same point and are objecting strenuously.

The completion of the steel bridge across the Colorado River at Yuma forges a link in what is known as the southern national highway, which runs from El Paso, Texas, through New Mexico and Arizona to Globe, then to the Roosevelt dam in the Salt River Valley to Phoenix, thence to Yuma. The steel bridge at Yuma was built by funds contributed by the United States, the state of Arizona, the people of Southern California, and the city of Yuma.

Agricultural News Notes of the Pacific Coast

Northern California

The Gravenstein apple show is to be held August 14-22.

The Orland farm center of Glenn County held a big picnic on the 29th of May.

The Humboldt County Dairymen's Association will hold a picnic at Loleta July 31.

The Browns Valley farm center of Napa County meets on the first Wednesday of each month.

The farmers' club of Codora, Glenn County, is to have an all-day picnic on July 4 at Packer Grove.

The forest supervisor at Placerville, Eldorado County, is distributing free vaccine to prevent outbreaks of blackleg.

Several hundred acres are being planted to blackeyes and teparies in the section about Fairoaks, Sacramento County.

The Yolo County Cow Testing Association has discontinued operations. Not enough cows were signed up to justify further work.

The state civil service commission of California announces that examinations have been scheduled for July 3 for vegetable gardener.

The Napa County farm bureau is conducting a squirrel extermination campaign and is selling poisoned barley to its members at cost price.

The right of way of the Oakland, Eastern and Antioch Electric Railroad is to be put into a vegetable garden. The garden will be 85 miles long and 100 feet wide. The land will be leased to growers.

Central California

The grain harvest is on in Merced.

The Tulare cannery is working on apricots.

Ten thousand acres of grain were destroyed by fire in the Huron district.

Some shipments of Valencias are being made from Terra Bella, Tulare County, groves.

President Wiley M. Giffen of the California Associated Raisin Company is on a business trip to Eastern cities.

The supervisors of Stanislaus County have appropriated $2000 to pay expenses of the farm adviser for one year.

The Tulare Cooperative Poultry Association reports its total business during the month of May amounted to $5,250.

It is reported that the Santa Fe Railway will soon put on an iced car from Fresno to Los Angeles to handle packages of green fruits.

The Lindsay Citrus Exchange at a recent meeting gave unqualified endorsement to the marketing methods of the California Fruit Growers' Exchange.

It is possible that a market expert of the new United States Bureau of Markets will be stationed in Fresno to assist growers in disposing of the peach and tomato crops.

The Associated Raisin Company has announced its schedule of prices which will be effective until August 1. The association has on hand about 30,000 tons of last year's raisins.

Southern California

Cotton growers of Blythe, Riverside County, met Saturday, June 12, to discuss marketing matters.

One pumping plant at Corona, Riverside County, pushes water four miles up a hillside and lifts it over 700 feet.

The Richland Walnut Association of Orange County reports trees overloaded with nuts and considerable damage from walnut aphis.

The Puente Valley shows a large planting of bush lima beans this year. The blackeye, however, shows the largest acreage.

The San Diego County farm bureau has asked that the law protecting rabbits be repealed as they are proving a serious pest on the farms.

San Diego County farmers are much interested in the organization of the Winter Vegetable Union. Agreements are being signed up rapidly.

Supervisors of San Luis Obispo County have agreed to contribute one fire guard for the protection of their section of the Santa Barbara forest reserve during the next two years.

The Claremont Pomological Club held its annual picnic meeting at Ganesha Park, Saturday, June 19. State Horticultural Commissioner Cook was one of the speakers.

Dr. J. Eliot Coit, head of the department of citriculture of the University of California, conducted a lemon growing field meeting in the orchard of L. E. Mills at Santa Paula on June 17.

The Coast

The sixth annual horse show was held at Genesee, Idaho, June 11.

The board of trade of Willcox, Arizona, is working to secure a creamery.

A farmer of Hepner, Oregon, has a record of 97 coyotes killed in a hunting trip of 15 days.

Farmers of the district about Miles City, Montana, have formed an anti-hog cholera association.

According to estimates of bankers of the Inland Empire the 1915 crop of wheat will be 20 per cent over that of 1914.

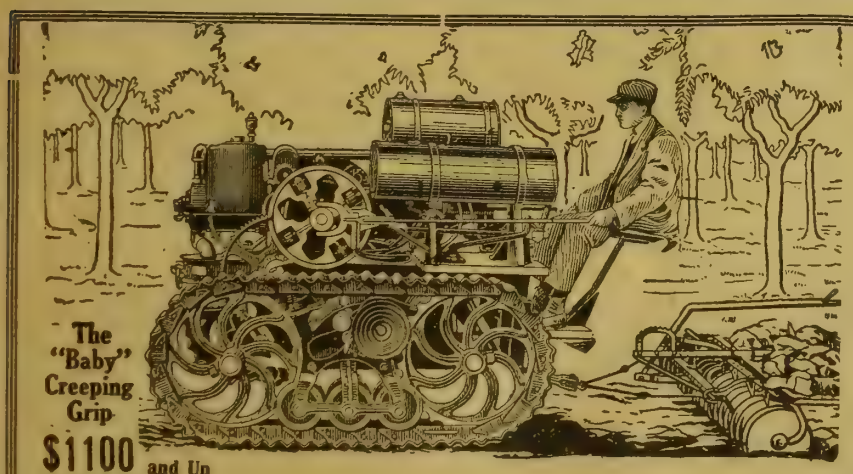
Crabs are reported so plentiful in Winchester Bay, Oregon, that they can be taken up on the oars of a boat two or three at a time.

The farm markets bureau law passed by the last Idaho legislature has been declared unconstitutional by the state attorney general.

The dates of the Stevens County, Washington, Live Stock Association show have been changed from October 26—29 to October 27—30.

Montana farmers are finding a serious pest in the fan weed which is now generally spreading over the central and western part of the state.

J. Meyerhoff, owner of a ranch on Avenue 21 and Grand Canal, Phoenix, Arizona, is preparing to go into the hog business. A feature of his place is the exceptionally sanitary conditions found there, especially the presence of abundant shade and the absence of mud holes.



Cultivate with a
"Baby" Creeping Grip Tractor

Here's the tractor that you have been looking for to handle your ranch work.

This Baby Creeper was designed for the small rancher, particularly the fruit rancher. It delivers 16 Brake and 10 Tractive H. P. and does the work of 6 good horses or mules.

It is low, gets under the trees, turns in its own length, its fuel consumption is very low and it does not require an expert operator

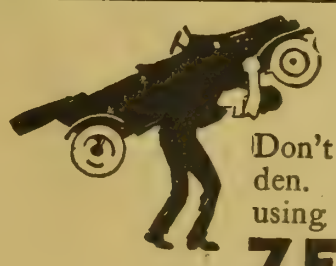
On Exhibition in Los Angeles

Catalogues of this and larger size tractors for the asking.

Bullock Orchard Tractors

741 Consolidated Realty Bldg.

6th and Hill Los Angeles, Cal. Phone F3626



Don't let your car become a burden. You can avoid trouble by using

ZEROLENE

the Standard Oil for Motor Cars

Zerolene keeps your car in active service by giving efficient lubrication. Less valve grinding—less carbon—less frequent replacement of bearings.

Send for Lubrication Instruction Chart, specifying make and model of your car. Free.

STANDARD OIL COMPANY
(California)
Los Angeles

DO YOU WANT WATER?

A ***WORLD - BEATER*** **is the**

STEARNS

Double-Acting Single-Rod Cylinder for Pumping from Deep Wells

4-in double-acting cylinder
14-inch stroke, straight-line jack
100-ft. of 5-in casing and rods
2½ H. P. STEARNS engine
25 ft of 5-in rubber belt
F. O. B. Los Angeles—$275.00

The above complete outfit will pump 3000 GALLONS PER HOUR. Will irrigate 5 acres of trees or garden truck. Other sizes in proportion. Write for Catalogue.

STEARNS GAS ENGINE WORKS 1005 North Main Street Los Angeles, California

Grafted Walnuts on Black Roots

Wholesale and Retail

Placentia Perfection —— Eureka —— Franquette —— Mayette

GEO. S. WEINSHANK Phone 4551 425 Magnolia Ave. Whittier, Cal.

"Fills Silos as Fast as Eight Teams Can Haul It To Machine"

This satisfaction of a California dairyman is repeated every season by enthusiastic owners on the Pacific Coast

CLIMAX SILAGE CUTTER

That Famous Inward Shear Saves Power.

The steel knives, finely tempered, and bolted to heavy knife wheel are easily removed for grinding. Their greatest value lies in the fact that they cut from the outer edges toward the center where cutting power is greatest. Other wheel type machines cut the other way.

These Features All Tend to Save Power.

The Inward Shear explained above, the staggered tooth feed rolls make fast feeding possible. Heavy knife wheel, with fans behind each knife, lifts and blows the silage away without clogging. Closed elbow is a great convenience.

It will do maximum amount of work on minimum power.

Write today for FREE catalog and full particulars.

Ask any Climax owner or thresherman about the durability and economy.

O. J. WEBER CO.

Manufacturers and Importers of Machinery, Silos and Appliances for the Dairy and Creamery

759 South Los Angeles St., Los Angeles

Auction Sale

On

June 29, 1915, at 12 o'Clock Sharp, of

58 Dairy Cows and Heifers

At the Dairy Farm of
A. F. SCHEIDECKER

One mile north of BRETONA Station, on the "Old Hiatt Ranch," 16 miles north of Woodland, on the west side.

Having lost all my early hay and having under consideration the renting of my ranch, I will sell without reserve to the highest bidder all my cows and bred heifers as follows:

27 Cows, mostly Durham and Jersey with a few Holstein.

27 Heifers, first and second calf—Durham and Jersey.

These cows and heifers are good milkers and high testers, producing well on pasture and hay. All are in milk or due to freshen soon, and nearly all are bred to my high-grade Registered Holstein Sire.

Four selected heifers, one and one-half years old; 1 registered Holstein bull —"Tula Pieterje Ignaro," grand-son of Ignaro de Kol. A very fine young bull, well taken care of and very gentle. Born November, 1912. One mare. 3 good brood sows, bred.

Lunch served. Terms cash.

Trains arrive at Bretona at 11 a. m. Trains leave Bretona for all points, south, east, and west at 6 p. m.

W. A. MACKINDER, Auctioneer.

A. F. SCHEIDECKER, Owner, Zamora, Yolo Co., Cal.

When writing advertisers, mention The Cultivator.

Live Stock and Dairy

THE GAS IN SILOS.

PERIODICALLY we read an account of fatalities resulting ing from gas which has accumulated in an ordinary farm silo. These unfortunate acidents vary only in detail. Perhaps a couple of men enter the silo to fork out the day's suply of feed and are subsequently discovered lying on the ensilage where they fell when overcome by gas. Such accidents are the more to be regretted because they might so easily have been averted.

The successful keeping of ensilage hinges upon the process of fermentation, which is simply decomposition in its primary stages. As vegetation ripens the starches in the fruit and stalk change to sugar, which explains the superior taste of ripe fruit over the unripe. When the ensilage is confined in the silo the starches with the natural water change rapidly to sugar which, in turn, ferments very rapidly.

The products of fermenting sugar are alcohol, acid and gas. The gas formed is known as carbon dioxide. sometimes called carbonic acid gas, each molecule of which contains one atom of carbon and two atoms of oxygen. Since this gas is nearly twice as heavy as air it settles in a stratum close to the ensilage. As it increases in volume the layer becomes deeper until it may ultimately reach such a depth that it would envelop the head of a man standing erect. This is usually the case when fatalities result.

Now this carbon dioxide is not a poisonous gas, as is often erroneously supposed, but simply contains no free oxygen which is necessary to support life. It is even present in small quantities in every breath which we exhale, which is one of the chief reasons that we are so careful to sleep in well-ventilated rooms. The victims who succumb to its effects die from suffocation; not from any deleterious effect of the gas on the human organism. Different proportions of carbon and oxygen may form a gas which is virulently poisonous, such as carbon monoxide, or common illuminating gas A molecule of this contains one atom of both carbon and oxygen. But gas of such proportions is not formed in silos,

Carbon dioxide, the silo gas, is practically odorless, and herein lies the danger as its presence is usually unsuspected Since no practicable method of preventing the formation of this gas has yet been formulated, we may accept it is an ever-present factor in silos, and guard against it accordingly. Because of its extreme weight the opening of a vent in the top of a silo, or even a few feet above the top of the ensilage, will not effectually rid the silo of gas and make it safe of entrance unless it is left open for a sufficient length of time to permit the fresh air to circulate thoroughly.

The most modern silo has a door in the side about every foot or so all the way to the ground. This is the ideal arrangement. It permits of the free circulation of fresh air at a level where the gas is sure to be if there is any. Silos with such doors which are entered with any degree of frequency are practically safe. Silos with doors six feet apart should be entered only following some sure test to determine whether or not carbon dioxide is in evidence Pit silos are still more dangerous and should always be tested before they are entered.

The test: Since carbon dioxide is not only non-combustible, but being an inert gas will positively extinguish flame, a sure and simple gas test to apply to any silo is to lower a lighted lantern attached to a cord until it rests on the ensilage If the lantern continues to burn the silo may be entered with perfect safety. If, on the other hand, the flame gives a feeble flicker and dies, carbon dioxide is present in dangerous quantities and the silo should be thoroughly ventilated and again tested before being entered.

Another test, appealing more to scientific men, is to fill a glass test tube with saturated solution of lime water and let it remain for a few moments near the top of the ensilage. Immediately this is withdrawn cover the end of the tube with the thumb and shake the contents violently. If the solution then appears cloudy, and when left standing fine white particles of lime are precipitated to the bottom of the tube, carbon dioxide is present, though not necessarily in dangerous quantities.

To condemn silos because of the possible danger arising from the formation of carbon dioxide would be as short-sighted as to fill up farm wells because careless persons have been drowned in them, The simplest precautions will prevent fatalities in either case, and for real utility a good silo is a close second to an up-to-date water system on the modern farm.—Pacific Homestead.

HOLSTEIN-FRIESIAN ASSOCIATION

The 30th annual meeting of the Holstein-Friesian Association of America was held in Syracuse, New York, June 2, President, D. D. Aitken of Flint, Michigan, presiding. The attendance was the largest ever present at one of these meetings and included about 20 women. All the proceedings were marked by unanimity of thought and action.

The report of the committee on proxies, Edwin K. Munro, Camillus, New York, showed a personal attendance of 443 members with 1719 represented by proxy.

Accessions to the membership to date number 1350, 1208 applications having been made during the fiscal year ending April 30, 1915. The total present membership to date of meeting is, therefore, 7866.

Treasurer Wing R. Smith presented his 18th annual report with great satisfaction, both to himself and to his hearers, on account of the exceptional progress and financial success which it showed in spite of the depressing experiences of the past year. In addition to the figures showing the transactions of his office he gave a few excellent admonitions against the time of reverse fortune which comes sooner or later to all. His report showed cash receipts for the year $346,034.22; disbursements, $176,198.63; cash balance April 30, 1915, $169,835.59, of which $157,530.82 is in the reserve fund.

The report of Secretary F. L. Houghton showed that 135,280 certificates have been issued from his office during the year, a gain of 29,981 over the number issued in 1914. Total cash receipts of his office were $177,392.88, with disbursements of $111,208.98. A total of 1208 new members was admitted during the fiscal year, exceeding by 97 the number admitted in 1914; making the grand total of membership on April 30th last 7724. Notification of the death of 48 members has been received during the year. The secretary concluded with a brief description of the offices of the association, their equipment and the staff of employes.

Superintendent Malcomb H. Gardner reported during the fiscal year, 11,470 cows have been under test, 566 completing yearly records, adding nine names to the list of 1,000 pounds butter cows, now numbering 31. The average of the 10,743 ordinary records was 406.9 pounds milk, 14.474 pounds fat, or 16.89 pounds butter per week. Average per cent fat, 3.56.

ON BEING SATISFIED.

"Say, Moike, which'd you ruther hev—noine millyun dollars or nine children?"

"Begorra," said Mike, scratching his head meditatively, "Oi'd ruther hev the children. If Oi had noine millyun Oi'd want more, but if Oi had noine children Oi'd sure hev enough."

THE CAUSE OF SMALL LITTERS OF PIGS

"Can you tell me why my brood sows only bring between three and six pigs per litter?" Replying to this question Prof. G. W. Barnes, livestock specialist of the University of Arizona agricultural extension service, says:

"If you have studied hog conditions in the United States you will find that about four pigs per litter is the average; and I can point to you men in Arizona who are actually raising for market two and three pigs to the litter, yet the cost of maintenance of the brood sow is practically the same whether she brings two pigs or ten pigs per litter, which means that the farmers are losing a large percentage of profit by keeping such brood sows in their herds.

"There are several reasons why brood sows bring small litters, and I firmly believe that the one which contributes to the trouble more than any other is the practice of breeding sows too young. It is no uncommon thing to find sows weighing less than 100 pounds with pigs. Usually you find them with only two pigs. The young sows which you intend to keep for brood sows should never be bred under nine months of age, and it is much better to wait until they are 12 or 14 months old. Then if they are not fully developed, wait a few months longer. Your brood sow is good for six or eight years, and, if by waiting a few months in the beginning before starting her on her life work, you can increase the size of her litters, you have certainly made good wages for those months. Another thing which contributes to no slight extent to cause small litters is the lack of exercise. A brood sow which does not secure sufficient exercise becomes cross and may eat what pigs she does farrow. Improper care and feeding also come in as contributory causes of small litters. The sow to develop a large, strong litter of pigs must have bone and muscle building foods. Do not be afraid to pasture her on alfalfa and also to feed some barley."

SEX CONTROL NOT DESIRABLE

Nature has many secrets which scientists cannot make her reveal. Almost every conservative live stock breeder has at one time or another experimented in order to discover the secret of sex control. The production of a surplus of males has been the stumbling block for many breeders, and, indeed, the difficulty connected with disposing of males has driven many a timid breeder out of the business. If sex were under control, it is argued, herds would be rapidly increased by the production of females only and such males as could be utilized for breeding purposes, but the secret of this control is just as deeply hidden as in the past and Prof. M. W. Harper, of Cornell University, now calls attention to the fact that sex control is not even desirable.

This specialist points out that equality of numbers of the two sexes is of importance in the improvement of any breed. This is due to the fact that the breeder has a large number of males to select from. This means that the best of them only will be used for breeding purposes, whereas if the number were cut down there would be no such opportunity for emphasizing merit by selection.

Of course, it is not a matter to worry over as yet, because every theory of sex control thus far exploited has utterly fallen down when tested out in actual breeding operations. Many of nature's laws are turned topsy-turvy in order that the needs of men may the better be met, but in this case there may be some advantages, as pointed out by Professor Harper, to have this one secret forever enshrouded in mystery.—Wisconsin Farmer.

RED MOLD OF SILOS

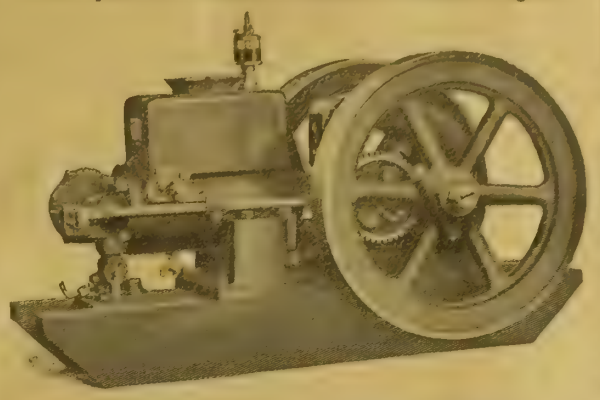
For the last three or four years Missouri farmers who own silos have noticed the growth of a peculiar red mold in the silage. In some years it has appeared only in small quantities, but in others it has appeared at a depth of as much as 15 feet and has infected areas two or three feet square, often adhering to the sides of the silos. Several farmers have written to the college of agriculture of the

A BUILT-IN MAGNETO
A HOT SPARK
A QUICK START

THE ALPHA JUNIOR

The Latest Addition to
The Alpha line of Gasoline, Kerosene and Distillate Engines

NO BATTERIES
NO COIL
NO CRANKING
NO TROUBLES



1½ HORSEPOWER—IN A CLASS BY ITSELF

ESPECIALLY DESIGNED
—FOR—
Pumping
Running Cream Separator
Washing Machine
Churn
Grindstone

And a hundred other odd jobs where easy starting and dependability are essential.

A High Grade Engine at a Medium Price

With unsurpassed manufacturing facilities, and building this engine in large quantities, we are able to make an extremely low price, considering the quality of the

"ALPHA JUNIOR"

SPECIAL FEATURES

CYLINDER HEAD AND BASE cast separately; large, well-proportioned hopper, insuring perfect circulation of water full length of cylinder. Copper asbestos packing between head and cylinder.

CYLINDER AND PISTON ground to fit, insuring perfect compression.

IGNITER—Make and break. Standard National Gas Engine Association electrode used, which can be purchased in any hardware store. Igniter fits cylinder on copper asbestos gasket.

GOVERNOR is of two ball type, very accurate and substantial, equipped with speed changing device. The importance of a good substantial, reliable governor on an engine where long hours of pumping or cream separating are required cannot be overestimated.

GASOLINE CARBURETOR OR MIXER is of suction feed type, having a venturia nozzle in accordance with construction used on all Alpha engines, which have become famous for fuel economy and easy starting.

MAGNETO—Sumter built-in, gear-driven magneto. Especially built for the Alpha Junior. We have used Sumter magnetos as standard equipment on all Alpha engines for nearly five years and have never found its equal.

CRANK SHAFT extra heavy drop forged steel ground to size.

CONNECTING ROD—Drop forged steel.

MAIN BEARING—Cut at an angle of forty-five degrees, giving additional strength, lined with the highest grade babbit metal. Perfect alignment. Adjustable to wear.

FLY WHEELS extra large, perfectly balanced, insuring a smooth running engine. It stays where you put it.

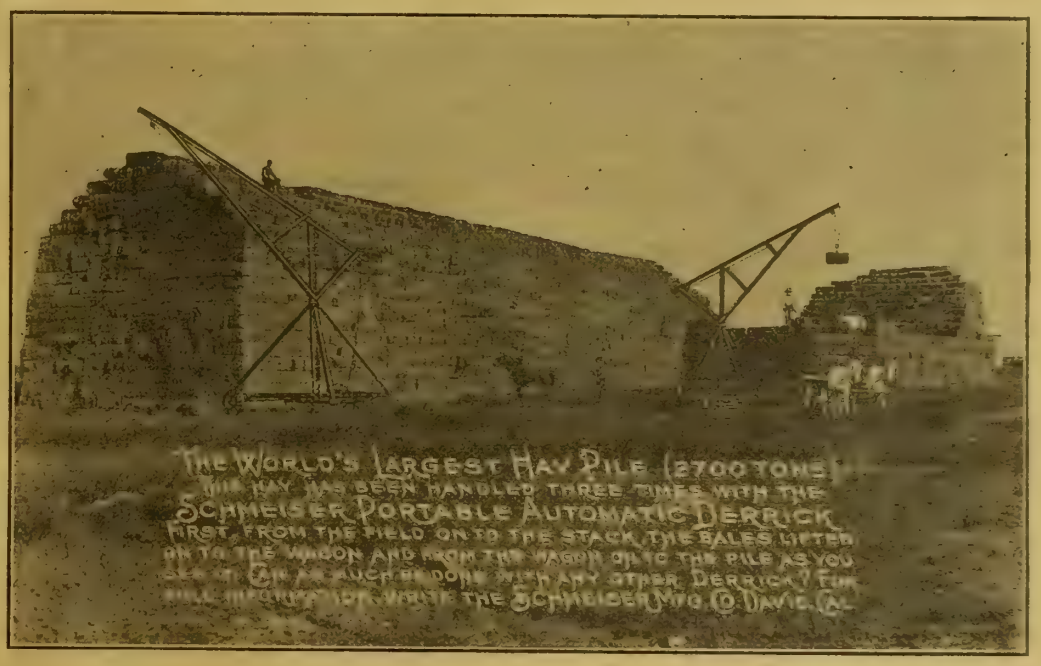
Shipping Weight, 300 pounds.

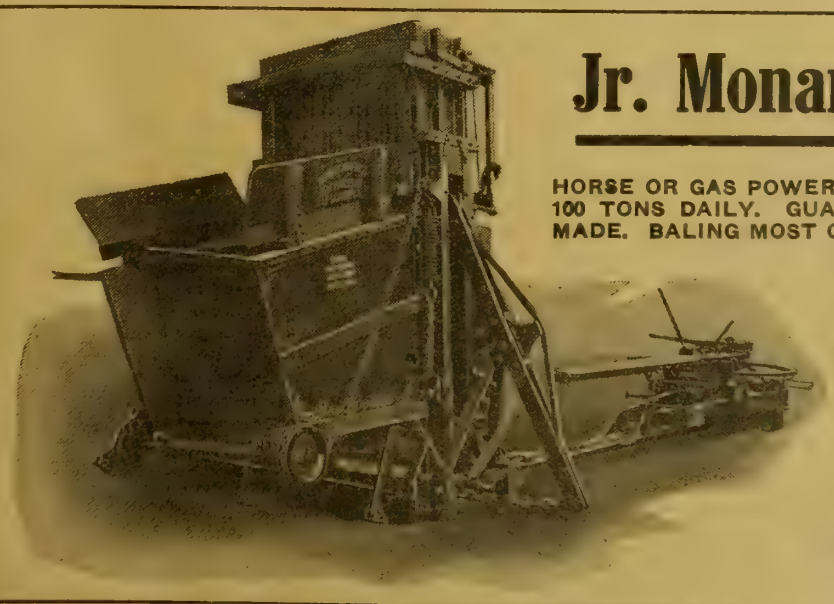
No Batteries. No Coils. Ignition Troubles Eliminated. Built-in, Gear-Driven Magneto as Regular Equipment

Compare Above Features With Any One and One-half Horsepower Engine on the Market, Then Write Us for Prices

DE LAVAL DAIRY SUPPLY CO.

SAN FRANCISCO — Everything for the Dairy — SEATTLE





Jr. Monarch Hay Press

HORSE OR GAS POWER. ANY SIZE DESIRED. CAP. 40 TO 100 TONS DAILY. GUARANTEED TO EXCEL ANY PRESS MADE. BALING MOST OF THE HAY ON THIS COAST. FED NOW CONTINUOUSLY.

Jr. Monarch Hay Press Company

Office and Factory,
San Leandro, California

When Writing Advertisers Please Say Where You Saw Their Ads

VACCINATE WITH
BLACKLEGOIDS
and save the animals.

BLACKLEGOIDS
are
EASIEST
SAFEST
SUREST.

Used and endorsed everywhere that Blackleg is known.

Order through your veterinarian or druggist.

Write us for circulars describing Blackleg and telling how to prevent it.

PARKE, DAVIS & CO.
Department of Animal Industry,
DETROIT, - MICHIGAN.

Shorthorn Bulls

7 choice registered, tuberculin tested Shorthorn Bulls, 14 to 20 months old; all are good individuals, some are of show class type and of fine breeding. Call or address

H. L. MURPHY,
Perkins, Sacramento Co., Cal.

BLACK LEG

LOSSES SURELY PREVENTED by Cutter's Blackleg Pills. Low-priced, fresh, reliable; preferred by Western stockmen because they protect where other vaccines fail. Write for booklet and testimonials.
10-dose pkge. Blackleg Pills $1.00
50-dose pkge. Blackleg Pills 4.00
Use any injector, but Cutter's best.
The superiority of Cutter products is due to over 15 years of specializing in vaccines and serums only. Insist on Cutter's. If unobtainable, order direct.
THE CUTTER LABORATORY, Berkeley, California.

Glenn County has begun to harvest her grain crop. The yield is unusually heavy.

University of Missouri asking what the cause of this mold is and what to do to stop its ravages.

Experiments conducted in the laboratory of the department of botany show that the growth does not occur without the presence of free oxygen. Its occurrence in the lower depth of silos is probably due to the fact that the silage when packed was not sufficiently tramped.

Another factor which has some influence on the presence of molds in silage is that of moisture. Very often silage is put away too dry. Molds develop in much greater abundance where the silage is only slightly moist. The Chinese people use a red fungus, the mold of which corresponds to the red mold of silage, in manufacturing red rice, a substance used as a food coloring and a beverage. The fact that the Chinese do use the pigment in preparing a beverage tends to show that the fungus is not poisonous. Many Missouri farmers thought that the mold was causing death among stock. The mold has appeared in the silage on the farm used by the college of agriculture, but it is thought that no deaths have occurred among stock because of this growth. The mold has also appeared in other states.

COW TESTING ASSOCIATION TO MEET IN LAKESIDE

The final meeting for the formation of the San Diego County Cooperative Cow Testing Association has been called for 11 o'clock next Saturday morning at Lakeside Hall. The purpose of this meeting will be the adoption of a constitution and by-laws with possibly a few changes in the form suggested by the department of agriculture. A board of directors of seven dairymen will be elected upon whom the responsibility for the business conduct of the association will fall. They will elect a president and secretary from among their number and will proceed to hire a tester and set the machinery to work.

The movement is receiving very satisfactory support in all sections where the matter has been taken up. San Pasqual has signed up 150 cows with another 50 or 75 promised. Ramona has come in with 40 or 50, with more still to come. Lakeside and vicinity signed up 233. Mission Valley dairymen joined to the extent of about 100 cows with more to join who were unable to attend the meeting. Six hundred cows are necessary to bring the cost of testing within the $1.50 per cow per year. One tester can handle more than this, however, and in all probability as the association grows the cost per cow will be lowered.

It will be of interest to all dairymen who have already joined the association and who are interested in joining to be at this meeting in order to acquaint themselves thoroughly with the workings of the association and to see that their district be fairly represented on the board of directors. Remember Saturday morning, June 26, 11. o'clock in Lakeside Hall.—H. A, Weinland, County Agent, United States Department of Agriculture.

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Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Mites or Skin Irritation

Every spring my horse begins to rub himself around the neck, head and at the roots of the tail. Sometimes he rubs the mane entirely off. Have washed in zenoleum. This year washed before appearance of the trouble but note its return. A friend claims that it is due to lampas and advises cutting his gums.—Subscriber, San Diego.

It does not seem reasonable that swollen gums (lampas) would cause irritation of the skin. The trouble is probably due to a small mite that burrows deeply and the zenoleum did not reach them all. It might do no harm to examine the gums just back of the upper teeth and if they are very full and attached to the teeth, separate them from the teeth and cut them a little but not very deep. We would also advise getting a thin grade of engine oil and mixing a little zenoleum with it and applying this mixture once or twice a week to the irritated parts, rubbing it in well.

Catarrh

Cow has bad discharge from nostrils but no foul odor. Seems to be all right and has good appetite. The trouble has continued for some months.—Subscriber, Porterville.

Cows are seldom affected with catarrh. It may be from cold, wet weather in winter, from lung worms or from an injury that has caused a growth on the inside. Mix a half pint of turpentine with one quart of raw linseed oil and divide into three doses. Give a dose once in three days. If this does not give relief get gentian, four ounces, nux vomica, two ounces, sulphate of iron, two ounces and chlorate of potash, four ounces. Mix and divide into 20 powders. Give one powder every day.

Sweeny

My mule has bad leg, shoulder badly shrunken. There seems to be a hardening of the muscle. The mule has been sweenied some time. Is there anything I can do to relieve him?—Subscriber, Bloomington.

Sweeny of the large muscle that you indicate must have been caused by an injury. Do not believe that anything can be done for it now.

Barbed Wire Injury

Colt badly cut in barbed wire fence some six weeks ago. The injury is under the fetlock of front leg. Burnt the wound to prevent too free bleeding but the sore continued open with hard swelling around the coronet with opening on the opposite side of the foot from the wound.—Subscriber, Encinitas.

The injury probably reached deeply enough to cause inflammation of the joint and ringbone. Anchylosis of the joint may follow. The nerves may have been cut off also and that would retard the healing and leave the foot numb. Wet the swollen parts once a day with the following liniment:

Mercury bichloride, two drams, alcohol, two ounces and enough turpentine to make one pint. Mix in the order given. It is seldom that an animal recovers completely from severe injuries affecting the joints but in this case the lameness may disappear and the horse be all right for farm work.

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"Why are you crying, Willie?"

"I lost a nickel."

"Never mind. Here is another one," said the kind-hearted visitor.

"Willie, you've got to cut that out," admonished his somewhat exasperated mother.

Then she explained.

"He lost that nickel two years ago."

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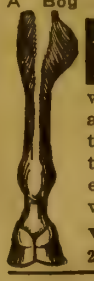

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Poultry for Profit

THE CARE OF MOLTING HENS

Written for California Cultivator
By Jean A. Koethen

THE molting hen is a tired hen. Her year's work, good or bad, is over, and she feels, I suppose, very much as several hundred thousand California parents and teachers and students will feel next week when all the agonies of commencement and "the last day of school" are over, and they are free to settle down to the peace and quiet of vacation. If a hen thinks, which of course all the wise folks say she doesn't, she must reflect when she sees the feathers dropping, "Thank goodness I don't have to lay an egg tomorrow or the next day or the next."

The key word to the care of molting hens is recuperation. We may prescribe protein or greens or shade or a reduced ration, according to her needs, but her needs must always be considered. The Plymouth Rock that has already reared a brood and gone back cheerfully to her laying needs treatment slightly different from that given the Leghorn that has laid two days out of three since November. The Leghorn needs rest and a diet that will restore her exhausted nerves and put, if possible, a little flesh on her bones. The Rock has had her rest and we need not worry if she postpones molting till late fall or molts and lays at the same time. If raising chicks in summer were not so troublesome I should like to set every hen that goes broody in June and July, and I do set as many as I can in August for the chicks they hatch come out in September when nobody wants a vacation. Nothing assures an easy molt like incubation, which is the most natural thing in the world to a hen. The long fast causes the feathers to drop quickly, the rest restores her wornout nerves (if a heavy hen really does have nerves) and the rich diet given the chicks brings out the new coat.

Perhaps it was the effect of fasting on the sitting hens which caused Henry Van Dresser to advocate the forced molt. If the incubating hen naturally molts early and begins to lay again in early fall why may not any other hen be made to do the same thing?

The theory is a beautiful one but it has rarely worked out in practice. Careful experiments at various agricultural colleges proved that while a forced molt did sometimes secure a few more eggs in the course of a year it sometimes injured the health of the hen and actually diminished her productivity, and it was rarely if ever really worth while. Professor James E. Rice of Cornell wrote while the forced molt craze was at its height: "The practice of forcing an early molt by a starvation process so that the fowls throw their feathers in a bunch is receiving wide publicity and trial. With what success time only will reveal." And time has revealed that like many other systems and fads it could not make good. It was against nature, that is all.

The natural molt of birds and fowls is an almost imperceptible one. The bird drops a few feathers at a time, and the new coat comes in as gradually as the old one is dropped. Many hens still molt in this way. Probably half of the hens in most flocks drop their feathers and replace them without showing the bare skin. I suspect the excessively ragged, sometimes nearly naked condition, of many is due to exhaustion from heavy laying. Cock birds rarely, if ever, lose their plumage in this way.

The first thing the molting hen requires is rest. Cut out the forcing mash as the time for molting approaches and feed good whole grain and plenty of green. If the hens can be turned out to range in orchard or fields where they can forage for part of their living they will be better off in every way. With the change in diet there will be a gradual letting up of production, but there will be no shock. The best layers in the flock may keep on laying in spite of the change in ration. If they do, let them lay. It is often said that the early molter is the indifferent layer. Whether or not this is true I am quite sure that the late molter is the best layer.

The second requirement of the molting hen is a diet to fit her condition. This means that all the birds should be examined and the overfat hens separated from the thin ones. The very fat hen will shed her feathers but will not have to renew her coat. The very poor one will not be able to shed her coat. This at least is what the books say. I have had a hen now and then that was so fat she could not renew her coat, but I have never seen one too thin to shed hers.

These overfat hens, if they are too valuable to be sent to market should be put by themselves and given a ration of grain and greens and feeds rich in protein, which will supply the materials for feather-making. Old process oil meal, wheat bran, meat meal and skim milk are all good feather-making foods. Where it is possible it is a good plan to reduce the flesh of the fat hens either by a restricted diet or by letting them run awhile before they are given the feather-making foods, but it is always a question whether it isn't better to market the overfat hens at the begining of summer and be done with them. I kept some splendid big fat hens last summer because I needed them for breeders. By January they weighed from seven to ten pounds apiece, but never an egg did I get. Their too-fatness made them absolutely worthless except for the table. With the Orpingtons it is pretty safe to let the fat hens go as soon as they stop laying in the summer. Their eggs will hardly pay for their keep another season. The year-old hens that have kept themselves thin by heavy laying may well be kept over.

These thin hens, which are the main support of the flock, need a food rich in oil, with a moderate amount of protein. Oats, sunflower seed and flaxseed are the best examples of such foods. Leghorns that are very thin may be given a little corn, but the heavy hens are best without it. A word as to oats, however. Heavy oats are one of the best poultry foods, but the very light oats we often get are not worth buying, except for sprouting. Rolled oats, if they could be bought cheaply, would be a splendid addition to the mash of molting hens, especially of those intended for breeders, but they are too expensive for any but the very finest birds.

What about the birds that molt out of season and those that molt twice in a year? My Buttercups began to drop their feathers in December last year and were quite ragged, even bare in spots, at Christmas. I thought they had molted earlier, but if they did, it was the very light molt which is only shown by the feathers on the ground. These Buttercups were hatched in September and October of the year before, and the molting time of fall pullets is always a little uncertain. Professor Rice says pullets completing their first year of laying will molt even in the dead of winter.

But there seem to be other reasons for an eccentric molt in this climate. A breeder whose birds were at the Riverside fair last October told me they all molted afterward, and she attributed this second molt to the excessive heat in the show tent. Pullets hatched in March are quite likely, if they are fed a forcing mash, to molt in the fall, and sometimes these March pullets have a very light molt in early fall and then a real molt in the winter. I had a case a couple of years ago and I laid it to heavy feeding. These pullets will not molt as a rule if they are not allowed to begin laying till November. It is the pullets that begin in August, lay one litter and then quit that are the offenders.

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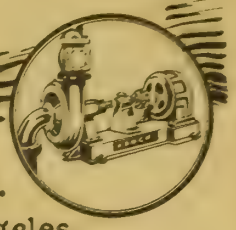

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San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, June 23, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade 3 to 4 cents above following quotations:

Creamery Extras ... 26
Firsts ... 24
Country ... 22@23
Ladle ... 20@21

CHEESE

Prices to trade, 1 and 2 cents higher:

California Fresh ... 13½
Cheddar ... 20@21
Domestic Swiss ... 20
Eastern Daisy ... 19
Oregon Triplets ... 13@17
Longhorn ... 19@19½
Imported Swiss ... 30@32
Tillamook ... 16½@17

EGGS AND POULTRY

Prices to trade, 3 cents higher than following quotations:

Fresh Ranch, case counts ... 22
Candled ... 24
Petaluma—Santa Rosa ... 23½
Northern Case Counts ... 22½
Other Outside Stock ... 19½

Prices to producers:

Hens, lb. ... 11@15
Roosters, old ... 9
Broilers, lb. ... 15
Fryers ... 17
Roasters, lb. ... 17
Turkeys ... 14@16
Ducks ... 13
Geese ... 11
Squabs, doz. ... 2.00

LIVE STOCK

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs., per cwt. ... 8.25
Prime Steers ... 7¼@7½
Heifers ... 6¼@6½
Calves, lb. ... 8½@9
Sheep—
Ewes, head ... 4.50
Wethers ... 5.00
Lambs, head ... 4.75@5.00

POTATOES

Wholesale selling prices:

Idaho Russet ... 2.40
Idaho Rurals ... 1.60
New, cwt. ... 1.30@1.40
Northern Burbanks ... 1.60

ONIONS

Wholesale selling price:

Bermudas—
Imperial Valley, crate ... 80
Crystal Wax, crate ... 1.00
Garlic ... 11@12

VEGETABLES

Wholesale selling price:

Asparagus, green, lb. ... 10
Artichokes, Northern, doz. ... 90
Beets, doz. ... 30
Beans—
Wax ... 4½@5
Limas ... 7@8
Green ... 4½@5
Cabbage, sack ... 80
Carrots, doz. ... 30
Cauliflower, doz. ... 1.50
Celery, doz. ... 55@90
Chicory ... 40
Chives, doz. ... 1.25
Corn, lug ... 55@60
Cucumbers, box ... 50
Egg Plant, lb. ... 6@7
Escarole, doz. ... 40
Horseradish, lb. ... 15
Leeks, doz. ... 40
Lettuce, doz. ... 25
Mint, doz. ... 40
Okra, lb. ... 10
Onions, Green, bunch ... 20
Oyster Plant, doz. ... 40
Parsnips, doz. ... 40
Parsley, doz. ... 15
Peas—
Telephone ... 6
Peppers, lb. ... 10@15
Radishes, doz. ... 15
Rhubarb—
Crimson Winter, box ... 75
Strawberry ... 1.10
Spinach, doz. ... 15
Squash—
Summer, lug ... 30@35
Crookneck ... 45
Tomatoes, crate ... 90
Turnips ... 30

FRESH FRUIT

Wholesale selling price:

Apples—
New Spring Crop, lug ... 1.25
White Astrachan, box ... 2.25
Pearmains ... 2.50
Apricots, lug ... 60@75
Avocados, doz. ... 4.50
Bananas, lb. ... 4½
Berries—
Strawberries, basket ... 3@6
Blackberries, basket ... 2½@3
Raspberries, tray ... 60
Loganberries, tray ... 50
Gooseberries, lb. ... 15
Cantaloupes—
Diamond Pack ... 1.35@1.40
Pony ... 1.15@1.25
Standard ... 1.50@1.60
Cherries—
Royal Ann ... 9@10
Blacks ... 9@10
Cherimoyas, lb. ... 20@25
Currants, crate ... 1.35@1.45
Figs, Black, box ... 90@1.00
White ... 90@1.00
Loquats, lb. ... 9@10
Peaches, lug ... 1.35
Plums ... 6@7
Pineapples, lb. ... 6@7
Watermelons, lb. ... 1¼@2

CITRUS FRUIT

Wholesale selling price:

Lemons ... 1.50@2.35
Grapefruit, Seedless ... 2.25
Navels ... 2.25@2.50
Tangerines, box ... 1.35
Limes, basket ... 1.00
Valencias ... 2.00@2.85

DRIED FRUITS

Wholesale prices to retailers are:

Evaporated Apples, Fancy, lb.
Boxes ... 8½@11
Apricots ... 9@11
Nectarines ... 12½
Peaches ... 6@7
Prunes ... 8½@13½
Prunes ... 8@12½

HONEY

Wholesale selling price:

Comb, Fancy, Water White ... 15@16
White ... 14@15
Light Amber ... 12½
Extr. Water White ... 7@7½
White ... 6@6½
Light Amber ... 5
Beeswax ... 24@25

RICE

Wholesale selling price:

California ... 4.75@5.00
Broken ... 3.75@4.00

BEANS

Wholesale selling price:
Producer's price not far from one dollar under these quotations:

Limas ... 6.00
Bayous ... 6.00@7.00
Lady Washington ... 6.00
Pinks ... 4.65@4.75
Black Eyes ... 6.75@7.00
Lentils ... 14.00
Small White ... 5.50@5.75
Garbanzos ... 8.50

HAY

Prices to producer f. o. b. Los Angeles:
Following prices are on new hay.

Barley Hay ... 8.00@9.00
Wheat Hay ... 8.00@11.00
Tame Oat ... 9.00@12.00
Alfalfa ... 8.00@11.00
Volunteer ... 5.00@7.00
Straw ... 5.00@6.00

GRAIN

Wholesale selling prices f. o. b. Los Angeles:

Corn, Yellow ... 2.15
Corn, White ... 2.25
Wheat ... 2.05@2.10
Oats, White ... 1.90
Oats, Hulled ... 2.25
Egyptian Corn ... 2.20
Barley Seed ... 1.35
Barley, Hulled ... 1.70
Milo ... 1.85
Sunflower Seed ... 7.00

FEED STUFF

Wholesale selling prices f. o. b. Los Angeles:

Bran, Heavy ... 1.90
Alfalfa Meal ... 1.15
Alfalfa Molasses. per cwt. ... 1.20
Beef Scraps ... 3.00
Beet Pulp ... 1.20
Cracked Corn, cwt. ... 2.20
Cracked Wheat, cwt. ... 2.20
Cotton Seed Meal ... 1.80
Bone Meal ... 1.95
Meat Meal ... 3.00
Bone, Green ... 1.65
Charcoal ... 1.90
Oil Cake Meal ... 2.60
Fish Meal ... 3.15@3.25
Rolled Oats ... 1.95
Middlings ... 2.20
Rolled Barley ... 1.30
Feed Meal ... 2.25
Scratch Feed ... 2.10@2.30
Oyster Shell ... 1.15@1.25

The farm centers of Napa County will hold their annual jollification at St. Helena at the time the vintage festival is held, September 3-6, at which time there will be exhibits of stock and various farm products.

San Francisco Market

SAN FRANCISCO, June 22, 1915.

The prices given below, except where otherwise noted, are those made by wholesale or commission houses to retailers, and are intended to give producers the range of the market rather than an indication of prices which they will secure. Jobbers' quotations to producers are not given.

BUTTER

Prices to trade, 4 cents above following quotations:

Extras ... 25
Prime Firsts ... 24½
Extras ... 22½

CHEESE

Wholesaler to retailer.

Oregon Y. Am. ... 14½
Young America ... 12½
California Flats ... 8@11
Cheddar ... 20
Oregon Twins ... 13½

EGGS AND POULTRY

Prices to trade 3 cents higher than following quotations:

Extras ... 21½
Firsts ... 19
Select Pullets ... 19½

Price to producer:

Hens, lb. ... 13@14
Fryers ... 24@26
Broilers ... 18@20
Roosters—
Young ... 25@26
Old ... 9@10
Squabs ... 1.75@2.25
Ducks ... 12@16
Geese ... 2.50@3.00
Belgian Hares, lb. ... 7@8

LIVE STOCK

San Francisco prices, gross weight:

Steers ... 4@6½
Cows and Heifers ... 3@6
Calves, lb., live weight ... 6@9
Hogs ... 4¾@8
Wethers ... 6½@7
Ewes ... 6@6½
Milk Lambs, lb. ... 8@8½
Shorn stock ¾@1c less

POTATOES

Wholesale selling price:

Idaho ... 1.50@1.75
Idaho Russet ... 1.50@1.75
Burbanks ... 1.25@1.50
Oregon ... 2.00@2.25
New Delta ... 85@1.25
New Potatoes, cwt. ... 1.00@1.25

ONIONS

Wholesale selling price:

Onions, cwt. ... 65@85
Bermudas ... 65@75
Australian Browns ... 1.75@2.00
Oregon ... 90@1.00
Garlic, new ... 5@7

VEGETABLES

Wholesale selling price:

Asparagus, box ... 1.25@1.50
Canners price ... 1.00
Beans—
String ... 3@4
Wax ... 2@3
Brussels Sprouts, lb. ... 3@5
Celery, crate ... 50@1.25
Corn, Brentwood, Sack ... 1.75@2.25
Winters, sack ... 1.25@1.50
Fresno ... 75@1.00
Cucumbers, Southern, box ... 50@90
Egg Plant, lb. ... 3@7
Lettuce—
Sacramento, crate ... 75@1.00
Okra, crate ... 75@1.25
Peas, sack ... 1.00@2.00
Peppers—
Bell, lb. ... 10@15
Chili, Mexican ... 10@12½
Rhubarb—
San Jose ... 50@75
Alameda ... 40@60
Squash, Summer, lug ... 50@65
Tomatoes—
Imperial Valley, crate ... 50@75
Merced ... 40@50

FRESH FRUIT

Wholesale selling price:

Apples—
Newton Pippins ... 1.50@1.75
Red Astrachan ... 1.00@1.25
Other varieties ... 40@75
Apricots, crate ... 40@60
Bananas, Hawaiian, bunch ... 1.25@1.50
Blackberries, chest ... 4.00@6.00
Cantaloupes—
Ponies ... 35@1.00
Standard ... 50@1.25
Cherries—
Blacks, lb. ... 2@7
Royal Ann ... 4@7
Currants, chest ... 3.50@6.00
Figs, box, single layer ... 75@90
Gooseberries, drawer ... 40@60
Loganberries, chest ... 2.00@2.50
Loquats, crate ... 75@1.25
Peaches, crate ... 60@80
Pineapples, doz. ... 1.50@2.00
Plums—
Shipping ... 75@1.25
Cherry, drawer ... 45@60
Raspberries, chest ... 5.00@8.00
Strawberries, chest ... 4.00@6.50
Watermelons, lb. ... ½@1½

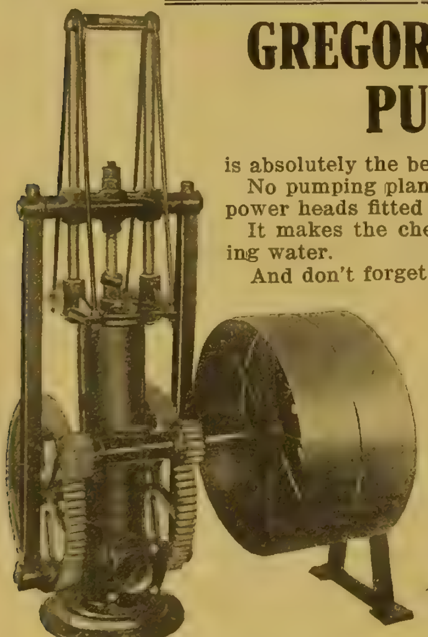
CITRUS FRUIT

Wholesale selling price:

Grapefruit, Seedless, new crop ... 1.75@2.75
Lemons ... 1.50@3.50
Lemonettes ... 1.00@1.75
Navels ... 2.00@2.75
Limes, Mexican, case ... 4.00@5.00
Tangerines, halves ... 75@1.75
Valencias ... 1.75@2.75

DRIED FRUITS

Wholesale Prices are:
Prunes—Bulk basis, 1914 crop almost



GREGORY'S Style "M" PUMP HEAD

is absolutely the best and cheapest power head made.
No pumping plant is complete without one of these power heads fitted with an R. & V. engine.
It makes the cheapest outfit in the world for raising water.
And don't forget that we carry a full line of

Belting, Pulleys, Packing, Cup Leathers

Etc., also

Lambert Steel Hoof Tractors, Moline Knight Automobiles and Accessories.

Wm. Gregory,
602-606 N. Main St.
Los Angeles, Cal.

Nicholls-Loomis Co.

BALE TIES

We are exclusive agents for the Pittsburg Steel Co. on bale ties in Southern California, the largest independent concern in the world manufacturing bale ties, and the quality is far superior to other makes. See us. We can save you money.

LARGEST SHIPPERS IN CALIFORNIA

PHONES 10969 BDWY 4011 — 1128 1140 SAN PEDRO ST. LOS ANGELES, CAL.

PIPE

For Every Purpose — NEW Threads and Couplings — Hot Asphaltum Dipped

2nd Hand and NEW

Screw Casing — Fittings and Valves — Guaranteed for Pressure

Pacific Pipe Co.

Main and Howard Sts., San Francisco

cleaned up; 30-40s, 5¾c; all other sizes, 5c; 1915 crop, Santa Claras, 30-40s, 4½c; 40-50s, 3½c; all other sizes, 3¼c. Outside sections ¼c lower.

Other Fruits—

50-lb. boxes—	Stan.	Ch.	Ex. Ch.	Fcy.
Evaporated apples	....	5¼c	5¾c	6½c
Apricots	6 c	7¼c	7¾c	9 c
Peaches	3 c	3¼c	3½c	4¼c
Pears	7 c	8 c	9 c	10 c

RAISINS

California Associated Raisin Company's f. o. b prices. 1914 crop, guaranteed against decline to August 1. Seeded fancy, 16-oz., 7½c; 12-oz., 5⅞c; bulk, 6c; choice, 16-oz., 6⅞c; 12-oz., 5⅞c; bulk, 5¾c; two-thirds fancy, one-third choice, 16-oz., 5c; per case, 48 pkgs., $3.40. Loose Muscatels, 3-crown, 50-lb. cases, per lb., 6c; 3-crown, 50-lb. cases, per lb., 5⅞c; 2-crown, 50-lb. cases, per lb., 5½c ;1-crown, 50-lb. cases, per lb., 5½c. Seedless Thompsons, 50-lb. cases, 6½c; 16-oz. pkgs., 7⅝c; 12-oz. pkgs., 6½c. Sultanas, 50-lb. cases, 6c; 16-oz. pkgs., 6¾c; 12-oz. pkgs., 5½c. Layers, bulk layers, 50-lb. boxes, $2.75; 6-crown, 20-lb. boxes, $2.75; 5-crown, 20-lb. boxes, $2.25; 4-crown, 20-lb. boxes, $1.60; 3-crown, 20-lb. boxes, $1.30; 5-lb. boxes, add 50c; 10-lb. boxes, 25c. Cartons, No. 1 clusters, 20 to case, $1.70; No. 2 clusters, 12 to case, $2.10; No. 5 clusters, 4 to case, $2.25. Local representatives of the Associated are asking about ¼c higher, while several of the larger independent packers are offering ½c under these figures.

BEANS

Wholesale selling price:

Limas	4.65@4.75
Pink	4.00@4.10
Black Eyes	6.00@6.25
Cranberry	4.80@4.90
Small White	4.65@4.80
Garbanzos	6.50@6.75
Large White	4.60@4.80
Bayou	4.65@4.75
Manchurian Speckled Bayous	3.60@3.80
Manchurian Butters	4.50@4.75
Red Mexican	5.40@5.50
Red Kidney	5.90@6.00
Horse Beans	3.50@4.00

HONEY

Wholesale selling price:

Comb, Water White	18
Light Amber	10@12
Amber	7@10
Extracted White	6@7
Light Amber	3½@4½
Dark Amber	2
Beeswax	25@28

HOPS
1914

Wholesale selling price:

Sacramento Valley	7½@9½
Sonoma-Mendocino	10½@12
Oregon Clusters	10½@12

HAY

We quote the average wholesale selling price of hay in carload lots on today's market as follows:

Fancy Wheat Hay (lt. bales)	13.00@14.00
No. 1 Wheat or Wheat and Oat	11.00@12.00
No. 2 Wheat or Wheat and Oat	8.00@9.00
Choice Tame Oat	12.00@12.50
Other Tame Oat	7.50@10.00
Barley	5.00@8.00
Wild Oat	6.00@8.00
Alfalfa	6.00@9.00
Stock Hay	4.50@5.00
Straw, per bale	40@45

GRAIN

Alfalfa Seed	16½
Wheat, Cal. Club	1.70@1.72½
Corn, Eastern Yellow	1.72½@1.73¾
Corn, Eastern Yellow	1.77@1.78½
Barley Feed	1.02½@1.07½
Barley Feed	1.00@1.05
Oats, Red, Feed	1.35@1.40
Oats, White Feed	1.45@1.50
Millet	2½@3¼
Flaxseed	5@5½
Rye	2.00@2.25
Sunflower	5@5½

FEED STUFF

Wholesale prices.

Alfalfa Meal, car lots	13.50@14.50
Bran, ton	26.50@29.50
Feed Cornmeal	40.00@41.00
Cracked Corn	40.00@41.00
Rolled Barley, ton	23.00@24.00
Rolled Oats, ton	37.00@37.50
Middlings	32.00@34.00
Shorts	30.00@31.00
Oilcake Meal	38.00@39.50
Cocoanut Oilcake Meal	24.00@25.00

Citrus Fruit Market

Los Angeles, June 23, 1915.

Shipments of oranges from Southern California to date since November 1, 1914, 28,110 cars, lemons 4593; total 32,703. To same date last season: Oranges, 30,343, lemons 2083; total 32,426. From Tulare County: Oranges 5644, lemons 197; total 5841. To same date last season: Oranges 583[illegible], lemons 30; total 5866. From northern counties: Oranges 630, lemons 2. To same date last season: Oranges 404, lemons 5.

Money Making Little Liners

Inserted in These Columns Under a Classified Heading. A Clearing House for Our Many Thousands of Readers
LINER RATES ARE 12c PER LINE PER ISSUE
No Ad Accepted for Less Than 36c Per Issue. Figure 6 Words to a Line

WANTED

Wanted—A party that understands dry farming in Mojave Desert. Room 612, 110 Sutter St., San Francisco.

Wanted to hear from owner of Farm or Fruit Ranch for sale. O. O. Mattson, Minneapolis, Minn.

Agents wanted to sell W. R. P. Legume Bacteria. Western Rock Products Co., Balboa Bldg., San Francisco.

Wanted Good Farm, or unimproved land from owner. H. L. Downing, 105 Palace Bldg., Minneapolis, Minn.

LUITWIELER PUMPS

Absolutely non-pulsating. Minimum power required. Write for our free pump booklets.

LUITWIELER PUMPING ENGINE CO.

707-709 N. Main St. Los Angeles

San Francisco Agents

Simmonds Mach. Co. 117 New Montgomery

TREES

Rialto Seedless Lemon Trees—Write or phone for Brief History and it will be mailed to you. The coming Lemon for California. Also Seedless Grapefruit—Valencias, Washington Navels—Eureka and Villa Franca Lemon—Mexican Lime—Ganter and Harmon Avocado Pears. We are making special inducements to planters. Prices on application. We have first-class stock and can make deliveries from San Bernardino, San Diego and Los Angeles Counties. We are not jobbers but selling our own grown trees. Buds selected from the best bearing trees. 25 years in Southern California growing and handling citrus trees. Yours for good business.
CALIFORNIA ORCHARD DEVELOPMENT CORPORATION
303 South Hill Street
Main 884 Los Angeles, Cal. F-7406
or
Cyrus W. Wilhite
Home 303 Glendora, Cal.

AVOCADO TREES
Investigate the wonderful Avocado industry. A ranch planted now will make you independent in a few years. Write for further information and literature. Vigorous field-grown budded trees of standard frost-resistant variety, from four to seven feet high, $1.50 to $2.00. W. A. Spinks, Duarte, California.

Prices Reduced—Ganter and Harman Avocados, 4 to 7 ft., extra fine field grown trees with large, even heads; on rented ground and must be sold. Our prices will surprise you. Citrus also reduced. Magnolia Nursery, Whittier, Cal.

Eureka Lemons, Late Valencia, Washington Navels—⅝ up. Thrifty, clean stock 20c open root, 25c balled. Quality considered, you can not beat it. Call or write Wilbur K. Howard, Loraine avenue and Santa Fe crossing, Glendora, Cal.

For Acacias, Avocados, Budded Loquats, Citrus trees, Evergreens, Feijoas, Palms, Roses and all kinds of trees, shrubs, vines, etc. Write for our new catalogue. Robertson Nurseries, Fullerton, Cal.

For Sale—Navel, Valencia and lemon trees, three-quarters inch and up, 20c loose root, 25c balled. Budded Avocados, 4 to 7 feet high. Address Box 54, Glendora, Cal.

Very Fine Sweet and Sour Orange Seed-Bed Stock — PRICE REASONABLE. MIGHT TRADE FOR GOOD AUTO OR TEAM. ORANGE COVE NURSERIES, OROSI, CAL.

CHALLENGE AVOCADO TREES—WE HAVE SOME. MOST PROLIFIC LOCAL FRUIT PRODUCED. THEY ARE SCARCE. C. T. JAMES NURSERIES, BRALEY BLDG., PASADENA.

For Sale—Eureka Walnut Trees, budded on Native Black Walnuts. Choice stock. Order immediately. Don't delay. Wm. Holve, Fullerton, Cal.

100,000 Citrus Trees—Choice Seedlings and Buds. Wanted, a budder. Butler's Morning Side Nursery, Lamanda Park, Cal.

For Sale—Field-grown budded avocados, Harman, Ganter, Taft; 2 feet to 7 feet high, $1.00 to $3.00. Home Phone 444. A. B. Rogers, Glendora, Cal.

Nurserymen—Pot grown conifers, palms, shrubs and ferns for lining out or potting. Ballou's Nursery, Pasadena, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited

AVOCADO BUDDING
T. U. BARBER, 2099 LA BREA AVE.
HOLLYWOOD, CAL.

Cactus and Trees—Cash Nurseries, Sebastopol, Cal.

MACHINERY

USED RANCH MACHINERY, PUMPS, WINDMILLS, TANKS, ENGINES, HAY MACHINERY, PUMPING PLANTS. SPECIAL SNAP, PRACTICALLY NEW
38 H.P. White Middleton engine complete with $65 friction clutch, $75 belt, 5 two-step B. J. Centrifugal pump with frame, shafting, pipe, fittings, pulleys, gates, 50,000 gal. redwood tank, 30-ft. stand. Take entire plant for $1200, engine alone cost $1500, or will separate.
WHY BUY NEW? SAVE HALF
MATERIAL GUARANTEED
PUMPS—PIPES—CYLINDERS
Double - acting LUITWEILER pump complete with cylinder, pipe and rods, $325; pump alone cost $680. Bulldozer jack, $32; many other pumps, all kinds and sizes.
WINDMILLS, TANKS
8-ft. mills, $19.50; 10-ft., $27.50; 12-ft., $45. NEW 1000-gal. tanks, $19.50; 2000, $29.50; 3000 used redwood and stand, $30; 30,000 redwood like new, $125; many others 50 gallon up. H. P. BALER, $90; SOUTHWICK power baler, $350, cost over $700; WHITMAN power baler, $200. Steam tractor with complete baling outfit, $600.
Mowers, Rakes, Sprayer, harrows, potato, beet machinery, Fan Mill, Corn Sheller, small ranch tools.
ENGINES, PUMPS, BOILERS
Eighty H. Boiler, Smith Valle Steam engine 14x18 and Compressor 12x18, $1000, cost $6000. Absolutely cheapest serviceable material can be produced for. Pioneers in our line. DEMMITT CO., UPSTAIRS, 120 N. Main, Los Angeles, Yard, 816 Yale. Buy Tools of All Kinds.

For Sale—Used and new Gas Engines, 2 H. P. up, rebuilt and fitted with modern equipment. 22 years' experience enables us to repair and rebuild Gas Engines correctly. Get prices. Lloyd, 806-808 N. Main St., Los Angeles. F7020—Broadway 4103.

HORTICULTURAL PRINTING

Catalogues for the seed and nursery trade. The live stock and poultry industries are a specialty with us. Two thousand illustrations to select from. Write for prices and samples. The Kruckeberg Press, 237 Franklin St., Los Angeles

SCHOOLS AND COLLEGES

Telegraphy — Stenography, bookkeeping, English branches. Positions guaranteed. Mackay Business College, Los Angeles.

FARM LANDS FOR SALE

Free—"True Blue" 1915 Booklet. Tells the "how," "why" and "where" of overlooked State and Government Land bargains. Write CALIFORNIA STATE LAND INFORMATION BUREAU, SACRAMENTO.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

For Sale—You can own your own 10-acre ranch and home with water for $750.00, $150.00 cash and $150.00 a year; 7 per cent interest, in Fruitland Colony Lands. F2467. 1005 S. Main St., Los Angeles, Cal.

I have some cash buyers for salable farms and ranches, owners only, write C. C. Buckingham, Houston, Texas.

For Sale—On reasonable terms, 40 acres young orchard. Implements, Buildings, everything complete. G. C., 1015 I St., Fresno.

For Sale—Magnificent 372 acre ranch. If interested, see it quick. Write owner, Box 2, Arroyo Grande, California.

MISCELLANEOUS

Mr. Building Material Buyer:
Having severed my connections with the various wrecking companies with which I have been associated in the past, wish to announce that I have established yards at 1639 Mission street, San Francisco, where I will have on hand at all times a full line of new and second hand building materials, A No. 1 in quality and reasonable in price. Would appreciate an inquiry from you when in need of anything in my line, and should I be fortunate enough to secure your order, will fill it in such a manner as will incline you to favor me with any further business that you may have.
Yours for business,
DAN P. DOLAN,
1639 Mission Street, at 12th, San Francisco, Cal.

Free for Six Months—My special offer to introduce my magazine "INVESTING FOR PROFIT." It is worth $10 a copy to anyone who has been getting poorer while the rich, richer. It demonstrates the REAL earning power of money, and shows how anyone, no matter how poor, CAN acquire riches. INVESTING FOR PROFIT is the only progressive financial journal published. It shows how $100 grows to $2200. Write NOW and I'll send it six months free. H. L. Barber, 430, 28 W. Jackson Blvd., Chicago.

Walnut Budding—I have originated the only successful method of budding walnuts. Full particulars and natural cut mailed on receipt of $1.00. W. A. Barnett, Vacaville, Cal.

Living Expenses Reduced Through Co-operative Buying—Open to all. Write for catalog and particulars. Pacific Co-operative League, Dept. C, 236 Commercial St., San Francisco.

"Smith's Pay the Freight"—To reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St., San Francisco.

For Sale—1000 feet fire hose with couplings complete. First-class condition. B. Gold, 114½ N. San Pedro St., Los Angeles. Broadway 194.

POULTRY

Just Out—The Cultivator Poultry Book. "Poultry for Profit," by Jean A. Koethen. Published by the Cultivator Publishing Co. Highly endorsed by experts. Over 200 pages, 50 illustrations Contains simple methods of avoiding and overcoming difficulties. A guide to poultry success under Western conditions—it tells what to do, why to do it, and how to do it. Nicely bound in cloth. Price $1.00 postpaid, or with Cultivator one year, $1.75. Send orders to Cultivator Publishing Co., 115-117 North Broadway. Los Angeles, Cal.

Buff Minorcas—Owing to recent ranch fire we are short on space and will sell 100 breeding stock at one-third off to move them quickly. Our birds took "FIRST" last November. "Satisfy customers" our motto. Eggs, one-third off regular prices. Special price for the full 100 birds on one order. Cedarhurst Ranches, R. D. 2, Sacramento.

Baby Chicks—Rhode Island Reds and White Leghorns. My guarantee safe arrival, full count, strong, vigorous; fine bred chicks, Leghorns, $9.00 per 100. Will lay in five months. Reds, $11.00 per 100. Will lay in six months. J. W. Lyon, Gardena, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately . National Poultry Co., 607 E. Third St., Los Angeles, Cal.

Baby Chicks—Electric Hatched. White and Brown Leghorns, R. I. Reds, Barred Rocks, Black Minorcas and Anconas. Special prices for June and July. The ORLAND HATCHERY, ORLAND, GLENN CO., CALIF.

Barred Plymouth Rocks—"The kind that Lay and Win." Choice stock for sale. Catalog free. C. H. Vodden, Los Gatos, Cal.

At Your Service 365 Days in the Year—First-class chix; eggs for hatching, eight breeds. Hawkeye Hatchery, Turlock, Cal.

MUSICAL INSTRUMENTS

Special Piano Offer to country buyers, for a short time only. Any piano or player piano at $100.00 special discount. Ten different standard makes, styles and finishes to select from. Act quick. Address GIRARD PIANO COMPANY, 517-519 14th St., Oakland, Cal. Established 1873.

We repair, buy, sell and exchange musical instruments; used instruments, good as new, sold cheap. Write for bargain list. Bolander's Fiddle Hospital, 52 Second street, San Francisco.

LIVE STOCK

Billiken Herd—Pure bred, pedigreed, O. I. C. swine; the big white kind. Ready for immediate shipment; weaned pigs of both sexes; pairs and trios; mates not akin. All these pigs are from big type stock, of extra heavy bone; weight with early maturing quality. Immunized against hog cholera; crated and registered free. Write for descriptive circular and price list. C. B. Cunningham, Mills, Sacramento County, California.

Hogs—Forty head of BIG TYPE POLAND CHINA boars of any age. Sired by IOWA WONDER, who is a son of A WONDER, the greatest hog living or dead. No females to sell at present. On account of large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

For Sale—Registered Tamworth swine—**boars, sows and gilts of this famous** bacon hog. This breed **commands a premium on the market. Our original sows from the University Farm at Davis. Sweetwater Fruit Company, Bonita, San** Diego County, Cal.

Big Money in Milch Goats—But you must learn the business—feeding, care, breeding, diseases. Mistakes costly. Booklet tells how—based on 8 years' experience in U. S., also data from hundreds of others. Send 3 dimes; 1st ed. nearly gone. B. C. Pub. Co., 2939 E. 16th St., Oakland, Cal.

Grape Wild Farm Thoroughbreds—Guernsey Bulls of A. R. Breeding. BERKSHIRE HOGS. Finest herd in the state. All ages for sale. A. B. Humphrey, proprietor. Mayhews, Sacramento Co., California.

Cholera Immune Berkshire Pigs—All ages. Registered Holstein bull. Prairie Pietertje 107062, three years old—gentle and guaranteed in every way. Selling to avoid inbreeding—$300.00. Riccomi Bros., Mountain View.

For Sale—Registered. Berkshires:. 25 choice pigs of best breeding from the best strains in America. For prices and description address H. L. Murphy. Perkins. Sacramento Co., Cal.

For Sale—A few O. I. C. boars ten months old, also pigs two and three months old. Registered. Special offer to those who write within three weeks. Address G. H. DuBois, San Martin, Calif.

Blatchford's Pig Meal weans pigs easily and safely; no trouble; no milk. Write for free folder, "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

Milch Goats—Toggenburg Guggisburger yearling does from a very heavy milking family—high grade Saanen buck kids. Mason & Son, R. 2, Phoenix, Ariz.

For Sale—At all times, Jacks and Stallions, driving and saddle horses. Price and stock guaranteed. Phillips and Kingsbury, 2318 G Street, Sacramento.

Berkshires—Pedigreed Boars ready for service. Bred sows, weanling pigs, both grade and thoroughbred, finest stock. C. H. Thompson, Novato, Cal.

Duroc Jersey Swine—Registered boars, no gilts for sale. Guarantee satisfaction. Prices reasonable. H. P. Eakle, R. F. D. 3, Woodland, Cal.

For Sale—Bred sows and gilts. All cholera immune—and extra choice large stock. Main 1326—F-6350. Mr. Hill, 429 Union Oil Bldg., Los Angeles, Cal.

Poland Chinas—Young stock; either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

Glenview Poland China—Stock for sale. Chas R. Hanna, R. F. D. No. 3, Riverside, Cal.

Pedigreed Duroc Jersey Boars or sow pigs—Extra fine. John Kincaid, Box 151, East Bakersfield, Cal.

For Sale—Thoroughbred Duroc Jersey Boars and Gilts, strong and vigorous stock. Fred Hart, Exeter, Cal.

Berkshires—Boar pigs for sale, Butte City Ranch, Butte City, Glenn Co., California.

N. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale.

RABBITS

Leading Rabbitry in America—Flemish Giants a specialty. Prize winning and heavy weight stock. Scored and sold on their merits. Inquiry and inspection solicited. Catalogue on request. Empire Rabbitry, Empire, Cal.

Ripon Rabbitry selling out, account going East. Rich racy Rufus Reds, Does with litters and youngsters all ages go at half price during June only. Howard C. Jones, Ripon, California.

Bosworth's Imperial Red New Zealand Hares sold at hard times prices. NOTHING BETTER. Geo. M. Bosworth, Geyserville, Cal.

SEEDS AND PLANTS

Increases Milk Flow, Egg Laying and animal weight 25 per cent. Cheapest feed. Plant now Luther Burbank and Mediterranean Spineless Cactus. ROBINSON CITRUS NURSERIES, R. F. D. 35-A, San Dimas, Cal. Covina phone 902.

Burbank Spineless Cactus—Hardiest varieties, "Melrose" and "Special." Strong, matured slabs. $8.50 per 100; $50 per 1,000. Labranza Ranch, Athlone, Merced Co., Cal

Genuine Burbank Spineless Cactus—Strong mature slabs, $6 per 100—$50 per 1,000. Thos. Cathers, Morgan Hill, Cal.

KODAK FINISHING

Developing, 10c per roll. Printing, 2¼x3¼, 2½c; 2½x4¼, 3c; 3¼x4¼, 3c; 3¼x5½, 4c. Denver Store, 706 S. Hill St., Los Angeles.

Gas-Stove Convenience with Kerosene

A good oil stove is like a gas stove —ready at the touch of a match. Any degree of heat you want *instantly* by simply raising or lowering the wick.

New Perfection Oil Cook-Stove

For Best Results Use Pearl Oil

Burns oil, the clean, cheap fuel. It roasts, toasts, broils, bakes—better than your kitchen range. No wood, coal or ashes to lug—no soot or dirt—no odor—does not taint the food. And your kitchen is always *cool*. Several sizes and styles. Ask your dealer. See Exhibit, Palace of Manufactures, Panama-Pacific Exposition.

STANDARD OIL COMPANY
(California)
Los Angeles

The Service of
STILETTO

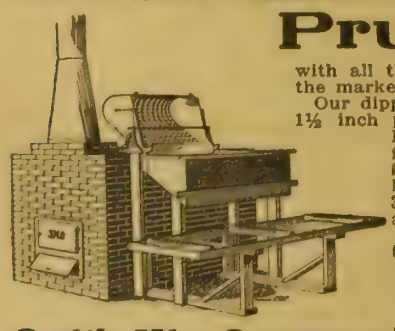
Dependable service, always, proves superiority.
A —STILETTO— tool improves upon acquaintance.
It gives superlative service long after it has served its first usefulness.
When you buy a —STILETTO— hammer, saw, screwdriver, chisel, brace, bit, axe, hatchet or in fact any article bearing this famous trade-mark you may be sure that the more you use it the more pleased you will be with it.

If your dealer does not sell —STILETTO— write for the name of the dealer who does.

Pacific Hardware & Steel Co.
701 Townsend St.
SAN FRANCISCO, CAL.

STILETTO
REG. U.S. PAT. OFF.

Prune Dippers



with all the latest improvements, best and cheapest on the market.

Our dipper consists of tank made of No. 14 steel with 1½ inch pipe coil. Basket weights, levers and frame. Furnace front and irons, grate bars, tie rods, 10 ft. 9 in. galv. iron smokestack. Price f. o. b. $60.00
Hopper and Spreader 15.00
30-in. Green Grader, 3 grades, suitable for above 85.00

Large power dipper and grader, capacity 75 tons per day:
24-in. Hand or Power Dry Graders:
3 grade $55.00
4 grade 60.00
5 grade 65.00
Field cars, wood or steel frame 6.00
Transfer cars 8.50
Turn tables 8.50
8-lb. steel rails, 7cts. per foot.

Smith Mfg. Company
200-224-226 The Alameda ***San Jose, Cal.***

Advertisements in California Cultivator are Guaranteed
See Announcement at Head of Editorial Page

The Household Department

IT IS GOOD TO BE ALIVE

It is good to be alive when the trees shine green,
And the steep red hills stand up against the sky;
Big sky, blue sky, with flying clouds between—
It is good to be alive and see the clouds drive by!

It is good to be alive when the strong winds blow,
The strong, sweet winds blowing straightly off the sea;
Great sea, green sea, with swinging ebb and flow—
It is good to be alive and see the waves run by.

—Charlotte Perkins Stetson.

THE OLD SQUIRE'S EDEN

(Concluded from last week)

The more we thought about it, the more certain we became that the motive of the thief, or thieves, had been to get complete possession of this valuable new kind of potato. Of course all our neighbors, and in fact many farmers in the vicinity, knew of the old squire's potato garden. The neighbors, however, were above suspicion. Indeed, they all helped us to try to get some trace of the rogues. But the thieves had apparently planned the theft with care; at any rate, they had left no track behind them.

We had never seen the old gentleman so downcast by a loss. He had experimented so long in the potato-ball garden, and was so proud of the fine new variety, that the thought that the Bobolinks had been stolen, just to boil for food, perhaps, grieved him to the heart! He could hardly bring himself to speak of it.

About a mile and a half from us lived a young farmer of not very good character, and we soon suspected that he was concerned in the theft. Addison heard that on the morning after our potatoes had been stolen, this man had been seen driving on the road with two barrels in his wagon; he told several people, however, that the barrels contained pears that he was carrying to Portland to peddle from house to house. There was little doubt that he knew about the old squire's experiments in the potato garden, and that he was aware of the value of the new variety; bue we could not get any proof against him. What he could have done with the potatoes we could not guess. He could not have planted them himself, or sold them for seed to any farmer in Maine, without our learning of it.

Two years passed. The loss distressed the old squire so much that he let his potato garden lapse, and seeded the patch down to clover.

Then at last in a Western agricultural paper some oi us read about a new variety of potatoes, called the Jim Crows, that were advertised for seed. According to the description their fine qualities were so much like those of the lost Bobolinks that the old squire wrote asking to have a little package of them sent to him by mail.

No potatoes came, and he wrote again, but got no reply. He wrote a third time, and at last received a letter saying that the stock of seed was exhausted. But for months afterward the advertisement continued to appear in the agricultural paper; that seemed so singular to us that we wrote to the postmaster of the town where the owner of the potatoes lived, and asked about his character and his standing as a citizen.

The postmaster's reply was peculiar, it neither vouched for the man's character nor alleged anything against him. In the same letter the postmaster remarked that there was, apparently, a large sale for the Jim Crow potatoes, and also that he had raised them one season himself, and would be very glad to send us a few of them. A day or two later he sent us a little package of four potatoes.

From the moment we opened that package neither the old squire nor any of the rest of us had the slightest doubt that the Jim Crows were our lost Bobolinks. They were like them in every particular.

Meanwhile another peculiar circumstance came to light. Through one of our hired men, who was a relative of the young farmer whom we had suspected, we learned that the fellow had an uncle living in the West, a farmer, of the same name as the owner of the so-called Jim Crow potatoes. Further inquiries proved that the uncle was indeed the man who had advertised the potato seeds.

Evidently the young farmer had stolen the old squire's Bobolinks and sent them West, where his uncle had rechristened them the Jim Crows. That he had made large profits from them was indicated by the fact that he had recently sold his small farm, purchased a larger one, and stocked it expensively.

We younger members of the family were for bringing action at once against the two rogues; but the old squire pointed out that we could never bring them to justice, for our case against them had a fatal defect. We could not produce in court a single specimen potato of the original Bobolinks that had been stolen. And a court of law could not take our unsupported word for it that—after two years—this Western seed potato was the same as ours that had been stolen so long before. And even if we could have proved it, the Western uncle would have declared that he had been secretly growing seed potatoes from the ball, and that he had hit on a variety similar to ours. So we had nothing to do except to let the case drop. Curiously enough, from the moment

NEXT WEEK

Owing to the index being published this week our prize contest recipes have been crowded out. They will be given next week. They are more than usually good and are well worth waiting for.

Delicious Brown Bread

A Simple Recipe Popular With Housewives All Over the Country

As an accompaniment to that dish so popular with the American public—"Boston Baked Beans"—brown bread is in almost as great demand. The making of good brown bread, therefore, should be one of the accomplishments of every efficient housewife. The next time you serve baked beans, try this little recipe for making the brown bread to go with them:

2½ cups yellow cornmeal; ½ cup Kingsford's Cornstarch; ½ cup flour; ½ cup rye meal; 1½ heaping teaspoons soda; 1 teaspoon salt; 1 cup Karo Syrup; 3½ cups sour milk. Sift the dry ingredients together till thoroughly mixed. Add the Karo and stir in the sour milk. Mix well and steam four hours.

The Karo Syrup referred to in this recipe, as well as the Kingsford's Cornstarch, can be obtained at all modern grocers. Satisfactory results cannot be promised if inferior ingredients are used. Karo Syrup is used by discriminating housekeepers and eminent chefs in all parts of the country—and you can safely be guided by their experience.

In ordering Karo Syrup, ask your grocer for the little Karo cook book containing hundreds of valuable recipes for making breads, biscuits, rolls, griddle cakes, waffles, cakes, cookies, candies and hundreds of other delicacies—one trial of which will make the family happy.

that the old squire became convinced that the Jim Crows and his lost Bobolinks were the same, he cheered up. He began to laugh over the whole affair.

"I was afraid some one had eaten them," he said. "That would have been a pity. But now they're spreading and doing good in the world—just as much perhaps as if I had sold them myself."

Addison was inclined to see the matter in a different light. "That money was yours, sir. You surely ought to have it!" he exclaimed.

"Of course, of course!" said the old squire, still smiling. "But, after all, the main thing for us to accomplish in life is to keep this old world of ours going ahead for the better."—Youth's Companion.

Enlarge Your Cooking Possibilities

By a Little Study on the Manifold Uses of Cornstarch

If cornstarch could be used for only one purpose—the making of a good pastry flour (by simply mixing with the regular bread flour in the right proportion)—it would be an invaluable aid to every housewife. However, this is only one of hundreds of ways in which cornstarch can be used to advantage by the efficient cook. In fact, no one can realize all the possibilities of good cooking without a thorough knowledge of this delicious and all-important food product.

Many kinds of bread, pastries, griddle cakes, waffles, fritters, cookies, icings, puddings, ice cream and dozens of other desserts will be made much more delicious by the use of cornstarch.

But in order to obtain the best results it is essential that the best quality of cornstarch be used. Ordinary cornstarch cannot be depended upon for the results you desire.

Correspondence with housekeepers in all parts of the country has developed the fact that those who have the most success with cornstarch recipes, invariably use the famous Kingsford's brand. Kingsford's Cornstarch can be obtained at all modern grocers. It costs no more than inferior kinds. Insist upon Kingsford's and ask your grocer for a copy of the little Kingsford's cook book containing hundreds of valuable recipes—many of which were contributed by eminent culinary experts in all parts of the country.

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The End of The Ant Nuisance

No Need to Suffer Longer From This Pest

An old philosopher once said, "All these things shall pass away." It was a long, long time after this truth was given to the world, however, before a means was discovered to make ants pass away and stay away.

In the meantime thousands of women in all parts of the world have been driven almost to distraction by this intolerable household pest.

It remained for a mere man to find the remedy. A baker and candy-maker in Los Angeles, whose place was over-run with ants, had reached a point where he must either get rid of the ants or go out of business. After much experimenting he prepared a paste which drove every ant out of his shop in one day.

This wonderful remedy can now be had at all druggists under the name of Kellogg's Ant Paste. Try a package today, and you will never be annoyed with ants hereafter.

JULY PRIZE CONTEST

For outdoor lunches. A subscriber has asked for suggestions for picnic lunches, campfire parties, etc., for the vacation good times.

For best list of good things for outing lunch with one recipe the Cultivator will give $2.00; for second best, $1.00. All published will receive three months' subscription to the California Cultivator. If a member of your family is now subscribing send the name that subscription may be extended.

Those who have received one extension of subscription this year are not entitled to another. All may however compete for cash prizes.

Write Early

Write early. All letters should be in this office by the morning of July 15. Recipes will appear in issue of July 22.

Please write on one side of paper only. Address letters to California Cultivator, Los Angeles. Send only one suggestion, the one you yourself think the very best. So much splendid material was contributed for the June contest that we could not use for lack of space that our feelings were dreadfully hurt; we wanted to use it all and we wanted you all to see it all. Therefore we will ask you to do the selecting yourselves of the one best.

Send Suggestions

Any suggestions for future contests will be gladly receieved. The Cultivator wishes to give what its readers most need or are most interested in. The present issue's presentation of use of soda in baking was the result of a request from a subscriber, as is the subject of the July contest. Send in a subject for August.

"G" BEFORE "I."

It is not bewildered foreigners alone who fall into the traps for the unwary that our confusing grammar and orthography lay. Many a despairing American, with no natural aptitude for spelling, hesitates, or flies to the dictionary long after his student days are over, because, although he remembers the rule, he does not remember the exceptions.

"And in our rules of spelling," protested one unfortunate professor—not of orthography—"it isn't even a case of 'majority rules'; it's merely plurality. Sometimes, I'm sure, the minority of exceptions to a rule isn't beaten by the words that comply with it by more than one!"

A recent correspondent of the New York Sun recalls an illustrative incident of his school days. His teacher was self-satisfied and young, and thought he knew it all—but did not.

There was in the class a young lady who rejoiced in the good Scots name of Gillies. When the class was organizing, the "professor" read her name as "Jillies." The young lady protested, but in vain: "'G' before 'I' is soft!"

Well, of course an eighth of a quart is a jill, but what of a fish's gill? And the "know-it-all" teacher should have been hanged on a g(j)ibbet; but even he would not have asked the hardware man for a jimlet. Not in his jiddiest moment of pedagogic authority would he have said, "Jilbert, jive me a jilt-wheeled jig" if he wanted the liveryman to supply him a gig with gilded spokes for his holiday diversions. Not even he, snapshot arbiter of linguistic niceties, would have asked at the library for Jibbon's "Decline and Fall." And if he has a daughter will she be a jirl? But Gillies must be called Jillies, because "g" before "I" is soft.—The Youth's Companion.

From the Cocoa Bean to Chocolate

The entire process is shown in the Ghirardelli Building at the Exposition. The machinery used and the care necessary to produce the famous Ghirardelli Chocolate and Cocoa are fully explained.

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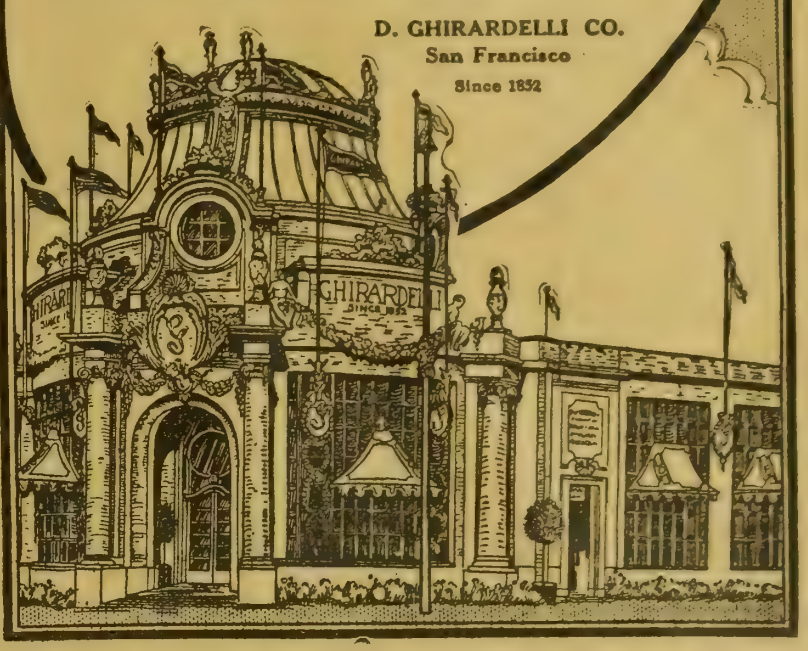

Buy Telephones for Telephone Service

THERE is as much difference in telephones as in automobiles, and they should be bought as carefully. You want to use a phone giving reliable service. Cheaply made phones sometimes give good service for a week or a month; then trouble begins. Repair bills make cheap phones costly. Voices come over the wire faintly. Many sounds do not get over at all.

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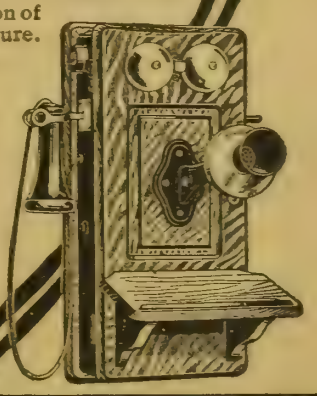

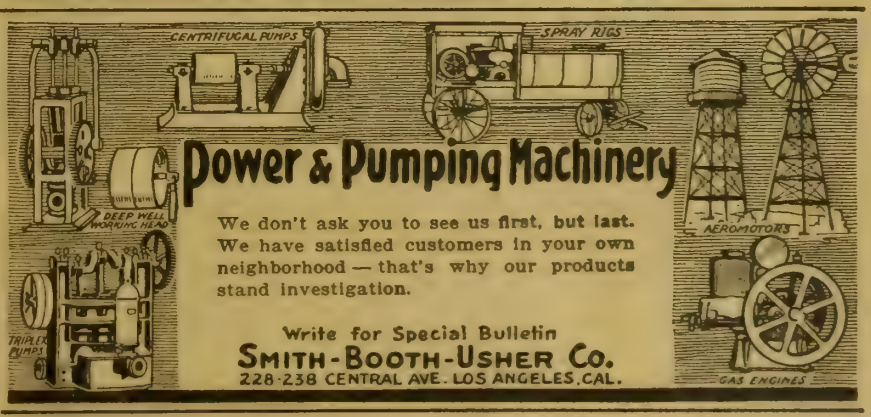

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